

**WILDLIFE IS OUR GOLD:
POLITICAL ECOLOGY OF THE TORASSI RIVER BORDERLAND,
SOUTHWEST PAPUA NEW GUINEA**

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A thesis submitted to the
School of Social Science
The University of Queensland
for the degree of
Doctor of Philosophy

December 2004

DECLARATION

Except where otherwise acknowledged in the text, this thesis represents original research undertaken by the author for the degree of Doctor of Philosophy of The University of Queensland. The material herein has not been previously submitted, in whole or in part, for a degree at this or any other university.



Garrick Hitchcock

December 2004

DEDICATION

Dedicated to the memory of

Dr Budai Tapari (1954-2003)



Plate 1. David Kumbuimu, Budai Gusai and Budai Tapari at the MM14 border monument, Torassi Rivermouth, 12 January 1998.

ABSTRACT

This thesis is a critical ethnographic account of the Wartha people, a small group of hunter-horticulturalists living on the Torassi or Bensbach River, in the southwest corner of the Western Province of Papua New Guinea (PNG). This area is adjacent to the international border between PNG and Indonesia's Papua Province (West Papua).

Since 1895, the mouth of the Torassi has anchored the southern border between New Guinea's colonial territories and their successor states. The Wartha experience of colonial and postcolonial developments has been shaped by their borderland status. Up until the 1960s, the Wartha had sporadic contact with outsiders and virtually no involvement in the cash economy. Subsequent state and capitalist encroachment has often attempted to manage or exploit the area's abundant wildlife, which Wartha have described as 'our gold'. These engagements have led to social disruption, including conflicts over lands and resources, and the erosion of their moral economy.

A political ecology perspective is employed to analyse the Wartha relationship with their dynamic, biodiversity-rich savanna environment, and their interaction with wider political and socio-economic systems on a remote, underdeveloped borderland.

Past consideration of conservation and development in the area has focused on problems of distance, environment, economic resources, infrastructure and services. I argue that a detailed understanding of core aspects of Wartha society—kinship and exchange relations, political leadership, and associated cultural orientations—elucidates the nature of articulation with outside others. Contestation over resources, and landscape change, must also be understood with reference to the transboundary region in which these occur, a zone of engagement between two contiguous borderlands, enmeshed within wider polities and biophysical processes.

The Wartha live on the periphery of the PNG state, and have limited involvement with wider markets. Nonetheless, articulation with capitalism on an Asia-Pacific borderland has resulted in deleterious social and environmental outcomes; developments that can be explained using a political ecology approach. In so doing, this thesis presents new insights on the Melanesian experience of modernity, and makes an anthropological contribution to the growing literature on border studies.

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NOTE ON ORTHOGRAPHY AND TRANSCRIPTION

Orthography

In this thesis I adopt an orthography based on that used by Ayres (1983:xix), which is a simplified version of that employed by Williams (1936:xxxv-xxvi) in his book, *Papuans of the Trans-Fly*. During my time in the field no indigenous alphabet was available; I have since been informed that missionaries have recently produced one for *Thuntai* (Marco Boeve, personal communication, 2004).

ng the sound in ‘sing’: *ngoi* (‘pig’)

eu the sound in the French ‘feu’ (‘fire’): *teuwiteuwi* (Goshawk, Accipiter sp.)

ei the sound of ‘a’ in ‘fate’: *sei* (‘rain’)

tj similar to the sound of ‘ch’ in ‘church’: *montj* (‘drain’)

Other notes:

r the ‘r’ sound often has an imperceptible trill, e.g. *kor* (‘place’)

p, f these sounds are interchangeable, e.g. *par* / *far* (‘high riverbank’ or ‘levee’)

Transcription

Wartha words are shown in italics, but the names of people, places, persons, and clans are written in the standard typeface; names of ships also appear in italics. Words in languages others than Wartha and English are underlined (e.g. Bahasa Indonesia, Police Motu, Dutch), as are Western scientific names.

GLOSSARY OF INDONESIAN WORDS

A number of Bahasa Indonesia (BI) words have entered the Wartha lexicon; some are direct loans, others corruptions. A number of the more common terms are listed below. Indonesian definitions are from Echols and Shadily (1989); particular local usages appear in square brackets.

<u>asam</u>	Tamarind, <u>Tamarindus indica</u>
<u>ayam</u>	chicken, <u>Gallus gallus</u>
<i>Balanda</i>	Dutch, Dutch person (from BI <u>Belanda</u>)
<i>betik</i>	Climbing Perch, <u>Anabas testudineus</u> (from <u>betok</u> , BI name for this species)
<u>besi</u>	iron [also refers specifically to large metal arrowheads]
<i>blangan</i>	metal cooking pot (from BI <u>belanga</u> , earthen cooking pot)
<u>garam</u>	salt
<i>guda</i>	horse (from BI <u>kuda</u>)
<i>Jawa</i>	Java, Javanese
<u>kain</u>	cloth, fabric, material
<i>lampa</i>	lamp, light [especially kerosene lanterns] (from BI <u>lampu</u> , or English lamp)
<i>lombu</i>	chilli [a variety of long chilli] (from BI <u>lombok</u> , chilli pepper)
<u>lele</u> ¹	freshwater catfish, e.g. Walking Catfish, <u>Clarias batrachus</u>
<u>mati</u>	die, be dead [refers to the 1919 influenza pandemic]
<i>pakus</i>	nail [refers especially to small metal arrowheads made from these] (corruption of BI <u>paku</u> , nail, spike)
<u>Rusa</u>	deer
<i>sekeru</i>	coconut palm wine; from BI <u>segeru</u> (also known as <i>tuba</i>)

¹ Echols and Shadily (1989) figure this as lélé.

ABBREVIATIONS AND ACRONYMS

ANGAU	Australian New Guinea Administrative Unit
APC	Australasian Petroleum Company
ARBNG	Annual Report for British New Guinea
ARM	Assistant Resident Magistrate
ARP	Annual Report for Papua
AQIS	Australian Quarantine and Inspection Service
a.s.l.	above sea level
AUD	Australian Dollars
AusAID	Australian Agency for International Development
BI	Bahasa Indonesia
BNG	British New Guinea
BWL	Bensbach Wildlife Lodge
CSIRO	Commonwealth Scientific and Industrial Research Organization
DFAT	Department of Foreign Affairs and Trade
DPI	Department of Primary Industries
DEC	Department of Environment and Conservation
DNG	Dutch New Guinea
DPI	Department of Primary Industries
FRPG	Fly River Provincial Government
GPS	Global Positioning System
JE	Japanese Encephalitis
K	Papua New Guinea Kina

KITLV	Koninklijk Instituut voor Taal-, Land- en Vokenkunde ²
LLG	Local Level Government
LMS	London Missionary Society
MM	Meridian Marker
NAMI	Northern Australia Meat Industries
NAQS	Northern Australia Quarantine Strategy
OPM	<u>Organisasi Papua Merdeka</u> (BI, 'Free Papua Movement')
PNG	Papua New Guinea
PO	Patrol Officer
RM	Resident Magistrate
Rp	Indonesian Rupiah
TCS	Torassi Community School
TWMA	Tonda Wildlife Management Area
TWMC	Tonda Wildlife Management Corporation
UNDP	United National Development Programme
US	United States Dollars
VC	Village Constable
WMA/s	Wildlife Management Area/s
WWF	World Wide Fund for Nature

² Royal Institute of Linguistics and Anthropology, Leiden, The Netherlands

ACKNOWLEDGEMENTS

Like most PhD students, I have accrued a multitude of debts in the course of this research project. Space does not permit me to name all the people who have assisted me in many and different ways since 1995. I thank each and every one of them, and hope I will be forgiven for not mentioning them all individually.

First and foremost I wish to thank the people of the Torassi River for allowing me to conduct this work, for looking after me so well during my time in the field, and for all their teaching and guidance. In particular, I wish to acknowledge my debt to the late Dr Budai Tapari, whose advice, assistance and support between 1995 and 2003 were invaluable. It will not be forgotten. In Wando, the hospitality and care of Iori and Paku Tapari made my stay an enjoyable and rewarding experience. I would also like to express my deepest thanks to all the people of Wando, Balamuk, Bondobol, Bula, Torwaia, Dembantjepeth, Pikunjur and Jangari.

I am grateful to the PNG National Research Institute for approving this work, and the Geography Department, University of Papua New Guinea (UPNG), for granting me affiliation. At UPNG James Menzies (formerly Biology Department) and Rose Singadan (Biology Department) provided much advice and assistance with biological collections.

The late Brian Brumley, the late V.B. 'Bert' Counsel, and Joe Bucket of the BWL also provided logistical support during my time in the field, as well as access to company records and correspondence.

I am extremely grateful to my supervisors, Dr David Hyndman (School of Social Science, The University of Queensland), and Dr Chris Ballard (Research School of Pacific and Asian Studies, The Australian National University), for their support and friendship over the years. It is very much appreciated.

At The University of Queensland I wish to acknowledge the assistance of the general staff of the School of Social Sciences. Special thanks are also due to the team at Document Delivery Services, Social Sciences and Humanities Library, for the provision of so many interlibrary loans and photocopied articles.

In Australia, I would like to single out the following for all their help over the years: John Burton, Robin Hide (Australian National University) and Colin Sheehan (Queensland Department of Resources and Mines).

In the United States I thank Mary Ayres for her encouragement and hospitality, and for granting me permission to access her fieldnotes. In Switzerland, Andrea Schmidt (Universitat Basel) and Dadi Wirz allowed me to access and reproduce Paul Wirz's photographs and fieldnotes, which is much appreciated.

I wish to acknowledge the ongoing support of my parents, in particular their assistance with logistical issues during my time in the field, which was very much appreciated.

And finally, but by no means last, I wish to thank Natasha Maharaj, whose love, encouragement and support made the completion of my thesis possible.

Funding for this research was provided by an Australian Postgraduate Award with Stipend (1995-1998), a University Research Grant (1995-1996), and a Graduate School Travel Research Award (2001) from The University of Queensland; a National Visiting PhD Scholarship (1996) from The Australian National University; and a Stipend (2001) from the Friends of the Libraries, University of California, San Diego.

LIST OF RELEVANT PUBLISHED MATERIAL

Since enrolling in the degree of Doctor of Philosophy at The University of Queensland, I have authored or co-authored the following publications, which include information obtained in the course of fieldwork:

Hitchcock, G. 1996. A note on the abandonment of raised field agricultural systems in the lower Bensbach River area, southwest Papua New Guinea. *Australian Archaeology* 43:37-38.

_____. 1997. First record of the Spectacled Hare-wallaby, *Lagorchestes conspicillatus* (Marsupialia: Macropodidae), in New Guinea. *Science in New Guinea* 23(1):47-51.

_____. 1998. First record of the False Water-rat, *Xeromys myoides* (Rodentia: Muridae), in New Guinea. *Science in New Guinea* 23(3):141-144.

_____. 2002. Fish fauna of the Bensbach River, southwest Papua New Guinea. *Memoirs of the Queensland Museum* 43(1):115-118.

_____. 2004a. Obituary to Budai Tapari, 1954-2003. *The Australian Journal of Anthropology* 15(1):107-108.

_____. 2004b. Torres Strait origin of some stone-headed clubs from the Torassi or Bensbach River area, southwest Papua New Guinea. Pp. 305-315 in McNiven, I.J. and Quinnell, M. (eds), *Torres Strait Archaeology and Material Culture. Memoirs of the Queensland Museum (Cultural Heritage Series)* 3(1).

Barham, A.J., Rowland, M.J., and Hitchcock, G. 2004. Torres Strait *bepotaim*: An overview of archaeological and ethnoarchaeological investigations and research. Pp. 1-72 in McNiven, I.J. and Quinnell, M. (eds), *Torres Strait Archaeology and Material Culture. Memoirs of the Queensland Museum (Cultural Heritage Series)* 3(1).

Filer, C., Haberle, S., Hide, R., Hitchcock, G., Lawrence, D. and Smith, B. 2004. *Interactions between Local/Indigenous Communities and the Natural Environment in Far North Queensland and Southern New Guinea: A Partial Review of Research to Date*. RMAP Working Paper No. 52. Canberra: Resource Management in Asia-Pacific Program, Research School of Pacific and Asian Studies, The Australian National University.

McNiven, I.J. and Hitchcock, G. 2004. Torres Strait marine subsistence specialisation and terrestrial animal translocation. Pp. 105-162 in McNiven, I.J. and Quinnell, M. (eds), *Torres Strait Archaeology and Material Culture. Memoirs of the Queensland Museum (Cultural Heritage Series)* 3(1).

**PART I: CRITICAL UNDERSTANDING OF THE TORASSI
BORDERLAND**



Plate 2: Hull of confiscated Indonesian fishing vessel, caught illegally fishing in PNG waters. Marimo (the southern 'corner' of Wando village), June 1995.

CHAPTER 1: INTRODUCTION

Demarcating ‘The Extreme West’³

On 27 February 1893, an Anglo-Dutch maritime expedition encountered a hitherto unknown river debouching into the shallow waters of the south New Guinea coast. The members of this party were seeking a ‘natural workable boundary’ (ARBNG 1892-1893:xvi) which could be substituted for the existing, undemarcated border between their possessions in New Guinea. This was seen as a necessary step in attempts to check the cross-border depredations of the Marind-anim. A fierce headhunting people resident in southeast Dutch New Guinea (DNG), the Marind-anim undertook large annual raids upon their neighbours in the Western Division of British New Guinea (BNG). British protests to the Netherlands government had culminated in this joint commission, a key event in the establishment of colonial hegemony in the south New Guinea border area.

Astronomical observations determined the coastal rivermouth to be several kilometres eastward of the 141st meridian, the then border between Dutch and British New Guinea. It was given the name ‘Bensbach’, after the Dutch resident of Ternate in the Netherlands East Indies.⁴ In 1895, the two powers ratified a treaty that slightly realigned the border: henceforth, the mouth of the Bensbach would demarcate and anchor the southern part of the longitudinal boundary (van der Veur 1966b:62-68). In early 1902 the Dutch established the government post of Merauke, at the mouth of the Maro River, in response to ongoing Marind raids. Located approximately 70 km west of the border, it was from Merauke that southeast DNG was explored and pacified (Knauff 1993:33; Souter 1963:130-132).

A cartographic vestige of nineteenth century colonialism, the New Guinea border now dissects the largest island in Melanesia between two States, Papua New Guinea

³ This term was used in the early colonial period to describe that part of BNG or Papua lying between the Mai Kussa River and the Dutch boundary, known today as the Morehead District (see Beaver 1920:Chs 8-9; Haddon 1935:247). I discuss colonial narratives of the area in Chapter 6.

⁴ The Bensbach River is known locally as the Torassi. Villagers use these names interchangeably, and both names appear on contemporary topographic maps. Hereinafter, I use the local name.

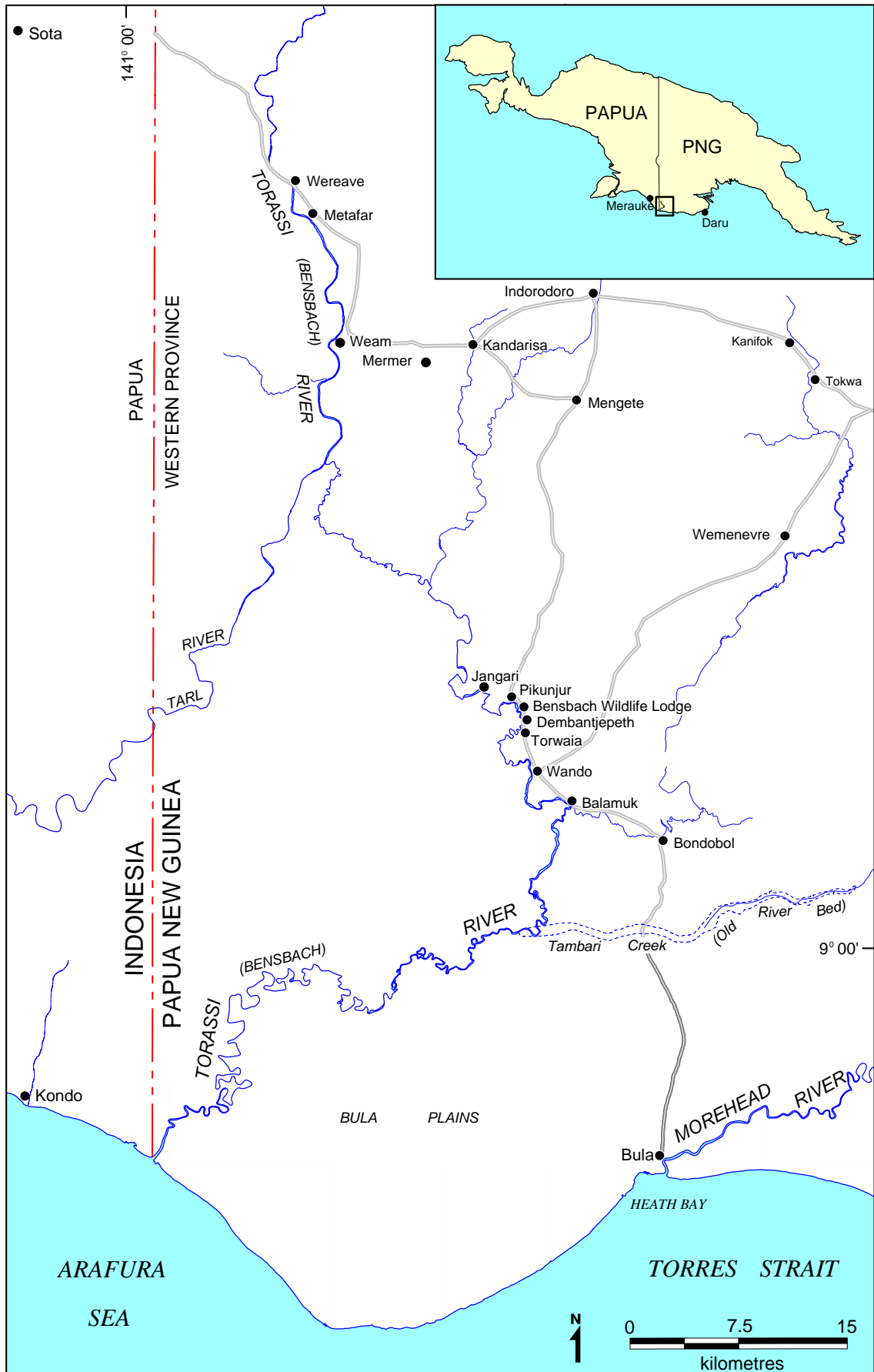
(PNG) to the east, and Indonesia to the west. Its course is largely unmarked, traversing savanna, swamps, forests and mountains, artificially dividing peoples and their lands, and cleaving a political separation between 'Asia' and the 'Pacific' (Ballard 2001:13; May 2001:287; van der Veur 1966b:90-91).

Delimitation of the border and the establishment of Merauke have had major social and environmental consequences for south New Guinea peoples. For the Wartha, a small group of hunter-horticulturalists living along the Torassi River, on the PNG side of the border (Map 1), it has profoundly shaped their experience of the modern world system.

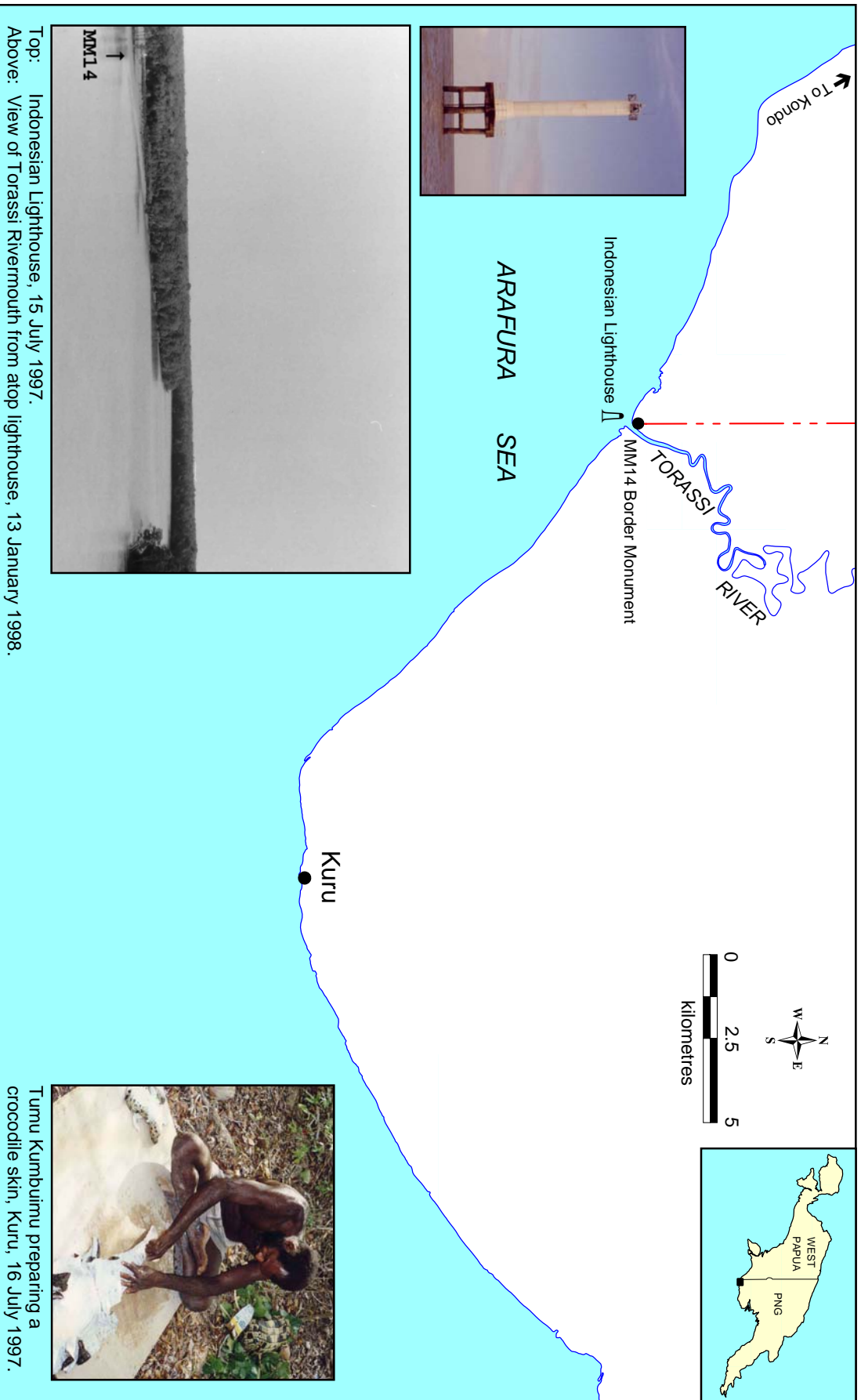
Border Visits

I first visited the mouth of the Torassi, in the extreme southwest of PNG's Western Province, in July 1997 (Map 2). I travelled down the river with two brothers from Wando village, where I was based, to hunt crocodiles; one of the few ready sources of cash income in the area. Wando is the chief settlement of the Wartha. From the derelict Wildlife Station at nearby Balamuk we borrowed the government banana boat.⁵ I hired an outboard engine from a man in Pikunjur village, and purchased fuel from the Bensbach Wildlife Lodge (BWL), a tourist resort owned and operated by Australian expatriates. The BWL is the chief source of income for the majority of communities on the Torassi, and catalyst of major disputes over lands and resources. The villagers also borrowed a shotgun from another man in Wando, the only one in that settlement. The firearm was primarily for the crocodiles, but I was told that it might also prove useful if we encountered poachers from Indonesia. The BWL boats, operated by local guides, often took tourists down to the border rivermouth, and this *de facto* surveillance activity tended to keep poachers away from the river. But the BWL was now closed as a result of a conflict with landowners, and there were reports that people from across the border were regularly hunting Torassi crocodiles, and setting nets for shark and barramundi in the river and off beaches along the PNG coast.

⁵ Banana boats are fibreglass dinghies, usually around 6-8 m long. This particular dinghy was assigned to the station to assist with border duties.



Map 1: The Torassi or Bensbach River Area.



On our night-time voyage down the river we successfully shot several fresh and saltwater crocodiles. After overnighiting at a campsite on a high riverbank, we again set off, and soon shot another crocodile. It was found to have a deep, open knife wound at the base of its tail, evidence of a recent and narrow escape from a poacher. Later in the day, we arrived at the mouth of the Torassi. Here I was struck by a feeling of isolation on what to me seemed a bleak and windswept coast. To the west—West Papua (Indonesia's Papua Province)—a low line of grey-green mangroves extended as far as I could see. I soon discovered that this was no *terra incognita*. Several eroding concrete structures on the west bank of the rivermouth were evidence of old boundary markers, and a newly constructed Indonesian lighthouse stood sentinel in the estuarine waters, just outside the mouth of the Torassi.

Under the shade of mangrove trees, not far from the monument, we lunched on flame-grilled crocodile. We then travelled eastward along the coast, battling waves formed by the strong southeasterly trade winds. At dusk we arrived at Kuru, a beach campsite, located midway between the Torassi and Morehead Rivers. A known haunt of poachers, it was with some trepidation that we waded ashore in the fading light. We camped at Kuru for several days. Some of this time was spent preparing the crocodile skins: first skinned with knives; then scraped of flesh with the sharp edge of a bivalve shell collected at the coast; finally salted, rolled and packed. Eventually the skins would be transported and sold to a dealer in Port Moresby, from where they would be exported to fashion houses in Japan. We also walked along the shoreline, littered with the flotsam and jetsam of the Torres Strait and Arafura fisheries: whisky bottles; plastic sandals and thongs (never a matching pair); lost and discarded fishing gear. We collected several useful articles from the debris, and collected turtle eggs from a nest on the beach.

Returning to the Torassi rivermouth at night, guided by the automatic beacon atop the lighthouse, we began the long trek home. Ascending the river, we paused briefly to shoot a wild Rusa deer on the vast, and largely treeless, Bula Plains; one of the many thousands of this introduced species that inhabit the Torassi area.

On my next visit to the rivermouth in January 1998, a strip of felled mangrove trees, running westward from the rivermouth, was pointed out to me. This was said to be in

preparation for the construction of an Indonesian road, linking the border to the Marind village of Kondo, and ultimately Merauke.⁶ A new concrete obelisk had also been established by a joint PNG-Indonesian border demarcation team (Plate 1). Nearby, we discovered a large fishing net, cached by poachers from Indonesia, and used to catch barramundi at the mouth. This was packed into the boat and taken back to Wando.

Borderlands, Border Resources: Political Ecology of the Wartha

These events and experiences distil the key concerns of this critical ethnography of the Wartha: the struggle for land and resource control, articulation with the modern world system, and life on a colonial and postcolonial border.

The perspective of political ecology is employed to examine this history of articulation. Political ecology here refers to an approach or theoretical framework combining subsistence ecology, i.e. societal-environmental interaction, with political economy, thereby positioning the local in the world system.

Political ecology conceives of competition over resources on the Wartha frontier as the articulation of two very different modes of production—kinship and capitalist—operating in the context of two different social systems—nations and states (Duhaylungsod and Hyndman 1993:141; Hyndman 1994:14-15,18). These modes of production perceive, appropriate and impact upon the environment in very different ways. While kinship production is focused on subsistence, the goal of expansionist capitalist production is the accumulation of private capital. Competition between these modes invariably results in cultural and ecological disruption for the former (Hyndman 1994:15). The historical dialectic between Wartha society and their environment, and between the Wartha mode of production and external polities, is central to illuminating and explaining socio-ecological change on the Torassi borderland.

⁶ Kondo, a Marind village, is the most easterly settlement on the south coast of West Papua (see van Baal 1966:10).

The Wartha live in a remote and underdeveloped border area in PNG, poorly endowed with commodity resources. Their production system is largely subsistence oriented, and there is little participation in the cash economy. Yet despite being a ‘backwater’, there is a long and fascinating history of articulation with frontier colonialism and capitalism. This interaction has resulted in major impacts on lifeway and landscape: shifts in demographic and settlement patterns, changes in cultural practice, and dramatic environmental transformations. The Wartha experience of articulation with others has often been in the context of attempts by outsiders—on both sides of the international border and beyond—to expropriate, develop, regulate or conserve the abundant wildlife resources of the south New Guinea transboundary region. Some of these developments have benefited local people, while in other instances the result has been community division and landscape degradation.

To account for these changes, special attention must be given to the south New Guinea border, for it is not possible to consider Wartha articulation with the modern world without reference to the international boundary, and the two Janus-faced frontiers its presence has created: the Torassi borderland to the east, and the Merauke borderland to the west. Since the late nineteenth century, there have been very different forms of state and capitalist activity in operation on both sides of the border, including specific border administration regimes. For the most part, the boundary has been porous, and considerable movement—people, goods, ideas, pests and diseases—has occurred across it. Developments within and between colonial empires, states, capitalist ventures and indigenous nations have directly influenced the evolution of these borderlands. Often, though, individual actors—Wartha and foreign—have played key roles in transboundary interactions. Multiscalar biophysical processes have also impacted upon Wartha and outsider engagements with the local environment, and hence on the social relationship between them, and must be taken into account when analysing the political ecology of the Torassi.

Control and competition over resources must be understood with reference to this transboundary interactional sphere. The south New Guinea border area is both outcome of indigenous-colonial relationship, and site of an ongoing social and environmental engagement between *two contiguous borderlands* (i.e. a dialectic between the frontier zones or colonial/state peripheries that abut both sides of the boundary), enmeshed within wider polities and biophysical processes.

To date, research on the experience of Melanesian societies with resource commoditisation has focused on large-scale projects, in particular mining, petroleum and natural gas development, and to a lesser extent the forestry, cash cropping and artisanal fisheries sectors (e.g. Brown and Ploeg 1997; Howitt et al. 1996; Rumsey and Weiner 2001; Toft 1997a). Commoditisation of wildlife resources in PNG has received scant attention from researchers. The lifeworlds of Papuans living on the Indonesia-PNG border, and colonial and postcolonial developments in the south New Guinea region, have similarly received little ethnographic attention (Knauft 1993:36, 1994:401). Through an analysis of the political ecology of the Wartha, with a special focus on their experience of an Asia-Pacific borderland, this thesis presents new insights on the Melanesian experience of articulation with the capitalist world system, and makes an anthropological contribution to the growing literature on border studies.

The Ethnographic Setting

The Wartha inhabit the tropical savanna country around the middle and lower Torassi River, in the extreme southwest corner of PNG. This area of the country is unique in PNG: it is wide and flat, forming part of the most extensive tract of low relief in the country, and the landscape strongly resembles the coastal and adjacent areas of northern Australia (Beaver 1920:127; Löffler 1977:18; Paijmans et al. 1971:12; Williams 1936:5). It has a marked wet-dry climatic cycle that sees much of the land inundated during the wet season, creating vast wetlands, followed by parched, waterless conditions in the dry season.

The Wartha are part of the Morehead language-culture group. Morehead people speak dialects of the Upper Maro and Morehead Rivers Language Family, and share similar kinship systems, customs and material culture (Ayres 1980, 1983; Williams 1936; Wurm and Hattori 1981).

The Wartha, who speak *Thuntai* dialect, live in several small villages and hamlets along the middle Torassi, and in total number around 400. They are divided into a number of patrilineal (or clans), each of which belongs to one of three exogamous sections: Bangu, Maiawa and Sangara. They have a subsistence system based largely on agriculture, supplemented by hunting, fishing, and gathering.

First contact with the colonial administration occurred in 1903, during attempts to pacify their traditional enemies, the Marind-anim. Government visits were thereafter sporadic, with the area being administered from Daru, 240 km to the east, although a small detachment of Armed Native Constabulary was based at Tonda, on the Morehead River, from 1913 to 1927.⁷ Local people had more regular contacts with Europeans and Asians living in and around Merauke; the Dutch patrolled the Torassi on occasion, and the Wartha made annual visits to the Merauke area for feasts, trading and short-term employment on copra plantations.

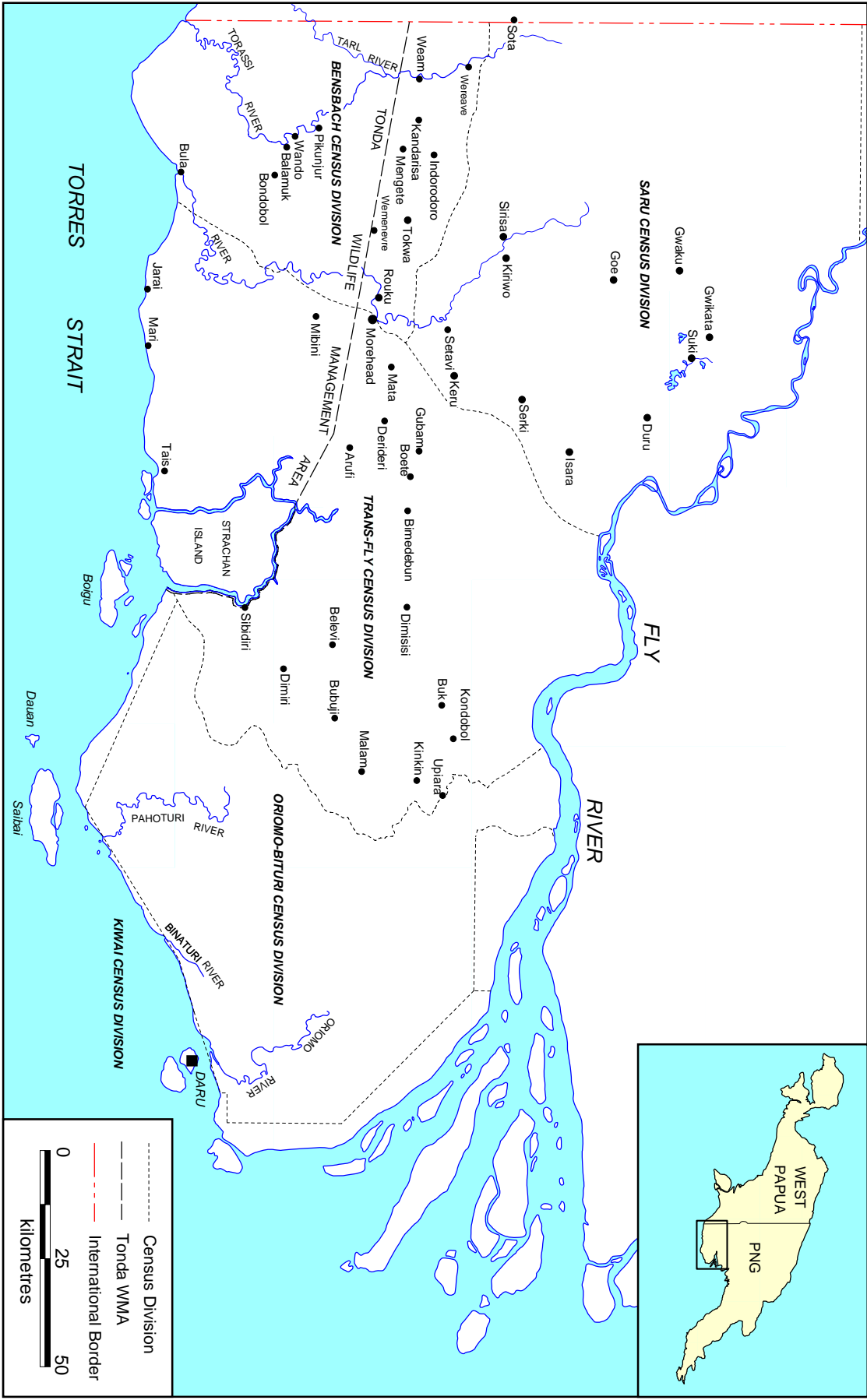
More regular patrolling followed the establishment, in late 1950, of a patrol post at Rouku on the Morehead River; in 1959 this was relocated upstream to the present site of the district headquarters at Morehead. There was a greater administration presence from the 1960s: a patrol post was established at Weam on the upper Torassi in 1963, and a wildlife ecology research station was built at Balamuk, a short distance downstream from Wando, around 1970 (Herington 1978:7). In 1974 the BWL was established at Marumbuei, on the middle Torassi, by expatriate Australian businessmen.

The Morehead cultural area falls within the administrative boundary of the Morehead Local Level Government, also known as the Morehead District (Map 3). Morehead people occupy the major part of the district, but the northern section is inhabited by Suki-speaking communities, and several Idi-speaking villages are found on its eastern edge.⁸ The BWL managers are among the very few Europeans in the District.⁹

⁷ In 1893 Daru was established as the headquarters of the Western Division; it continues to function as the capital of the Western Province.

⁸ Suki is a language within the Gogodala-Suki Stock, while Idi is a language of the Pahoturi River Language Family, Trans-Fly Stock (Wurm and Hattori 1981).

⁹ The only other Europeans in the District are staff at missions at Suki and Arufe. Suki was established by the Unevangelized Fields Mission in 1941, and Arufe by the New Guinea Revival Mission in 1952 (Bottrill 1956:5; Martin 1982:114; van Nieuwenhuijsen and van Nieuwenhuijsen 1965:374). In recent years, a number of Australian, American, and European Bible translators from the Summer Institute of Linguistics and other organisations have also been active in several villages, such as Iokwa, Kiriwo and Mukfideben.



Economically, this area is a backwater in what is one of PNG's poorest and least developed provinces. It is remote, sparsely populated, and subject to an alternating cycle of seasonal inundation and drought; government services and infrastructure are limited, unreliable and in decline; there is little potential for resource development; and access to markets and the monetary economy is limited (Baxter 2000; Hanson et al. 2001:36; Tapari 1988, 1995).

Under the terms of the 1984 'Basic Agreement between the Government of Papua New Guinea and the Government of the Republic of Indonesia on Border Arrangements' (hereafter referred to as the 'Border Agreement'), the inhabitants of the Border Area are permitted to undertake cross-border visits for traditional purposes, such as visiting kin and trading (see Wolfers 1988:Appendix II.c.).¹⁰ For Torassi people, these rights are a fundamental part of their borderland identity, and essential to the maintenance of transboundary social relations and their participation in a small-scale, cross-border market economy. A number of Wartha cross the boundary every year, to visit the Indonesian border station of Sota, various coastal and inland villages of the Marind and Kanum peoples, and the town of Merauke (Tapari 1995:4,15).¹¹

The fieldsite also lies within the Tonda Wildlife Management Area (TWMA), a protected zone established in 1975 under PNG's *Fauna (Protection and Control) Act 1966*. TWMA has been a major focus of government, business and NGO sector interest in the Morehead District since its promulgation. On 16 March 1993 the TWMA was designated as a Wetland of International Importance under the Ramsar Convention, an intergovernmental treaty which promotes the conservation of wetlands and wise use of their resources (Frazier 1996).

¹⁰ The 'Border Area' is defined in Article 1 of this treaty as those PNG Census Divisions, and Indonesian *Kecamatan* (Sub-District Administrations), which adjoin the international border. The Morehead District formerly comprised the Bensbach, Saru, and Trans-Fly Census Divisions; only the first two are Border Area Census Divisions (Map 3). Since the introduction of governmental reforms associated with the *Organic Law on Provincial and Local-Level Governments 1995*, Census Divisions have ceased to exist as an administrative unit. It is unclear if their abolition will have any impact on the administration of the Border Agreement, e.g. the identification of 'Border Area' inhabitants.

¹¹ The Kanum people comprise several dialect groups belonging to the Morehead and Upper Maro Rivers Language Family, who live in southeast Papua Province (see Chapter 3).

Aims and Research Questions

The primary aim of my research is to document and analyse the Wartha experience of colonialism and capitalism within the context of the south New Guinea border area. Special attention is given to conflict over lands and resources.

More specifically, this thesis employs a political ecology perspective to address the following sets of questions:

1. What is the nature of Wartha society, in particular, the system of customary land tenure and other structures that regulate access to, and control of, resources? What aspects of Wartha culture have influenced their interpretation of, and the nature of their dealings with, outside others? How have Wartha reacted to engagements with outside others?
2. What is the biophysical nature of the Torassi environment? How has it changed over time as a result of human impacts and natural processes at local, regional and global scales? How have Wartha and outsiders interpreted the landscape, and changes to it over time?
3. What is the nature of the Wartha mode of production, including traditional ecological knowledge, the system of food production, and the social relations that organise production? How have these changed over time as a result of environmental changes and contact with others?
4. What is the historical experience of the Wartha with frontier colonialism and capitalism in the context of regional and global systems? How have outsiders perceived the Wartha, their homeland, and the border/frontier, and how have these perceptions influenced their interactions with people, landscape and borderland?
5. How have outsiders attempted to exploit, regulate or conserve the lands and resources of the Wartha? How have the Wartha responded to these activities? What are the specific causes of past and present conflicts over lands and resources among Wartha, and between Wartha, their neighbours, and outsiders?

Entry to the Field

The decision to work on the Torassi was made in conjunction with my Principal Supervisor, Dr David Hyndman, and the late Dr Budai Tapari of the Geography Department, UPNG.¹² I was interested in research pertaining to land and resource rights in Melanesia, and Dr Hyndman suggested the Torassi River, which he had briefly visited as a guest of Dr Tapari in the mid-1970s.¹³ Dr Tapari, a Wartha man from Wando, had written extensively on development issues in the Morehead District. He supported my research proposal, and arranged for affiliation with the Geography Department at UPNG.

The idea of working in this savanna and wetlands borderland was compelling. The fact that there had been no account of colonial or postcolonial developments in the Trans-Fly from an anthropological perspective was also appealing (Knauff 1993:36).¹⁴ My subsequent experience living and working as an anthropologist in Torres Strait between 1999 and 2003 also informs this study; this region adjoins the Morehead District, and is similarly a Melanesian transboundary area between two states, PNG and Australia.¹⁵ My work on customary land tenure issues in Torres Strait helped to formulate my analysis of conflict over lands and resources in the Torassi borderland.

¹² See Hitchcock (2004) for an obituary of Dr Tapari.

¹³ An earlier PhD student of Hyndman's, Alan Clough (Clough 1988), made a brief reconnaissance visit to the Bensbach area in 1988 as part of planned research on indigenous management of three protected wetland areas in the Arafura region: TWMA, Wasur National Park in Papua Province, Indonesia, and Kakadu National Park in the Northern Territory, Australia. This doctoral project did not proceed (David Hyndman, pers. comm. 1995).

¹⁴ 'Trans-Fly' is a Port Moresby-centric term, used to refer to the low-lying country between the Fly River and the international boundary (see Ayres 1983:2-3; Williams 1936:1). I use instead the term 'South Fly', which refers to the National Government electoral district which is roughly coterminous with this region. It encompasses four Local Level Government areas: Morehead Rural, Oriomo-Bituri Rural, Kiwai Rural, and Daru Urban (Greenwood and Pianga 2001). 'Trans-Fly' has never enjoyed widespread usage among local people, however it appears that 'South Fly' is finding increasing acceptance in the parlance of the Western Province.

¹⁵ I was employed by the Native Title Office of the Torres Strait Regional Authority, Thursday Island, as an anthropologist, to work on Torres Strait Islander land and sea claims lodged under the *Native Title Act 1992* (Cwth).

Fieldwork

The ethnographic research presented in this thesis is based on some fourteen months of fieldwork, conducted largely between 1995 and 1998 (June-July 1995; November 1995; December 1996-October 1997; January-February 1998). Brief visits to the Torassi area were also made in August 2000 (1 week) and December 2002 (2 days).

My 1995 field visits were for reconnaissance and consultation. During this time I presented my research proposal to local people, and gained their support for me to proceed. Through Dr Tapari, I was invited to stay at Wando with his brother, Iori, then Councillor for the local ward. A house was later built for me by villagers, next to the Councillor's, at Waraia, a 'side' of Wando. Local people were enthusiastic about my project, and were familiar with ethnographic research through the work of Dr Tapari and earlier anthropologists: some knew of Government Anthropologist F.E. Williams and his classic ethnography, *Papuans of the Trans-Fly*, and many had memories of the American anthropologist Mary C. Ayres, who travelled extensively throughout the district between 1979 and 1981.

Whilst in the field, short visits were made to Port Moresby (March-April and July 1997) and Daru (January 1997). A four-day visit to Daru was also undertaken in October-November 2002.

Wando village is situated on the east bank of the middle Torassi. This settlement is 26 kilometres east of the international border, and 35 kilometres north of the Torres Strait coast. It has long been a village site for Wartha people; colonial records indicate that it has been occupied, more-or-less permanently, since the 1930s, and oral history states that it was also inhabited in earlier times. Visits were made to most villages in the western half of the Morehead District, and to the district headquarters at Morehead. Travel through the area was mostly by foot, as well as four wheel drive vehicle, tractor, dugout canoe, dinghy, and, most memorably, horseback.

I visited the border at two points. On one occasion I crossed the Torassi from Wereave village and travelled overland to the border monument near Sota. I also

made three visits to the mouth of the Torassi by dinghy.¹⁶ Two out of a total of fourteen border monuments, known officially as Meridian Markers (MM), are located at these sites, designated in the Border Treaty as MM13 and MM14 respectively.¹⁷

Research Methods

Standard ethnographic methods of participant observation were employed during my fieldwork in the Torassi area. I obtained data through both personal observation and discussion with informants, as well as more formal surveys. In addition, I tape recorded a number of local people's stories about historical and mythological events. Wherever possible, the location of significant cultural and historical sites was recorded using a Global Positioning System (GPS) receiver, and reference to topographical maps, aerial photographs and satellite imagery.¹⁸

My research project was participatory, involving numerous public meetings to explain my work, and report the results to the community. Local interests and concerns also guided my research. For example, many people were keen for me to develop a history of the region, and to ascertain the whereabouts of Wartha photographs and artefacts.¹⁹ Since leaving the field, I have remained in contact with Torassi people, and have thereby been able to clarify certain issues, and remain aware of local developments.

¹⁶ My third and most recent visit to the Torassi rivermouth, not mentioned in the 'Border Visits' section of this chapter, occurred as a member of the 2002 Joint Australia-PNG Torres Strait Treaty Awareness Visit (Western Villages), 29 November-9 December. On this occasion I noted that a second navigation aid—a smaller tower—had since been erected near the original lighthouse.

¹⁷ The *Agreement between Australia and Indonesia concerning Certain Boundaries between Papua New Guinea and Indonesia*—was signed by Michael Somare on behalf of Australia in 1973 (Australia, DFAT 1974). It was given statutory approval with the passage of the PNG *Indonesia and Papua New Guinea Border Agreement Act 1973*. Hereafter, I refer to this as the 'Border Treaty'.

¹⁸ During my time in the field I used Garmin 45 and Garmin 12 handheld GPS receivers, configured to display coordinates on the 1966 Australian Geodetic Datum (AGD66). Prior to May 2000, GPS units allowed for position accuracies to within 100 metres. Since that date, accuracies within 10-15 metres are now possible (Clinton 2000; Geosciences Australia 2000).

¹⁹ A timeline of historical developments in the Torassi and wider south New Guinea area is presented at Appendix 1.

I also documented the experiences of other relevant individuals and groups that have had or continue to have interests in the area. These included Torassi and Morehead people now residing in the provincial capital, Daru, and the national capital, Port Moresby, as well as Kanum and Marind refugees residing at Kondo-Marind settlement, Daru. Retired and current government officials, business people, missionaries, academics and staff of Non-Governmental Organisations (NGOs) were also interviewed.

I undertook extensive archival research in several countries. Relevant collections in libraries, archives and museums were consulted in Papua New Guinea, Australia, The Netherlands, Switzerland, The United Kingdom, and The United States. This included the fieldnotes and journals of earlier ethnographers, missionaries and explorers, and colonial administration reports and correspondence. Collections of artefacts and photographs were also examined. Lists of institutions visited and individuals interviewed are presented in Appendices 2 and 3.

In examining the political ecology of the Wartha in this thesis, I have chosen to develop major instances of outsider attempts to control and exploit resources as case studies (see ‘Organisation of the Thesis’, below). This allows for an in-depth analysis of common themes in local-outsider interactions on the Torassi borderland, and the illumination and explanation of the origins and nature of conflicts over lands and resources.

Organisation of the Thesis

This thesis is divided into five parts. The first, entitled ‘Critical Understanding of the Torassi Borderland’ (Chapters 1-2), presents an introduction to the research project and fieldwork site, and examines relevant theory and methodology. The literature review in Chapter 2 examines key theoretical and methodological issues pertinent to my project. The concept of political ecology is examined in detail, as well as recent work on borderlands by anthropologists and political geographers. Relevant literature on critical and multi-sited ethnography, agency, power-knowledge, history, place and identity, also receives consideration. The chapter concludes with a summary of previous ethnographic research in the Torassi area.

Part II, 'People, Place and Subsistence Production' (Chapters 3-5), provides a background to the local environment, the Wartha and their neighbours, and subsistence production. Chapter 3 presents an overview of Wartha society, with a focus on social structures that control or regulate access to lands and resources, and cultural beliefs and values that have influenced the nature of the people's reaction to, and appropriation of, the experience of frontier colonialism and capitalism. Changes to society and culture have resulted from interactions with outsiders, and these have created new tensions. In particular, I consider changes to leadership, sociality, and perceptions of 'other' that have ensued from this contact, which guide contemporary understandings of and dealings with outsiders.

An overview of the biophysical environment of the Torassi borderland is presented in Chapter 4. Western, scientific accounts are followed by Wartha understandings and classifications of the seasonal cycle, landforms and vegetation communities. These indigenous systems of ecological knowledge are examined in order to understand how Wartha interpret and engage their world in the course of social production. In the second half of this chapter, scientific and indigenous narratives of wide-scale environmental changes in the area are examined. These include the impacts of exotic species introductions, ongoing colonisation of flood- and back plain grasslands by Melaleuca forest, and worsening bushfires. I argue that these changes are the result of a complex interplay of social and environmental factors, best understood with reference to both local and scientific explanatory narratives.

Chapter 5 focuses on the subsistence production system of the Wartha. Food procurement activities, resource management strategies, and the social relations of production are among the aspects considered. I also document significant shifts in subsistence practice that have arisen from local environmental changes and engagement with local, regional and global systems.

Part III, 'History and Political Ecology of the Torassi Borderland' (Chapters 6 and 7) presents an overview of pre- and post-statehood life on the Torassi borderland. Chapter 6 examines the origin of the border and the onset of frontier colonialism and capitalism, up to the time of Papua New Guinea's independence in 1975. I begin by exploring their place in pre-contact regional systems of trade and warfare, with a focus on the experience of predation by Marind-anim, which was directly responsible

for the subsequent relocation of the border to the mouth of the Torassi in 1895. These and later developments, in particular the establishment of Merauke by the Dutch in 1902, have had a profound effect on the lifeway of the peoples living along the Torassi. Early colonial and anthropological views of the land and people are also considered. For many years, Europeans scorned it as uniformly dull and boring, and Western Province has long been perceived as a ‘punishment post’ by officers of successive administrations. I argue that the racial, landscape and frontier imaginaries of colonial agents and cultures have contributed to the specific nature of articulation on the Torassi borderland.

In Chapter 7 I examine postcolonial developments in the study area, from 1975 to 2004. These include the operation of the Border Agreement between PNG and Indonesia, which provides for traditional movements across the boundary. The impacts of political and economic developments in these two states, and the regional and global systems of which they are a part, are also examined, with special reference to their manifestation at the local level—i.e. their respective New Guinea borderlands. Developments in the political economy of Merauke Regency have led to particular challenges, including cross-border poaching and the introduction of new diseases and pest species. During this period, wildlife resources became increasingly sought-after by outsiders, and there was a shift by Wartha toward small-scale production of commodities and increased participation in a unique transboundary economy. I briefly discuss four instances of the commoditisation of wildlife resources: a cross-border trade in Saratoga (*Scleropages jardinii*) fingerlings for the international aquarium trade; culling and farming of introduced Rusa deer; crocodile shooting and farming; and the role of Australia’s Commonwealth Scientific and Industrial Research Organization (CSIRO) in the production of floral resources, namely tree seeds and leaf oil.

In Part IV, ‘Wild Resource Management and Commoditisation’ (Chapters 8-10), I examine major attempts by outsiders to exploit or regulate resources, and the engagement of local people with these actors, activities, and accompanying narratives. Chapter 8 examines the Wartha experience of the BWL, a hunting and fishing tourist resort that is the area’s major *in-situ* business venture. Established in 1974 by expatriate Australian businessmen, it is the chief source of income for many local people; it provides wages, and royalties from wildlife extraction—game and

sportsfish—at rates established by the rules of the TWMA. Since the mid-1990s, lodge operations have been the source of serious and ongoing disputes over local lands and resources. This has resulted in the temporary closure of the business, a local economic depression, and intensive feuding within and between local clans, and between clans and the BWL management.

Chapter 9 explores the establishment and operation of the TWMA. Gazetted in 1975, it is PNG's first and largest such protected area. Wildlife Management Areas (WMAs) are an attempt to strengthen and formalize customary land and resource ownership, rights and practices in the face of external pressures to exploit wildlife. Wildlife Management Committees are established, which decide on rules to prohibit or regulate wild resource use by outsiders. In TWMA, the rules largely relate to the provision of royalties from the fishing and hunting activities of the BWL; consequently, there has always been a symbiotic relationship between TWMA and BWL. In 1987 a TWMA ancillary body, the Tonda Wildlife Management Area Corporation (TWMC), was entrusted with half of all royalties, with the aim of stimulating economic development in the wider Morehead District. I consider the record of these bodies, find that they failed to successfully fulfil these functions, and explain why this was the case. Finally, I examine more recent attempts by the international conservation NGO World Wide Fund for Nature (WWF) to reinvigorate and support the management of the TWMA, which has involved the establishment of linkages with Wasur National Park in Papua Province (contiguous with TWMA), and Kakadu National Park in Australia's Northern Territory. WWF celebrates the area as biodiversity-rich wetlands, a foil to earlier colonial perspectives of the Morehead District as monotonous and swampy. I critique WWF narratives of TWMA which exoticise and romanticise the landscape, wildlife, and people, and examine their developing relationship with local landowners. I suggest that both groups have very different expectations about the nature and outcomes of this engagement.

'Conclusions', the fifth and final part of my thesis (Chapter 10), summarises the findings of my research. I draw together the key themes of earlier chapters, and focus especially on the nature of articulation between Wartha society and outsiders with respect to Torassi lands and resources. A key question to be considered, particularly in light of the findings of the case studies, is whether resource extraction or management initiatives will ever succeed as anticipated by landowners or outsiders,

given the complex cultural, environmental, and borderland milieu. Past consideration of problems associated with conservation and development in the area has largely focused on governance, remoteness, and environmental constraint, with little attention to socio-cultural factors. I argue that the political ecology of the Torassi borderland cannot be understood without reference to the social relations, cultural orientations, and imaginaries of both Wartha and outsiders, for these guide expectations of and dealings with each other, and shape emic understandings of ‘conservation’ and ‘development’. I identify the dominant elements of articulation on the Torassi borderlands as (1) core aspects of Wartha society, including kinship and exchange relations, political leadership, and cosmology, and associated ideologies and behaviours, and (2) the specific nature of state, capitalist, and environmentalist activity: their agents, projects, and narratives. The nature and outcomes of this dialectic—including contests over resources, and landscape transformation—must be understood with reference to the particular transboundary sphere in which the Wartha live, a zone of engagement between two contiguous borderlands, enmeshed within wider polities and biophysical processes. Finally, a postscript presents the latest developments on the Torassi borderland.

CHAPTER 2: THEORY AND METHODOLOGY

Introduction

This chapter presents a review of the theoretical perspectives that underpin my research, and outlines previous anthropological investigations in the Torassi and wider south New Guinea border area.

A political ecology perspective is employed to examine the history of Wartha interactions with their environment and other polities, with a focus on the unequal power relations that exist between different actors and groups at local, regional, state and global levels in the borderland context. As part of this analysis, it is necessary to explore the specific nature and dialectic of these systems, including their operation in relation to control over and access to resources. Analysis of these conflicts—struggles over resources, and also competing ideologies relating to people, place and resources—must also be considered with reference to their spatial and temporal context.

Critical Ethnography in Melanesia

Recent Melanesian anthropology highlights the need to engage with history and power, with the articulation of the local and the global. Foster (1995:13) warns that

to produce ethnographic descriptions of Melanesian people without acknowledging the engagement of these people with colonialism, Christian missionization, and capitalist markets is politically and intellectually irresponsible.

Similarly, Knauff (1999:228) states that ‘Melanesian studies has a particular opportunity—and challenge—to put postcolonial or subaltern affiliations in the context of larger political and economic influences’, and exhorts anthropologists to seek out and explore the wider and specific sites of Melanesian experience: ‘the school, the church, the courts, the disco or cinema, the store, and relatives...’ (Knauff 1999:220; see also Carrier 1992a, 1992b). The long history of articulation between Melanesian societies and other social, political, economic and religious systems must be recognised.

Carrier (1992b:117) has called for attention to focus on Melanesian articulation, where articulation is defined 'as the way village societies are linked to and interact with the larger social, political and economic orders in which they are embedded....the national economy and state organization'. He rebukes the trend in past Melanesian ethnography to essentialize their societies, through uncritical representations of the nature of their relations with the modern world system:

This has been manifest in the tendency to represent those societies in terms of a clear separation of Us and Them together with the assumption, sometimes explicit but often implicit, that the effect of Western impact is Westernization and that the absence of overt Westernization signals the absence of significant Western impact (Carrier 1992b:138).

While recognizing the profound impacts of Western expansion on village social life, he argues that capitalist encroachment has and continues to be mediated by traditional sociality and custom. Consequently, the complete erosion of ideologies of kinship and ownership, and the emergence of capitalist relations of production, are not preordained (1992:124,127,133; see also Thomas 1991:206-207). Carrier calls for analysis of 'a more subtle process, in which the effects of capitalist encroachment are transmuted into a form reflecting the dominant elements of village life, kinship and exchange' (1992:138). The investigation of articulation, then, should have as a key focus the intersection of the fundamentally different social and economic orientations of capitalist and kinship modes of production: 'a rounded approach to articulation would have to try to trace out the links between the *commodity* relations of the national economy and the *gift* relations of the precapitalist village sector' (1992:130, original emphasis).

These positions reflect the turn towards more critical approaches in anthropology. Critical anthropology is a broad and increasingly important movement in the discipline, directing our attention to the wider socioeconomic formations in which small, local-level community groups operate. These wider sets of social and economic relations include interactions with the capitalist world system, in the past a largely neglected study area as a result of the tendency to present social formations and cultures as ahistorical, static and disconnected entities (Appadurai 1988:39; Carrier 1992a:20; Marcus 1986:166; Marcus and Fischer 1999:Chapter 4; Rosaldo 1993:217; Wolf 1982:4,95).

Many of the concerns and problems of contemporary Melanesian societies are grounded in such historical engagements. This is especially true with respect to contests over land and resources in the context of articulation with outside others. Critical juxtaposition of history and ethnography is necessary to understand the origin and development of such contests (Busse 1997:12).

The peoples of southern New Guinea have a long and varied relationship with the state and capitalism. This has resulted in significant impacts on culture, demography, and settlement patterns. Knowledge of this history—both ‘ours’ and ‘theirs’—is fundamental not only to understanding these interactions, but also the historical claims to ownership of land and resources enunciated by local communities, grounded as these are in genealogy, origin mythology and history. These charters are constantly appealed to (and manipulated) in their claims of ownership and access, and conflict with others, indigenous and foreign, often centres on varied definitions and understandings of the past in a cycle of contestation and renegotiation (Busse 1987:1). Social disruption of this kind is often the direct outcome of the commoditisation of lands and resources—of the tensions embedded in the articulation of colonial and postcolonial capitalist polities, and kinship-ordered indigenous nations.

The Political Ecology Approach

Political ecology has been described as ‘perhaps the most important line of recent social scientific thinking about environment and development’ (Peet and Watts (1996:4). It is a broad framework of enquiry, often incorporating a range of other theoretical concerns and perspectives (e.g. Blaikie 1995; Blaikie and Brookfield 1987:17-19; Bryant 1992:28; Bryant and Bailey 1997:13-14,24; Peet and Watts 1996:13). The approach has grown out of the traditions of human geography and anthropology, and their concerns with landscape and cultural or human ecology. As Hyndman (1994:15) has noted, ‘political ecology demonstrates the importance of evaluating change in social terms and criticizes political economy for failing to take into account ecological processes underlying production’. Within anthropology, it may also be identified as part of the critical tradition, and, like that approach, it is broad, wide-ranging and developing (Peet and Watts 1996:6). From its inception,

though, it has distinguished itself through its multiscalar approach to social-environmental interactions (Zimmerer and Bassett 2003:288).

Sheridan's ethnography of the peasant pueblo of Cucurpe, in Mexico, combines 'the approaches of political economy, which focus upon a society's place in a region, nation, or 'world system,' with those of cultural ecology, which examine adaptations to local environmental and demographic factors' to explore the political ecology of resource control (Sheridan 1988:xvi). He further notes that the linkages between local and external forces are always politically and environmentally mediated:

the ecology of any human community is political in the sense that it is shaped and constrained by other human groups. The exploitation, distribution, and control of natural resources is always mediated by differential relationships of power within and among societies. At the same time, however, the resources being exploited impose certain constraints as well—constraints that modify the political force fields emanating from outside the community in question. Peasant societies are neither 'little communities' nor helpless pawns in an international power struggle. On the contrary, they are constantly engaged in a creative dialectic between both local and external forces (Sheridan 1988:xvii)

Blaikie and Brookfield (1987:17) similarly define political ecology as a multiscalar, dialectical approach

which can encompass interactive effects, the contribution of different geographical scales and hierarchies of socioeconomic organizations (e.g. person, household, village, region, state, world) and the contradictions between social and environmental changes through time.

The phrase 'political ecology' combines the concerns of ecology and a broadly defined political economy. Together this encompasses the constantly shifting dialectic between society and land-based resources, and also within classes and groups within society itself. We also derive from political economy a concern with the role of the state.

Political ecology draws attention to the operation of unequal power relationships and the tensions embedded in the articulation of different social systems and modes of production in specific periods (with often competing values with respect to people, places, and resources) and highlights the important role of economic and political processes in determining the way in which resources are exploited, and landscapes transformed. Further, the important effects of environmental change on socio-economic and political relationships is also acknowledged (Blaikie 1995; Blaikie and Brookfield 1987:26; Bryant 1992:14,25; Schmink and Wood 1987:39). Traditional concerns of the approach are the political construction of environmental changes, in

particular land degradation, and conflicts over access to and control of resources (Bryant and Bailey 1997).

Historical Ecology

A very similar approach, labelled ‘historical ecology’, has also developed out of investigations of human-nature interactions in anthropology and geography (Crumley 1998:xii). Like the term ‘political ecology’, the concept is nascent, developing, and at times elusive (Balée 1998b:1; Kideer and Balée 1998:405).

At first instance, this approach appears synonymous with political ecology, for it too stresses a diachronic, dialectical approach to human-environment relations (Balée 1998c:13; Crumley 1994b:9). Generally though, historical ecology is materialist, as most of its proponents seem to privilege the concept of landscape: ‘*historical ecology or landscape history* is the study of past ecosystems by charting the change in landscapes over time’ (Crumley 1994b:6, original emphasis; see also Balée 1998b:1-2, 1998c:13). As a result, there is a tendency to downplay or ignore altogether the dialectic within and between societies and modes of production in relation to resource use and environmental degradation (see, for example, the majority of papers in the volumes edited by Crumley (1994a) and Balée (1998a); Patterson (1994) is an exception; he argues that social relations must be the starting point of such analyses. Historical ecology’s focus on ecology and landscape reflects its origins in human geography, and the neglect of social relations points perhaps to the influence of evolutionary ecology, evident in American advocates of this approach.

I identify my study as a work of political ecology, rather than one of historical ecology. Many of the important elements and postulates of the latter, including the rejection of the notion of ‘wilderness’, and engagement with history (see Balée 1998c:14-24; Crumley 1994c:239), are taken to be axiomatic within a political ecology perspective. The key difference is that political ecology views human sociality and social relations as the starting point of analysis. Interactions between social groups and their environments are always culturally, historically and politically mediated, and enmeshed in wider systems. Historical ecology is a naïve

approach that fails to account for the political groundedness of human-land interactions, processes and changes.

Vayda and Walters (1999:167) have recently criticised political ecology on the grounds that its proponents tend to give primacy to the importance of political factors; in consequence, they are said to have ‘missed or scanted the complex and contingent interactions of factors whereby actual environmental changes often are produced’. They argue that political ecologists engage in ‘question-begging’ research through insistence that influences from the wider political-economic system are always important; that they ‘pay little or no attention to actually demonstrating environmental effects’; and that as a result, ‘what are actually studied are political controls or political contests over natural resources and not, or at least not to any significant extent, how the resources are affected by those controls or contests’ (Vayda and Walters 1999:169).

In its place, they argue for an ‘evenemental’ or ‘event ecology’, where research ‘begins with a focus on the environmental events or changes that we want to explain and then to work backward in time and outward in space so as to enable us to construct chains of causes and effects leading to those events and changes’ (1999:169). This approach is similar to that of historical ecology, in that landscape is the starting point of analysis.

In defence of their ‘evenemental ecology’, they present a case study based on their research on mangrove forest exploitation in the Philippines. This is a singularly unconvincing presentation. It is clear that the modification of mangrove forests is directly linked to competition over the resource, between actors with unequal power, operating in an economic milieu linked to wider systems. As they themselves note, both elites and the landless are engaged in modifying these environments in order to gain economic advantage, and to press claims to these lands and the resources therein. They point to the importance of environmental factors that constrain the spread of mangrove planting, and the effects of differences in floral compositions in determining exploitation of forests (Vayda and Walters 1999:171-177). It is of course necessary to account for the importance of these environmental limits. Yet in focussing on these issues, they draw attention to the fact that local people are

denuding forests, and establishing new plantations, in a political struggle for subsistence and commodity production.

It is certainly the case that some political ecologists have been guilty of downplaying or ignoring the role of environment in their accounts. A sensible approach appreciates the importance of social and environmental factors, and avoids the excesses of ‘green romanticism’ (Vayda and Walters 1999:170; see also Zimmerer and Bassett 2003a:3, 2003b:290).¹ Production in small-scale systems may also have a detrimental impact on the environment—all societies modify it as they engage and transform the world in the course of societal production and reproduction. It should be borne in mind, though, that this is usually at a totally different scale to modern industrial capitalism, and landscape degradation and resource depletion is often a result of articulation with the expansionist capitalist system. Often, the sustainable systems of kinship and peasant modes of production are cast as irrational and destructive by states—‘rationality is always politically and economically motivated’ (Watts and Peet 1996:264). Contested meanings, actions and struggles over material resources and landscapes, and their implications for environmental change, are at the core of human production and engagement with the natural world.

Human beings perceive and engage with the environment in social terms, in the context of interactions with wider social and political systems (Blaikie 1995:203,212). This relationship, including access to and control of resources, is fundamentally shaped both by the biophysical world, and well as unequal relations of power. Political ecology, then, is best described as a multiscalar perspective or framework of inquiry that considers societal-environmental interactions across time and space, seeking to account for them with reference to human power relations and agency, and the important role of the environment as both cause and effect.

¹ Here it is important to distinguish the usage of political ecology by some environmental activist movements, for the promotion of alternatives to destructive capitalism, with origins in Marxist and green environmental politics (Vayda and Walters 1999:168).

Social Systems and Modes of Production

Political ecology as presented here conceives of the articulation of the expansionist capitalist world system and indigenous peoples as the relationship between ‘two essentially incompatible systems—nations and states—and modes of production—kinship and capitalist’ (Duhaylungsod and Hyndman 1993:141).

Nations and States

The expansion of world capitalism has played a fundamental role in the expropriation of indigenous homelands and resources (Nietschmann 1987, 1994). Since the Second World War, this exploitation has often taken place in the context of wider, neo-colonial politico-economic relations existing between the Third World and developed states that encapsulate them (Duhaylungsod and Hyndman 1993:139,141; Hyndman 1994:177; see also Nietschmann 1987, 1994); relations that are the product of the capitalist system’s ‘need for territorial expansion’, which is in turn driven by its relentless search for ‘new markets, new resources, profit and surplus value’ (Seymour-Smith 1986:43). Expansion into the territories of indigenous nation peoples often results in the degradation of the lands and resources that underpin their mode of production, with a consequent erosion of the quality of their lives. It is a global record of dispossession and domination, though one with a multitude of variants in space and time, ranging from the benevolent to the vicious.

The Fourth World comprises indigenous nation peoples that are encapsulated by states (Graburn 1981:67). There are at least 5,000 distinct nations in the world today, which may be defined as ‘geographically bounded territories of a common people...who see themselves as ‘one people’ on the basis of common ancestry, history, society, institutions, ideology, language, territory and (often) religion’ (Nietschmann 1987:1). These nations exist beneath approximately 200 States in the modern world system (Duhaylungsod and Hyndman 1993:14; Nietschmann 1994:238).

A state is ‘a centralized political system, recognized by other states, that uses a civilian and military bureaucracy to enforce one set of institutions, laws and sometimes language and religion within its claimed boundaries’ (Nietschmann 1987:1). The foundational aspect of the state is territorial sovereignty, whereby the

state is vested with the ultimate authority and monopoly on the legitimate use of force within its boundaries—a concept dating to the Westphalian peace settlements of 1648 (Appadurai 2003:336; Seymour-Smith 1986:266; Wilson and Donnan 1998:10). Today, these 200 states together lay claim to every square inch of the earth's surface, regardless of the presence of non-consenting indigenous nations within their borders. These states operate in what has been described as an 'interstate system', the political framework in which the capitalist world-economy operates, integrating 'a geographically vast set of production processes' (Wallerstein 1990:35).

The role of the state must also be considered with reference to the various ways it lends power to dominant groups and classes (Blaikie and Brookfield 1987:17; Bryant 1992:18; Peet and Watts 1996; Schmink and Wood 1987:46-47). There is also great variation in the relationship between states and capitalism, government development and conservation policies (and the capacity to implement these), and a diversity of intrastate bureaucratic interests (Bryant 1992:15-16; Bryant and Bailey 1997:13). Great variation also exists in state relations with, and recognition of, indigenous peoples and their lands. Further, other external factors, such as major climatic changes and natural disasters, and fluctuations in world trading markets, also have direct consequences for states and nations alike.

Viewed historically, the existence of nations is ancient, and they have often resisted incorporation into states, which are ephemeral by comparison; nations have accordingly been identified as 'persistent cultural systems' (Spicer 1971:795; see also Nietschmann 1994:242).

Competing Modes of Production

Distinct forms of sociopolitical organization are based on different production principles....two types are of special importance: those based on subsistence, or simple reproduction, and those based on expanded production and private accumulation. The relevance to political ecology stems from the markedly different implications the two forms of organization have in terms of human appropriation of the natural environment (Schmink and Wood 1987:40).

Indigenous nation peoples generally operate within kin-ordered modes of production, where societal production and reproduction are structured by relations of kinship (Keesing 1981:185; Wolf 1982:91). This mode is characterised by simple, subsistence-oriented production; any surplus is generally appropriated for internal

reciprocal use (Duhaylungsod and Hyndman 1993:13). The centripetal, sustainable nature of indigenous subsistence strategies means that indigenous peoples have generally maintained the quality of their lands, waters and resources (Duhaylungsod and Hyndman 1993:141; Nietschmann 1994:239).

This biological richness and diversity contrasts strongly with the impoverished and degraded environments of many states operating within the capitalist mode of production, which is characterised by expanded production, short-term maximisation of profit, private accumulation, and commodity exchanges between individuals and transnational corporations (see Duhaylungsod and Hyndman 1993:140). As a result, states have invaded, appropriated and exploited the resources of the nation peoples within their boundaries in order to maintain their own systems—a process whereby the capitalist mode comes into confrontation with other social systems and modes of production; siphons off their wealth and people, and converts them into capital and labour power (Duhaylungsod and Hyndman 1993:141; Hyndman 1994:177-178; Nietschmann 1987, 1994; Wolf 1982:79).

Wolf's (1982:88-96) 'kin-ordered mode of production' and Keesing's (1981:185) analogous 'tribal communal mode of production' are useful as very general definitions of a way in which human beings engage and transform nature. According to Wolf and Keesing, these modes incorporate social formations in which production and reproduction—activities that take place through human labour—are structured, in the main, by social relations of kinship (Keesing 1981:185; Wolf 1982:91). As a result, these definitions encompass societies as diverse as foragers, hunter-horticulturalists, and agriculturalists. The advantage of such a conception is that it at once accommodates the variability of societies sharing broadly similar production structures, and also affords general comparisons between these basic patterns of societal production and reproduction.

Wolf (1982:76) uses the terms 'capitalist mode of production' and 'kinship mode of production' in this broad sense to elucidate the 'strategic relationships involved in the deployment of social labor by organized human pluralities' in order to 'deal with the spread of the capitalist mode and its impact on world areas where social labor was allocated differently'. A mode of production is not identical with a society. Rather,

the use of the concept enables us, above all, to inquire what happens in the encounters of differently constituted systems of interaction—societies—predicated upon different modes of production (Wolf 1982:77).

It is also important to note that as a theoretical construct or conceptual tool, mode of production can obscure human agency, and as a result, political ecology approaches tend to emphasise the need to give central importance to human praxis in societal-environmental interactions (Bryant and Bailey 1997:25; Hyndman et al. 1994:49).

Subsuming a broad family of production systems under a common rubric is also problematic as it cannot take one that far in the analysis of the internal operation of individual systems (Keesing 1981:185; see also Wolf 1982:401). In order to deal with the historical particularities of societies, it is useful to consider the distinction between a mode of subsistence and a mode of production (Hyndman et al. 1994:67-68). As Hyndman (1994:15) notes in his political ecology of the Wopkaimin:

a mode of subsistence is the appropriation of natural and human-altered resources by a particular people in a specific historical period. A mode of production is characterized by social relations which determine the forms of access to resources and means of production, organizes labor processes and determines distribution and consumption of the products of social labor. Political ecology views Wopkaimin subsistence production as both mode of subsistence and mode of production, a totality, a kinship mode of production.

It is for this reason that I also use the concept ‘mode of production’ in this second, more specific sense, namely to refer to the way in which individual social formations organise the mobilisation, allocation, and deployment of labour to ‘wrest energy from nature by means of tools, skills, organization, and knowledge’ in the course of producing and reproducing their material means of existence (Wolf 1982:75). Hence, one may speak of a Wartha mode of production, past and present, in order to compare and elucidate adaptations across time and space.

There is also a need to obtain a thorough understanding of the specific operation of competing modes of production and social systems in historical context: the kinship mode of production of the Wartha through time, as well as the particular nature of British, Dutch, and Australian colonialism, the operation of the state and business in the context of PNG’s internal colonialism, and Indonesian neo-colonialism in neighbouring Papua. In the case of the contemporary Torassi borderland, it is also important to note PNG state regulatory mechanisms that have mediated the Wartha’s

relationships with outsiders *vis-à-vis* resources. These include the constitutional recognition and protection of customary land ownership, and the establishment of the TWMA, a protected area that encompasses most of the study area, with the aim of conserving and regulating the exploitation of wildlife resources.

Location-specific state policies, and their on-the-ground expression in action, are also of great importance. This is particularly so in border zones, where particular arrangements and laws may exist to manifest the state's presence and assert control over groups (Bryant 1992:19).

With regard to the present political ecology study, there is a need to document and account for the precise nature and outcomes of articulation, i.e. the forms of hybrid systems so evident throughout Melanesia, where local ideologies of kinship and exchange often continue to structure engagements with capitalism and the state (e.g. Carrier 1992:127,138). On the Torassi borderland, these linkages have produced

neither a simple displacement of the traditional by the modern, the state by the market, or the local by the global but, rather, a complex set of articulations which take the form of hybrid sorts of development and forms of modernity (Watts and Peet 1996:266).

Transformation of the Wartha lifeway and homeland has occurred as a result of interactions with others—indigenous, Western, and Asian—but these developments have always been responded to and appropriated by existing cultural values and practices, themselves never static. These developments need to be understood with reference to wider social and environmental processes, and historical particularities. Political ecology accounts for this articulation between a kinship mode of production and a capitalist mode of production, in what has become a periphery of global space (Watts and Peet 1996:264).

Borderlands

Before proceeding to a brief overview of borderland studies, it is necessary to present some key definitions. A 'border' or 'boundary' refers to a line which delimits the sovereignty of states or the traditional territory of a nation (Donnan and Wilson 1994:8; Prescott 1987:13). I use 'borderland' and 'frontier' interchangeably, to describe the zone or territory that falls on either side of such borders.

Frontiers...are zones of varying widths, in which people have recognisable configurations of relationships to people inside that zone, on both sides of the borderline but within the cultural landscape of the borderlands, and, as people of the border, special relationships with other people and institutions in their respective nations and states (Donnan and Wilson 1994:8).

Such areas are characterised by certain features that flow from the presence of the border; these characteristics, unique to either side of the line, may become dominant moulders of the cultural landscape, and 'disappear as one moves away from the borderland in either direction into the territorial domain of the states divided' (Minghi 1991:15).

International borders and frontiers have received considerable attention from social scientists in recent decades (Lentz 2003: 273-4; Wadley 2002:6). Until recently, however, there has been a dearth of anthropological analyses of border and cross-border cultures (Donnan and Wilson 1994:4-5; Wadley 2002:2).

There are several reasons for this. Earlier political geography studies tended to ignore borderlands and their inhabitants, concentrating instead on the physical boundary within the landscape, often at the international scale (Minghi 1991:17; Prescott 1978:192,203; Rumley and Minghi 1991:2). There has also been a tendency among social scientists who write on borders and national sovereignty 'to ignore 'people' in favour of theories, causes and events', and to treat borders as background givens (Donnan and Wilson 1994:3; see also Prescott 1978:192). While there has been a tradition of anthropological research on cultural and symbolic boundaries between groups, there has been less attention to international borders. Where borders are considered, they are often delegated to secondary or tertiary roles in research designs (Donnan and Wilson 1994:3-4).

As 'areas of almost constant cultural negotiation' (Donnan and Wilson 1994:6), borders throw into relief political processes that 'involve people and institutions who are in extremely dynamic dialectical relationships with people and institutions of other ethnic groups and nations, both within and outside their states' (Donnan and Wilson 1994:2), and draw attention to dialectical relations between nation and state; core and periphery; the powerful and the dominated; 'bottom' and 'top' (Donnan and Wilson 1994:2-3; Wilson and Donnan 1998:7). As Donnan and Wilson (1994:10) note, 'border cultures are examples of the dialectical relations which exist between

myriad social groups, and between them and larger and more powerful levels of socio-political integration, including the state’.

Borders are therefore fertile sites for the study of access to and control over resources, as by their very nature they fragment landscapes (Zimmerer and Bassett 2004:290), dividing lands and imposing restriction, however imperfectly. Frontier geopolitics must be taken into account when assessing the nature of the political ecology of border areas: for example, the role of state-building in identity formation, resource depletion, threats to biodiversity, poverty, and disease.

The New Guinea Border

Anthropologists have not shown a great deal of interest in the New Guinea border area, which is not only a geopolitical separation of Asia and the Pacific, but also of the lands and peoples of the island as objects of scholarly study (Ballard 1999:149, 2001:13). New Guinea’s political and linguistic division has been reflected in the focus of scholarship. As Spriggs (1998:931) notes, the Indonesian takeover of Netherlands New Guinea

reinforced linguistic divisions (mainly between Dutch and English speakers) separating scholars working on the archaeology and ethnography of the region, adding another complicating language in Bahasa Indonesia. Subsequent and ongoing political events have reinforced the artificial division in scholarship between Dutch and Indonesian specialists on the one hand and generally Anglophone researchers working beyond the 141st degree of longitude east of Greenwich, the current Indonesia - Papua New Guinea border.

This is indeed a pity, because the Anglophone researchers are cut off from seeing the full diversity of Melanesia, the diversity that comes from consideration of its always-open border to the west, its border with the rest of the world.

However, it should be kept in mind that English-speaking academics have been largely responsible for the division, as many Dutch scholars have published their own works in English, or translated earlier works by other authors (e.g. for South New Guinea, van Baal 1966; 1982; Boelaars 1981; Serpenti 1965). Even Knauft’s (1993) comparative, largely documentary analysis of the cultures of south New Guinea relies almost exclusively on English language sources, despite a large corpus of Dutch materials (see Harple 2001:24). This ethnographic division of New Guinea, into eastern and western parts, is not just a linguistic construct; it is also the result of

the intertwined nature of different colonial projects and disciplinary specialisations (Jaarsma 2001:44).

There have, of course, been exceptions, such as Kirsch's (1991) thesis on the Yonggom, and Glazebrook's (2001) thesis on West Papuan refugees living in the East Awin border camp. A number of other works consider the history of the border, and associated social, political and economic issues (e.g. Blaskett 1989; May 1986a; Neumann 2002; Wolfers 1988; van der Veur 1966a, 1966b). However, to date there have been little ethnographic attention toward colonial and postcolonial developments among the inhabitants of New Guinea borderlands.

Borderland Ethnography: Always Multi-Sited

The approach of multi-sited ethnography (Marcus 1995) sits well within critical anthropology and political ecology inquiries; as its name suggests it is concerned with the supra-local, directing research to locales and systems beyond the extensively-studied fieldwork site. This is recognition of engagement with the modern world system, interactions that 'weave together various circulating populations with various kinds of 'locals' to create localities that belong in one sense to particular nation-states but are, from another point of view, what we might call *translocalities*' (Appadurai 2003:339). These come in many forms, and include border zones (Appadurai 2003:339). The multi-sited approach requires observation and participation beyond the single field site to incorporate these wider social orders (Marcus 1995:95).

Within Melanesia, Foster (1999) has suggested that tracking and mapping the flows of capital, commodities and people is crucial to elucidating the nature of intercultural encounters and contemporary identity in Melanesia. To this, I would add the tracking of discourses, including those of colonialist and postcolonial agents in text, image, sound and appropriated indigenous artefact, in order to produce a confluent narrative that incorporates multiple voices, and critiques their historical, political, cultural and experiential emplacements.

Understanding the Torassi borderland required research on the wider community of interaction in which Wartha identity and experience are enmeshed. This led me to conduct interviews with a range of individuals beyond the local fieldsite, and to visit

archives, libraries and museums, in a range of countries. I also hosted visits by informants and friends from the Torassi area when I lived in Brisbane and Horn Island (Torres Strait) in Queensland. These visits highlight Wartha interactions with wider systems: in one instance a Torassi man working on a Highlands coffee plantation in PNG was sent by his employer to work on a farm outside Brisbane; while in another, three Morehead men, sent by WWF to a course for indigenous rangers in Australia's Northern Territory, returned home via Torres Strait.

Anthropological studies of borders are, by their very nature, accounts of articulation, of the conjunction of local polities and multiple others. Border zones, as imperfect membranes that are 'spaces of complex quasi-legal circulation of persons and goods' (Appadurai 2003:339), are well suited to multi-sited analyses. Indeed, it is difficult to imagine that any other approach could effectively communicate the nature of borderland cultures. As Wilson and Donnan (1998:3) note, 'Perhaps more so than colleagues in other disciplines, anthropologists are well placed to view borders from both local and national perspectives, from the distance of capital cities to the villages of border areas' (Wilson and Donnan 1998:3).

Engaging Power-Knowledge, History, Agency, Place and Identity

The following sections outline additional approaches that have informed my analysis of the Torassi borderland. Political ecology is by its nature an interdisciplinary framework that usefully incorporates and applies a range of theoretical concerns and methodological approaches to the study of human-environment interactions (Blaikie 1995; Blaikie and Brookfield 1987:17-19; Bryant 1993:28; Bryant and Bailey 1997:13-14; Hyndman et al. 1994).

I have been particularly influenced by Blaikie's (1995) approach to the study of Third World political ecology. He draws attention to three factors, deemed useful in making sense of contests over landscapes and material resources: the actions of multiple, individual actors; the role of competing knowledge systems and narratives about the environment; and the understanding that actors operate in a context of unequal power relations.

Power-Knowledge and History: Cultural Politics

Postmodernism directs our attention to voice, narrative and identity as situationally produced in terms of differential relations of power (Jordan and Weedon 1995:551). As Lukes (1986:9-12) observes, power is not merely an issue of force or coercion. It is also about who can affect the interests of others; who can limit their freedom by interfering with their choices, by structuring the options available to them, or by limiting their capacity to make decisions; and who can achieve goals or advance interests in a context of competing claims. Power must be seen in relational, individual terms, rooted in historical realities of control over resources and means of production (Keesing 1981:295). In this thesis, I eschew simple, mechanistic accounts of articulation; instead, I thoroughly explore the power relations and ideologies that structure Wartha-outsider engagements, in order to explain, in precise terms, the nature and outcomes of disputes over lands and resources.

In the past there has been a tendency to essentialize non-capitalist peoples as apolitical. But as Bryant (1992:23) notes, struggles over access to resources did not originate with capitalism or colonialism. Even in seemingly egalitarian societies, where social relations of production are equivalent to kinship relations (Modjeska 1982:51), the exercise of power is apparent. Social differentiation based on kinship, age or gender is always present, and may structure the exercise of power and choice (Hyndman, Duhaylungsod and Thomas 1994:51; Schmink and Wood 1987:40; Wolf 1982:92-94,96,386,389). Individuals may exist with monopolies on social values, whose status is associated with and enhanced by the exercise of control over trade relations and the circulation of valuables, monopolies on ritual knowledge, management of marriage alliances, and the ability to marshal and direct labour for the production of surpluses in reciprocal exchanges, which may confer further prestige on the organisers. Bender (1992) argues that the presence of such individuals, in societies that have traditionally been characterised as egalitarian, need not be incompatible, as their positions are often based not on the accumulation of material wealth or ownership of the means of production, but rather on the accumulation of prestige and other social ‘invisibles’, predicated, in many instances, on their ability to redistribute goods and manipulate social and political relations. Furthermore, such positions are generally non-hereditary, being attained on the basis

of individual merit, as gained through prowess, wisdom, or age (Bender 1978:211-212).

Borders are 'always domains of contested power, in which local, national and international groups negotiate relations of subordination and control' (Wilson and Donnan 1998:10). Rosaldo (1993:217) draws attention to the importance of border zones in an interdependent, postcolonial world 'marked by borrowing and lending across porous national and cultural boundaries that are saturated with inequality, power and domination'. Decisions over resource use and distribution in border zones bring into focus the confrontation of power between indigenous peoples, the state and capitalism.

There is a need to engage with the links between power, knowledge, narrative and practice. In this thesis, I critique the hegemony, power and interest of outsider narratives of landscape, resources, and people, and examine their competition with local rationalities and knowledges, and the practices that flow from the articulation of competing meanings (see Blaikie 1995:203,205-206,213; Keesing and Jolly 1992:232-233; Schmink and Wood 1987:50-52; Stott and Sullivan 2000:4-7; Watts and Peet 1996:264-265). Contested meanings are often a key arena of struggles over access to and control of resources:

there is a political economic arena in which various people pursue their 'projects' with very unequal access to power in which to pack their own particular knowledge claim and to enrol others into their own project (Blaikie 1995:207).

Employment of different ideas and narratives by different actors and groups is a political act, as they are 'developed to facilitate or block the promotion of a specific actor's interests' (Bryant and Bailey 1997:21). Acknowledgement of this situation requires examination and interpretation of multiple discourses: texts, voices and narratives that are expressive of the types of differential power relations that have shaped the nature of the encounter between the Wartha and others. Blaikie (1995:207) defines discourse as 'both speaking (involving symbols and meaning) and action (involving material transformation of society and environment)' and gives examples which include oral testimonies; religious ceremony and ritual; agricultural practice; scientific research; and NGO activities. Peet and Watts (1996:14) define discourse as 'an area of language use expressing a particular standpoint and related to

a certain set of institutions'. They further note the need to critique the multiple 'truths' that emerge within different socially produced, politically imbued discourses, and the potential of discourse analysis to focus on the discursive relations between hegemonic and dominated regions (1996:13-16). These are theorized in terms of 'regional discursive formations':

Certain modes of thought, logics, themes, styles of expression, and typical metaphors run through the discursive history of a region, appearing in a variety of forms, disappearing occasionally, only to reappear with even greater intensity in new guises. A regional discursive formation also disallows certain themes, is marked by absences, silences, repressions, marginalized statements, allowing some things to be mentioned only in highly prescribed, "discrete," and disguised ways (Peet and Watts 1996:16).

Throughout this thesis, I demonstrate that struggles over lands and resources on the Torassi borderland are characterised by competing discursive formations. These are not limited to ideas, narratives and aesthetics of landscape, for they also incorporate other ideologies, such as those pertaining to race and class, conservation and development, colonial and colonized, centre and periphery, nation and state, border and frontier.

As Nietschmann (1987, 1994) has observed, the use (or rather misuse) by states of terms such as 'nation building' (read state building), 'economic development' (nation plunder), 'national consolidation' (assimilation) and 'border security' (incorporation of peripheral nations) is a political act, central to state attempts to expand their territories through the annexation and expropriation of nations (see also Duhaylungsod and Hyndman 1993:141; Hyndman 1994:177; Nietschmann 1987:1,3,7,12). These activities are presented in terms of states exercising sovereignty within their international boundaries, regardless of the existence of encapsulated indigenous nations, and 'terminological subterfuge' is used to mask, misrepresent and legitimate this plunder and domination. Those who resist are then labelled terrorists, rebels, insurgents and so on (Nietschmann 1987:5, 1994:228-230). Members of 'nations' may also be presented as 'minority populations' or 'ethnic groups' rather than peoples in the international law sense, with its connotations of the freedom to demand self-determination. The use of smokescreen political terms has done much to cloud and obfuscate the reality of the modern world system, in which polluted and resource-desperate states seek to appropriate the territories and

resources of nation peoples. In addition, it has precluded a proper understanding of phenomena such as genocide (in all its forms, including cultural), refugees, poverty and resistance that are so often the result of state ‘nation-building’. Continued misuse (i.e. equation) of ‘nation’ and ‘state’ in scholarly approaches to global politics, not to mention popular media coverage, has further impeded understanding of such conflicts, despite earlier calls to rectify the confusion through recognition of the fundamentally different nature of these terms (e.g. Connor 1978).

Hence, a critical approach is needed to deconstruct the ‘power to name’ (Jordan and Weedon 1995:13), to view nomenclature, stereotypes, and regional discursive formations as expressions of political power. This is particularly relevant with regard to the other side of the Torassi frontier—the Merauke borderland, where the Javan controlled state continues to expropriate resources, dispossess local indigenous people, and belittle and degrade their cultures, all in the name of ‘nation-building’ (e.g. Colchester 1986; Nietschmann and Eley 1987). I demonstrate that this has had direct impacts on Torassi people.

History, too, is a contested domain. Elites with the power to name, to describe, and to decide have been responsible for the manufacture of monolithic ‘History’ with a capital ‘H’. This obscures the plurality of competing narratives, competing views of people, place, and event, and the existence of other experiences and traditions. To date, South Fly peoples have received little ethnographic attention, and that which has been done is often ahistorical. Hence the Wartha are indeed a ‘People without history’ (Wolf 1982). It is time for rehistoricisation of the border through a conjoining of stories and voices to consider the lifeway of this border people, and the transformations that have occurred to society and environment over time. This thesis presents a new history, grounded in a critical understanding of local realities, and the particular ‘cultures’ of wider socioeconomic spheres, within which the Wartha and their neighbours have been engaged for over a century.

Agency

It is important also to critically examine the roles of individual actors—local and external—in the course of research into the colonial and postcolonial experience. In the past, monolithic, structuralist approaches have obscured the role of agency in

human affairs (Bryant and Bailey 1997:24-25), as have essentializations of villagers as an ‘undifferentiated mass’, which ignore their engagements with differential power relations with others and among themselves (Bryant 1992:23). Blaikie (1995:207,209), as part of his call for a more ‘interactionist’ political ecology, directs our attention to the important role of actors with different agendas, narratives, and unequal access to power, in struggles over environments and resources.

The role of colonial agents has been downplayed or ignored by many scholars of PNG, and simplistic us-them, colonial-colonised dichotomies have prevailed (McPherson 2001:1). Increasingly though, there has been a reassessment of ‘colonialism’, which has often been reified as a monolithic, homogenous force:

Recent studies of colonial process in Pacific societies assume that a much more complex multiplicity of historical and cultural contingencies, events and imaginings created a mosaic of colonial experiences (McPherson 2001:1; see also Brown 2001:26; Thomas 1991:205).

Such studies advocate acknowledgement of different relations of power, and the different ways the colonial project was experienced and enacted by individual actors and agents (McPherson 2001:2). I concur with Douglas (1992:110), who notes that actors—in particular local villagers—should be viewed as intending subjects, and not just passive objects or victims of abstract causal forces. At the same time, the stronger ideas of collective identity apparent in many Melanesian societies must also be taken into account (Knauff 1993:120; Strathern 1988). For Williams (1936:246), Morehead people were culturally conservative, but he also noted great deal of variability among individuals; they could be unpredictable, and deviate from accepted values and norms of behaviour. This thesis demonstrates that individuals, both within Wartha society and beyond, have been instrumental in shaping the nature of the borderland experience.

Place and Identity: Multiple Views

As Rodman (1992) has noted, anthropology has too often conceived of place as a background given in ethnography. In the wake of reconsiderations of place, particularly by human geographers concerned with the study of topology, anthropologists have begun to reassess the importance of the concept, with particular reference to its contested definitions and experiences, as social and cultural

constructs with ‘attendant dimensions of power’ (Rodman 1992:641). Hence the existence of multivocal expressions or narratives of place, creating what Rodman (1992:643) terms ‘multilocalities’.

This has involved analysis of the groundedness or rootedness of indigenous cultures in land. Attention has focused on how indigenous people appropriate landforms and use cultural and symbolic means to assign them significance and meaning; the ethnoclassificatory schemes or ‘cultural logic’ that order such meanings; and their historical transmission over time. People, in forming meaningful relationships with the locales they occupy, attach meaning to space, transforming undifferentiated ‘space’ into culturally meaningful ‘place’ (Low and Zuniga 2003:13). The ancestral domain or homeland of a people is created by this process, and becomes an integral part of a people’s identity system. The tradition, history and lived experience of a people are ‘embedded’ in their landscape.

Contests over places take place in a milieu of social relations of power. Low and Zuniga (2003:18) define ‘contested spaces’ as ‘geographic locations where conflicts in the form of opposition, confrontation, subversion, and/or resistance engage actors whose social positions are defined by differential control of resources and access to power’. There is a need to identify how different actors and cultures perceive, interpret and value their environments, including the ‘contests and tensions between different actors and interests’ in the social construction of place (Rodman 1992:644).

Peet and Watts (1996:267) explore the construction and competition of different environmental imaginaries of place, formed by the active role of the experience of social relations with nature. These edifices of signification are systems of meaning and representation—documenting meanings, aesthetics, ideals, values, uses and potentials in a people’s natural world. Stemming from material and social practices in natural settings, they also guide (but do not necessarily determine) further practices. These imaginaries are sometimes hegemonic, and may be brought from one area and carried to others. Imaginaries are thus prime sites of contestations between normative visions or models of the environment. Examples in the south New Guinea border area include early colonial views of the region as undifferentiated swamp with little or no economic potential, which stand in contrast

to contemporary celebration of the area as biodiversity-rich ‘wilderness’ by governments and conservation agencies.

For Wartha, land is a social landscape, infused with local identity, land ownership, language, and mythology (see Ayres 1983; Rumsey 2001). When Wartha look out upon their lands, they see hundreds of known, named places, a diverse range of environments, and evidence of past human and ancestral storybeing activity. This richness of vision stands in direct contrast to Western views of southwest PNG, which have usually bemoaned the monotony and emptiness of the landscape. This has implications for local systems of resource control and land ownership, and struggles over these with outsiders. These ‘emplaced’ understandings are often contested, and used in disputation within and between groups over claims to land and resources, with appeals made on the basis of ownership of mythological stories, filiation and residence.

Colonial delimitation of the south New Guinea border also ascribed frontier status to the adjacent areas, labelling them as frontier and extremity. For Wartha, though, their lands lie at the ‘centre’, and it is the state and most others that lie on or beyond the periphery of known place. At the same time, local people have skilfully appealed for state assistance with reference to their peripheral status within PNG. The meaning and power attached to locales is different between local landowners and outsiders, and emphasis may shift radically in the course of negotiation and confrontation between different groups.

Outsider perceptions of the area’s inhabitants, both negative and positive, have also influenced the forms and expression of colonial and capitalist praxis, and the nature of interactions between local people and outsiders. I argue that analysis of imaginaries of ‘other’—of ‘race’ and society—must be conjoined with environmental narratives to make sense of the meeting of peoples and modes of production on the Torassi frontier. Hence, I give special consideration to the construction of and conflict between different Torassi environmental imaginaries—defined as visions of nature that often guide social practice (Watts and Peet 1996:2)—as well as divergent imaginaries of people.

Previous Ethnographic Research

A number of classic ethnographies of South New Guinea peoples were written in the early decades of last century (see Knauft 1993 for a review). In the South Fly region and neighbouring border area, these include Landtman (1927) for Kiwai; Williams (1936) for Morehead; Nevermann (1939) for Kanum; and Wirz (1922-1925, 1928) for Marind.² Since the 1930s, however, ‘the south coast of New Guinea has been neglected as an area for ethnographic fieldwork’ (Knauft 1994:401).

To date, there has been a dearth of anthropological interest in how contact with the modern world system has affected the peoples and cultures of central-southern New Guinea (see Knauft 1993:36, 1994:401), and ‘the history of the Trans-Fly and Kiwai language areas from 1900 to 1950 is sketchy at best’ (Knauft 1993:29).

Most of this history has been one of extracting natural resources and/or human labour on the part of the state and private businesses. Most significant were the Torres Strait maritime industries which siphoned labour from the Kiwai territories and adjoining areas of coastal and inland Papua (e.g. Beckett 1987; Busse 1987:1, 1991b; Lawrence 1994; Schug 1995, 1996, 1997).³ However, it is important to note that a number of largely unpublished works, appearing since Knauft’s observation, do deal in whole or in part with these issues. In addition to the works cited above, these include reports for Ok Tedi Mining Limited by Burton for north Morehead and Suki (1995), Lawrence for the Fly River estuary (1995), and Tapari for Morehead (1995). Goldman (1999) has also produced a brief report on South Fly with respect to a proposed gas pipeline between PNG and Australia, and several anthropologists contributed to a feasibility study on resource management in the coastal zone of

² Van Baal’s (1966) epic work on the Marind is based largely on the earlier accounts of Wirz (1922-1925, 1928) and correspondence with the missionary priest Verschueren, as well as his time spent working at Merauke in the 1930s (Knauft 1993:33).

³ Through their engagement in the Torres Strait marine industries, Kiwai became familiar with Europeans and gained a working knowledge of English (and/or Torres Strait Creole), which made them popular as labour recruits throughout Papua. Kiwai recruits dominated the Armed Native Constabulary up to 1905, and men were also recruited to work as ‘boss boys’ and labourers on plantations and at mines throughout the territory (Dutton 1985:64,68,90; see also Beaver 1920:34,291; Jackson 1982:154). Their wide-ranging travels and labours stand in marked contrast to the Morehead emphasis on localised ancestral territories, and a pervasive fear of travelling beyond them to unknown places (see Chapters 3 and 6).

Western Province (AusAID 1997). Hammar has also provided accounts of sexual politics in Daru (1992, 1996a, 1996b, 1996c); and Eley (1988) has produced a thesis on Kiwai. It remains the case, however, that the history of the non-Kiwai South Fly is largely unknown beyond the records of the colonial administration. Long term studies of social relations of production and of local knowledge, and people's interactions with the environment, are required (Busse 1997:2).

Prior to my own research, there had been no detailed ethnographic study of any Torassi people. Several anthropologists have, however, visited or met with members of Torassi communities, in the course of broader research.⁴ In January 1904, just a few months after first contact with a European, the Wartha were visited by members of the Daniels Ethnological Expedition to BNG, accompanying a government party led by Christopher Robinson, the Acting Administrator of the possession. During a three day stay on the river, they took anthropomorphic measurements and photographs, and collected a number of artefacts (Seligmann 1903-1904; Seligmann and Strong 1906:226-229; see also Seligmann 1904c, 1906, 1909, 1910; Frazer 1910, II:34-35). Although Seligmann desired to return to the Torassi later that year to conduct further research, this did not eventuate (Seligmann 1904b:3).

Swiss anthropologist Paul Wirz, who conducted extensive fieldwork among the Marind-anim of southeast DNG, visited the Torassi and Morehead Rivers in January-February 1917. Wirz travelled by boat from Merauke to the middle Torassi, then overland by canoe and on foot to Tonda police camp on the Morehead River, before retracing his journey (Wirz 1928:168-186; Schmidt 1998:43-44; Lyons 1917b:6)

In September 1933, German anthropologist Hans Nevermann collected some information from *Thuntai* speakers, when he met and interviewed a small trading party from Muni village at Jobarik, a Marind settlement near Merauke. These details were published in his general survey of the Kanum people and their neighbours (Nevermann 1939:45-57).

⁴ The bibliographies of Schultze-Westrum (1967) and van Baal et al. (1984) contain references to the Torassi area, and Knauff (1993) provides a brief overview of research in the wider South Fly region.

F.E. Williams, the Government Anthropologist for Papua, undertook two visits to the middle Torassi, in August 1927 and October 1930, as part of the fieldwork for his classic ethnography, *Papuans of the Trans-Fly* (Williams 1936). This work is a descriptive, 'Notes and Queries'-style account of the people of the Morehead District (Knauft 1993:30-31). Williams largely worked with Keraki people, who live east of the Morehead River. On his first visit to the Torassi, he briefly visited some Wartha people living at Kenjo, near Thoro. On the second occasion, he arrived at Wando to find that all the people were away at Merauke (1926-1932:M.111, p.131, 1936:47).

Prior to his distinguished career as an anthropologist, Jan van Baal was a public servant in the Netherlands East Indies. In 1937, based in Merauke as Controleur of South New Guinea, he travelled across the border to a Wartha settlement. Details of this visit are discussed in Chapter 6. Marind references to the Torassi—mostly mythological—are also to be found in his monograph, *Dema: Description and Analysis of Marind-anim (South New Guinea) Culture* (van Baal 1966).

From 1979 to 1981 American anthropologist Mary C. Ayres conducted research throughout the Morehead District, detailing connections between marriage exchange, place, identity, and mythology (Ayres 1979-1983, 1980, 1982, 1983, 1984). Although based at Rouku, near the Morehead River, Ayres travelled widely, and visited the middle Torassi on two occasions. Her thesis, 'This Side, That Side: Locality and Exogamous Group Definition in Morehead Area, Southwestern Papua' (Ayres 1983), has been the subject of renewed interest in recent years (Knauft 1993; Rumsey 2001).

More recently, Grahame Martin, an Evangelical Church of Papua missionary, has produced a thesis entitled 'A Study of Time as Being According to the Keraakie people of southwest Papua New Guinea' (2001). This work is based on six year's residence at Arufe (1981-1987), in the western part of the Morehead cultural area, among the people Williams referred to as the Keraki.

The human geographer Budai Tapari, himself a Wartha man, has produced an interesting account of Wartha origin myths, which complement those collected by Williams (Tapari 1977; see Ayres 1983:61-63). He has also written extensively on development issues in the Morehead District in the post-Independence period, with a

particular focus on the commoditisation of Rusa deer, and the TWMA (Ranck and Tapari 1984; Tapari 1988, 1990, 1995; see also Chatterton et al. 1997). His work is among the earliest critiques of integrated conservation and development programs in Papua New Guinea (see Hitchcock 2004a).

The work of Ayres, Martin, Tapari and Williams has proved an exceptionally valuable foundation upon which to build the present thesis. However, only Tapari's work examines historical developments in the region in detail, with a focus on the post-Independence situation from an economic and human geography perspective. Virtually nothing is known about the Torassi borderland in the pre-Independence era, and there exists no ethnographic account of their articulation with capitalism and the state.

Government reports and archival material are another major source of ethnographic and historical information. Chief among these are the Annual Reports for British New Guinea (later Annual Reports for Papua), and the reports of colonial patrol officers (see McPherson 2001; Westermarck 2001).⁵ Original copies of patrol reports are held by the Papua New Guinea National Records and Public Archive in Port Moresby. Microfilm copies of patrol reports up to 1941 are held in the National Archives of Australia, Canberra (see Nagle 1998). In the early 1990s the Melanesian Archive, University of California, San Diego, provided funding to produce microfiche copies of all patrol reports held in PNG, including post-1941 reports (Lutton 2002). One such set is held in the Menzies Library of The Australian National University. There are also extensive records relating to the Dutch colonial administration in New Guinea (e.g. Miedema and Stokhof 1991, 1993; Overweel 1995; Militaire Exploratie 1920).

Many colonial officers and missionaries had an active interest in ethnology, and published articles and popular books based on their experiences in the region (see Knauff 1993:Chs 1-2). These works, and their diaries and journals, contain much valuable information, although it must be assessed with regard to context (Douglas 1992:110). Examples for the South Fly include Beaver (1920); Hides (1938); Lyons

⁵ Following Ayres (1983:11), hereinafter I abbreviate these annual reports as ARBNG and ARP.

(1915-18, 1922, 1923, 1924); Murray (1934:Chs 3-6); and Zimmer (1930, 1969). The link between anthropology and colonial administration in the region must also be noted. Van Baal, one-time Controleur of Merauke, and later Governor of DNG, went on to a distinguished anthropological career. On the Australian side, formal anthropological training was made available to some Papuan colonial officers prior to the Second World War, and became compulsory from the 1960s (Westermarck 2001:47-50). Government Anthropologist F.E. Williams accompanied patrol officers during his fieldwork. In the Trans-Fly he often travelled with Assistant Resident Magistrate (ARM) W.J. Lambden, who was a close friend; Williams was godfather to Lambden's daughter (David Marsh, pers. comm., 18 October 2002).

Summary

Like most societies of the South Fly region, the Wartha experience of colonial and postcolonial life has not been the subject of anthropological study, and their history is largely unknown. Nor has the role of the international boundary on New Guinea border communities received much attention to date.

This thesis documents and analyses the Wartha relationship with their environment, and their engagement with wider political and socioeconomic systems on a remote, underdeveloped borderland, in the period before and after independence. Articulation with colonialism and capitalism has resulted in significant changes to lifeway and landscape. Of these, disputes over lands and resources in the wake of the commoditisation of wildlife resources have proved problematic and dysfunctional for locals and outsiders alike. A critical, political ecology approach, with an emphasis on the precise nature of societal-environmental interactions on the Torassi borderland, is best placed to account for these developments. In so doing, my thesis presents new insights on the Melanesian experience of modernity, and makes an anthropological contribution to the growing literature on border studies.

In the following chapters I examine the social, environmental and economic context of Wartha life, as a prelude to a political ecological study of their experience of articulation on the Torassi borderland.

**PART II: PEOPLE, PLACE AND SUBSISTENCE PRODUCTION:
UNDERSTANDING THE TORASSI FRONTIER**



Plate 3: Iori and Paku Tapari harvesting *neinei* (sweet potato), Warmu (east bank of middle Torassi), 16 October 1997.

CHAPTER 3: SOCIETY

Introduction

To account for the political ecology of the Wartha, it is necessary to understand the sociocultural particularities of their articulation with outsiders. Following Carrier (1992b) and Thomas (1991), I argue that attention to Wartha kinship and exchange relations elucidates these processes.

I begin by noting important variations in Melanesian exchange logics, which appear to result in different reactions to and appropriations of capitalism. These general models, however, cannot take one far in the analysis of a specific instance of articulation: what is required is a diachronic understanding of the cultural forms that structure such entanglements. A practical contribution to this problem is a study by Burton (1995), which argues that core features of South Fly cultures encumber their ability to successfully engage with economic development, as evidenced by the consistent failure of development projects and locally-run businesses in the region.

In the second half of the chapter, I provide an overview of Wartha society, with a particular focus on those aspects of relevance to articulation with outside others. Traditional forms of Wartha kinship and exchange relations, political leadership, land ownership, and various other cultural forms and practices, are identified as being central to the nature of these engagements on the Torassi borderland. Changes to these over time, some of which have occurred as a direct result of their borderland history, are also examined. This sets the scene, then, for discussion and interpretation of disputes over lands and resources in later chapters.

Understanding Articulation

In recent years a number of anthropologists have begun considering the nature of Melanesian interaction with the capitalist world system more closely. The distinction between gifts and commodities, and the identification of two major forms of sociality in Melanesia—Big Man and Great Man systems—have proven useful in conceptualising forms of articulation in the region.

Gifts and Commodities, Great Men and Big Men

Gregory's (1982) distinction between commodity and gift exchange aims to account for the nature of articulation in Melanesian societies. The exchange relation of a commodity is a relationship between private property, with the transactors being strangers in a state of reciprocal independence that persists after the transaction; the aim of such exchanges is accumulation and maximisation of profit. Gift exchange, in contrast, involves the transaction of inalienable objects between individuals who are in a state of reciprocal dependence, with the aim of establishing social relations. This theory stresses the dominant role of gift logic and kinship relations in village societies; consequently, it does not frame Melanesian articulation in terms of an inexorable shift from kinship relations of production, to those of capitalism (Carrier 1992b:127).

Thomas (1991) has noted that while this dichotomy has proved useful, there has been a tendency to represent all Melanesian exchanges as gifts, obscuring known variation in transactional forms across such societies. Essentialization of this kind, he argues, must be 'displaced by more locally particular models of prestations, alienability, and debts' in order to more fully understand the nature of articulation (Thomas 1991:206). For example, some transactions comprise alienable objects, involving neither obligations of reciprocity, nor the establishment of ongoing social relations (1991:22,39).

Godelier's (1986) identification of Great Man societies, and subsequent re-perception of the Big Man system earlier described by Sahlins (1963), has reconfigured our understanding of Melanesian sociality (Strathern 1991:1-2). The differences between these social systems turn on distinct forms of exchange and domination. In Big Man societies, material wealth can substitute for human life, as evidenced by the payment of bridewealth for women, and compensation for war dead. Prestige and leadership is achieved through control over material wealth in elaborate competitive exchanges, where non-equivalent items are transacted (Knauff 1993:79; Strathern 1991:1). Social reproduction, then, is based on the circulation and redistribution of wealth. Big Man systems are often identified with Highlands societies, where this political type was first identified.

In Great Man systems, social reproduction is based on equivalence, or restricted exchanges of like-for-like, as exemplified by sister-exchange marriage and blood feuding. In these societies, multiple leadership roles exist, with domination associated with control of the ritual domain and/or physical coercion (Knauft 1993:79; Strathern 1991:1).

It must be noted that these models are only generalisations; for example, many variants of the Great Man society have been shown to exist (cf. Godelier and Strathern 1991; Knauft 1993:119-120).¹ Knauft (1993:80-81) has recently questioned Godelier's hypothesis that these different exchange logics—equivalent or non-equivalent—should co-vary with a number of factors, such as marriage and leadership types, and also takes issue with the essentialization of lowland New Guinea societies as Great Man systems. He demonstrates that the various linguistic-cultural groups of south New Guinea do not neatly fit Godelier's schema; 'overall, the clusters of traits that should co-vary as part of the logic of Big Man or Great Man societies are in fact mixed together complexly' (Knauft 1993:80). His analysis does, however, find that Morehead peoples may clearly be identified with the latter system, on account of a preponderance of Great Man characteristics, although he notes that leadership domination by wealth existed, in the form of competitive food exchanges (Knauft 1993:80-81). As I will show below, this 'Big Man' trait also incorporated notions of equivalence, and dovetailed with other forms of domination typical of Great Men societies.

Several authors have suggested that Big Men societies or 'bridewealth' systems may be 'preadapted' to capitalism as a result of their value conversion economies, with the opposite true of Great Men or 'brideservice' societies.² Knauft (1993:221-222), for example, has briefly noted the association between different principles of exchange and cultural orientations among Highlands and south New Guinea cultures,

¹ The Big Man label has also come under scrutiny, in particular the colonial and disciplinary context in which it emerged, i.e. emphasis on entrepreneurial individuals at a time of Australian economic development and encouragement of commodity production by smallholders, which tended to ignore or background the majority of villagers (e.g. Fahey 1986:147; Knauft 1993:120).

² The term 'preadapted' is somewhat problematic, but need not imply that these societies ought to be oriented toward capitalism (Thomas 1991:78,123).

and their subsequent ability to successfully articulate with Western economic projects. Similarly, Thomas (1991:122-123), while noting that the outcomes of articulation are locally and historically contingent, observes that societies characterized by restricted exchange logics have tended to have more difficult relations with outsiders and capitalist production activities, compared to those with value conversion, bridewealth exchange, and Big Man leadership.

To explain particular historical trajectories, however, requires magnification of the dialectic inherent in these relations. A starting point is a detailed understanding of the society in question, in particular, the nature of its exchange logic and kinship system.

Encumbrance of Kinship

Burton (1995:59-60) identifies three sources of woe for contemporary villagers in PNG: problems of government, of environment, and of village. In a recent overview of development issues to the north of the Torassi area (northern Morehead and Middle Fly), he considers how social and cultural structures—the village factor—have influenced local engagements with and understandings of outsiders and modernity. He argues that the societies of southwest PNG exhibit features which are less compatible with success in modern development than those occurring amongst communities elsewhere in the country, in particular the Highlands, resulting in a situation where:

We find a pattern of extremely scattered settlements and an extremely low population density, resources in abundance (subject to seasonal factors), yet a desultory level of economic activity. New initiatives seem to founder constantly and the net result is a level of community development in villages scarcely above that seen fifty years ago. The area has stood still since the time of Independence (Burton 1995:7).

Following a regional model developed by Busse (1987:63-71), he notes that a ‘cultural divide’ exists in southwest PNG, which seems to follow an ecological division between the swamp and savanna country to the south (areas inhabited by South Fly groups), and rainforest uplands to the north. These distinctions are based on the differences in exchange logics detailed above. South Fly societies are characterised by: (1) dual organisation; (2) sister exchange; and (3) the Great Man style of leadership, marked by one or more of the following: (i) men who traditionally achieved prominence in warfare, by hunting skill, through possession of

special ritual knowledge, or by some other non-economic means; (ii) men who are the eldest sons in a lineage, i.e. 'headmen'; and (iii) no marked leadership positions. This stands in marked contrast to those societies elsewhere in PNG where (a) brideprice is the norm, (b) land ownership is individualised, and (c) leadership positions are marked and acquired through success in traditional exchange, or nowadays modern business (Burton 1995:6).

Briefly summarised, the cultural forms and practices that constrain South Fly societies are identified as the following:

1. Dual organisation and sister exchange, which are said to be potential impediments to articulation with economic development, in that they constrain the ability of groups to cooperate and work as one: the 'logic of restricted exchange may impinge on social and economic development, where incentives to act constructively and co-operatively are essential' (Burton 1995:5). Burton gives examples from Busse (1987) to show that sister exchange can lead to considerable conflict within the group, and may involve land disputation.
2. Leadership functions, which were, in the main, not related to 'political skills', but were held by senior men of the clans, and associated with customs now obsolete, such as headhunting and ritual activity. These roles are said not to lend themselves to open competition or election, and are interwoven with the clan structure of the society (Burton 1995:3-4).
3. The existence of 'land tract logic', where boundaries are not well defined, running, for example, through swamps, and individual ownership is uncommon. Lacking physical demarcation, these 'fuzzy' boundaries may create insecurity, particularly when land and resources are commoditised. This contrasts with 'cultivation logic', where land is parcellised among individuals in areas of high population density, such as the Highlands, and subject to constant visitation and physical

demarcation (Burton 1995:13-16).³ This is said to account for the presence of land disputes in areas of low population density and large group territories.

Together, these result in a situation where development is said to be more difficult:

With many of their key social institutions rendered obsolete by the coming of the modern world, they may not even know they are confronting and often foundering on concepts that others in Papua New Guinea have effortlessly inherited from their ancestors, notably a style of 'political skills' leadership, enhanced concepts of territoriality (including those of land parcellisation), traditional concepts of exchange and compensation, and other aspects of culture that are much more compatible with success in modern development (Burton 1995:4).

Hence, in relation to modern economic development, societies such as Morehead peoples are deemed to be 'encumbered' by their kinship system, while Highlands people said to be 'less encumbered' by theirs (Burton 1995:6).

Burton also argues that several other factors shape articulation in the South Fly, namely, notions of the 'ownership' of leased lands and business groups, understandings of 'development', and the way local people conceive of relationships with outside 'others' (Burton 1995:29,38-39,110-111). Some of these issues are relevant to Melanesian societies in general, while others do appear to be linked to forms of land ownership and social relations of production evident in the region in question. I address these topics later in the thesis. With this model in mind, I now turn to an overview of Morehead culture and society, noting the extent to which the above holds true.

Morehead People

Morehead people identify as 'one people', distinct from their neighbours. A common kinship system, customs and material culture forms the basis of this cultural unity and distinctiveness *vis-a-vis* other peoples; with the Bangu-Maiawa-Sangara system

³ This, of course, is not to suggest a lack of disputation in these contexts: 'the upshot of this is a prediction that where land is weakly acculturated, or parcellised by non-physical means there is greater scope for disputation than where it is strongly acculturated, *given a constant level of parcellisation*' (Burton 1995:14, original emphasis).

of three exogamous sections, found right across the area, being the most important criterion (Ayres 1983:24-25). The geographical extent of the Morehead culture area has been delineated as follows:

on the west roughly by the border with Indonesia Irian Jaya, on the south by the coastal waters of the Torres Straits, on the east by an imaginary line running just east of the Wassi Kussa river, passing east of the village of BIMADEBUN, and to the north by an ecological line separating the lagoon country of the Suki people from the bush country of Morehead (Ayres 1983:24).

Morehead people speak dialects of the Morehead and Upper Maro Rivers Language Family, a member of the Trans-Fly Stock of Papuan or non-Austronesian languages. Within the district, two linguistic sub-families occur: Tonda in the west, and Nambu in the east (Wurm 1971, 1975; Wurm and Hattori 1981). These linguistic sub-family (or language) names are arbitrary, and there are no local names for them.⁴ There are, however, names for their composite dialects, of which there are over twenty. These dialects form chains within each language area (Ayres 1983:vi,27,136).

It is important to note that pan-Morehead identity is a post-colonial construction. Although neighbouring dialect groups were often allies, raids upon groups further afield were common in the period prior to pacification (Ayres 1983:25; Williams 1936:26). Further, Ayres's reference to the international border as the western boundary of the culture area excludes the Kanum peoples from consideration—groups who share language, culture, and kinship with Torassi communities.⁵ Some Kanum people live at Wereave on the upper Torassi, and others have intermarried into villages throughout the Morehead District. At the same time, the border does play an important role in contemporary identity construction (see Chapter 7).

⁴ As Ayres (1983:27) notes, Tonda refers to a place (the site of a former police post on the Morehead River), while Nambu is the name of the dialect spoken by the Keraki/Keraakie people.

⁵ There are apparently four Kanum groups; members speak dialects of the Morehead and upper Maro Rivers Language Family and have long been influenced by Marind culture. Today, most Kanum reside on the Indonesian side of the border, but at least two groups own lands east of the boundary (van Baal 1966:13-14; Donohue 1996; Nevermann 1939).

Dialect and Territorial Identity

In Morehead culture there is a direct relationship between dialect, people, mythology, place, social identity and territorial organization. Morehead origin myths account for the dispersal of different peoples and their languages throughout the landscape, from a common starting point. These and other creative events occurred during the ‘storytime’, a past age when storybeings wandered the land, creating the places within it. This era is thought to have existed just before the grandparental generation of elderly informants (Ayres 1983:48,265-266), and is qualitatively different to the present day:

The two great ages are qualitatively different kinds of reality: the mythical age was a creative, formative time of events which have passed, irrevocably finished, never to reoccur; the present is a physical and cultural order fixed in meaning by the perceived reality of the mythical age. The land and landscape mediate the two great ages. The events of myths are imprinted or transformed into the fixed, atemporal perpetual reality of the landscape (Ayres 1983:48).

Today, mythical beings are no longer active, mobile beings, but are in fixed association with sacred places and things. The order of present-day society is also fixed: through the activities of the mythical beings, people came to be where they are today, with the customs and languages they have today (Ayres 1983:125).

There are two main origin myth cycles in the Morehead District, which largely correspond to the two linguistic sub-families. For Tonda language speakers, this is the Tjuari/Kwavar mythology, while for Nambu speakers it is the Kuramanggu myth cycle (Ayres 1983:49,69-70).

These mythologies contain knowledge about the world, the creation of land and sea, fire and flood, the seasons, rivers, rocks and waterholes, birds, trees, places, the establishment of people throughout the countryside to the very lands their grandchildren still look after today, and the customs of initiation and headhunting (Ayres 1983:46).

In the Tjuari/Kwavar cycle, the original home of human beings was a banyan tree or strangler fig (*Ficus* sp.). The tree was burned, and the people, who all spoke different dialects, were scattered throughout the landscape (Ayres 1983:100,107-108; Williams 1936:385-386; see Tapari 1977 for a Wando version, collected from Wartha elders alive in the mid-1970s).

In the myth of KWAVAR, people are differentiated through a process of scattering from a single place. Or, one may interpret the events as a transformation: the single place, the *wasu* tree, is transformed into the land which is geographically segmented and on which people are differentiated and identified by virtue of their relative geographical location. This identity is audibly marked by dialect (Ayres 1983:103).

The roots of the mythical tree were also transformed into the Torassi and its creeks. I was told the following account by Karum Kaurai, of Pikunjur village, in 1997:

After the tree was on fire, its *tjermint* (main root) made the *karipa* (Torassi River). Where the root went, there the river went. As the root came up, it was on fire. Where the root stopped, the fire stopped. Behind that came Bawur (Eel-tailed Catfish), digging up the ashes where the root had burned. As he did this, water came up the channel. He also dug up the *tjermint tuti* (smaller roots), which created the *tuti* (creeks). At the *karipa tho* ('river tail', i.e. the headwaters of the Torassi) he stopped, where he remains to this day. His tail is still moving, and this makes the water come down the river. When it is the wet season, his tail moves quickly, and much water comes down, but in the dry it moves only very slowly. At this time not much water comes down river, and the *edof wenei* (salt water) comes upstream [English gloss of story recorded 10 February 1997].⁶

Mythology, then, accounts for the people, land, and everything in the landscape, and provides the epistemic basis for the social order and social relations of Morehead people (Ayres 1983:125).

Accounting for Europeans and Cargo: The Two Brothers

The origin myths of Morehead people have been revised in the period following contact with Europeans, to explain and differentiate the origin of the newcomers and their material goods, from local people and their technology (Ayres 1983:50,108; Martin 2001:39,147,153).

The original Tjuari mythology features two brothers: the older brother is dark-skinned, while the younger man is light-skinned. The younger sibling later flees southward (in some versions, eastward). In the post-contact period, this brother is often identified as a European (in particular an Australian, given that Australia lies directly south of the Morehead District), and usually possesses a shotgun and the

⁶ See Ayres (1983:58) for a similar story about the origin of the Morehead River, recorded at Mibini village.

other accoutrements of modern life (Ayres 1983:52,58,108-109; Williams 1936:306). Ayres (1983:72) also recorded another myth, in which European goods were said to be owned by the primeval beings of the storytime.

The association of European ‘cargo’ with the mythological age is also evident in the statements of Morehead people that such items may be seen, or at least ‘heard’, at several sacred sites, including Tjuari, which are like windows to the mythical age (Ayres 1983:316). Of the origin place Tjuari, Ayres (1983:323) was told that:

I would see plates, cups, spoons and copper pots belonging to the storyman beside the hole. I was told I could hear people’s voices there, and planes, motorcars, and a wireless radio.

Martin (2001:146-147,153,236,349) notes that the storytime was a period of ‘power and wealth’, that explained the past origin of everything of value in nature, culture and society. As a result, Europeans and their technologies have been incorporated into the myths. He believes that this underpins the understandings (and confusion) of some Keraakie about modernity, development, and the source of wealth and power, which led to a minor ‘cargo cult’ at Arufe in the 1980s.⁷

While I do not believe that the mythology has absolutely guided all dealings with outsiders, it is important to note that it does posit a relationship between Morehead people and Europeans, with origins in the mythological age, and that it has been used to account for the latter’s possession of material goods and technology.

Dialect Groups

Williams (1936:52) states that the distinguishing features of Morehead dialect groups (which he calls ‘tribes’) are a separate territory, a separate language (i.e. dialect), and a sense of unity expressed in the use of a common name. Ayres (1983:142) restates the dialect group definition as follows:

⁷ Knauft (1993:224) has documented how the ‘Trans-Fly’ has been generally immune and resistant to cargo cults, which he interprets as a result of their ‘Australian-like cultural propensity for reliance on personal mythic enhancement rather than the accretion of spiritual force in large and long-lasting material artifacts’. The Keraakie example cited by Martin (2001) largely involved one individual, but his research makes it clear that the articulation of the storytime, the wealth of outsiders (especially that of missionaries) and the the spiritual message of modern evangelical Christianity, has proved confusing and frustrating for many Keraakie.

Dialect groups are comprised of an aggregate of three or four localized section groups (i.e., residential groups) the people of which speak the same dialect, consider themselves as 'one' and do not intermarry. Each dialect group ideally includes people of all three sections: Bangu, Maiawa, and Sangara.

Dialect groups rarely act as one for a common purpose, with the exception of warfare, the making of feasts, and the initiation of adolescent boys (Williams 1936:55). However, most members of a dialect group will usually cooperate to make a single large yam garden (Ayres 1983:163), at least where this is feasible in terms of the proximity of its composite local section groups.

The origin place of each dialect, where the people first landed from the common origin centre, is also fundamental to local identity construction. The speakers of a particular dialect are related to one another by virtue of their identification (based on the origin myths) with this place (and the wider dialect group area to which they thereafter spread). In other words, the idiom of dialect group identity is in terms of a single place, and this connection is marked audibly by their use of the dialect associated with that place (Ayres 1983:108,146,178,330). The starting place for Wartha is Thoro, while that of Kormbo people is Kormbo, and Mbavir is the starting point for the Mbavir people (*Ranjer Tjokwasef* dialect speakers).⁸ As one informant explained, 'Thoro is the centre', from where the first people spread.

The Wartha dialect is variously referred to as *Thuntai* (speech, language), *kan Thuntai* (just speech, just language), Thoro *Thuntai*, or Wartha *Thuntai*. It is said to be largely identical to the language of the Kormbo people to the north. Kormbo people's speech is said to be 'slower', and some state that the dialects were differentiated by pronunciation shifts in the past, as well as some minor lexical differences, although they are now said to be 'the same'. This is explained by the fact that the people live in closer proximity than before, in sedentary villages, and that their children go to school together. The fact that the two communities were traditional allies and exchanged sisters, probably also accounts for this situation.

⁸ Kormbo is the correct name for the village shown as Korombo on topographic maps of the area; it is no longer inhabited, as most Kormbo people now live at Pikunjur, near the BWL. Mbavir has not been occupied for many decades.

In addition to *Wartha Thuntai*, most Wartha are able to understand—but do not speak—the dialects of neighbouring peoples, and be understood in their own dialect in turn. Children also learn their mother’s dialect (Ayres 1983:136-137).

Ethnonyms

Morehead peoples have few collective names for themselves; local level ‘people names’ are rarely used, and the researcher trying to find them is faced with difficulties. Where a group does use a name to describe itself, this is often the dialect origin place, again highlighting the importance of place and myth in identity construction (Ayres 1983:25-26,52,133-134,146; see also Williams 1936:52).

The names for groups of people at this level of regional dialect segmentation are very rarely used; often they are not even known. Informants often thought long and hard about the names and they were frequently inaccurate. In general, specific place names [i.e. dialect origin places] are typically referred to instead of groups of people, families, or patrines (Ayres 1983:133-134).

Some of the proper names used for peoples in the district are directional or situational ethnonyms, used by one group to describe another. For example, group A will call their neighbours to the west, ‘B’; group B will also call their western neighbours ‘B’ (Ayres 1983:133). No group uses such a name for itself. Local people sometimes employ the English word ‘tribe’ to refer to a people, i.e. a dialect group.

I would agree with my ethnographic predecessors regarding the confusing nature of ethnonyms in the area. I found that two names, Thoro and Wartha, are used by *Thuntai* dialect speakers to describe themselves as a group of people. One is a place name, the other a proper name; both terms require clarification.

The name Toro (or Torou) appears in early colonial and anthropological reports, such as the first contact report of Jiear (1903), and Seligmann’s account of his meeting with them in the following year (Seligmann and Strong 1906:227-229). This is of course Thoro, the origin place of *Thuntai* dialect speakers. The suffix *kor* (‘people’) is often added, i.e. Thoro-*kor* (‘Thoro people’). These reports state that this appeared to be their ‘tribal name’ (it was also an inhabited settlement at that time). I found that some people continue to use this term to describe *Thuntai* dialect speakers.

I also found that many *Thuntai* speakers referred to themselves as Wartha people. The term ‘*Warata*’ was recorded by Williams (1936:35-36), he states that it means lagoon, and is sometimes used to refer to the Gambadi (see below for a definition of this term). Local people state that Wartha has no such meaning; it is ‘just a name’ and one which originally referred to another group (discussed below). This is one exception to Ayres’s (1983:133) statement that people names are rarely used for self-ascription. Confusingly, in the fieldnotes of Williams and Ayres, there are instances where Mbavir and Kormbo people also call themselves ‘Wartha’, and where dialect groups living to the north similarly identified the Kormbo, Mbavir and Wando people by this name.⁹ I have been unable to account for this, other than to suggest that it may again reflect the multiple (and at times hesitant) usage of proper names, as opposed to place names which refer to specific origin places. Its varied usage (self-ascription and directional) by a variety of dialect groups perhaps points to the fact that it does indeed refer to the low-lying and swampy environment of the coastal plain and associated Torassi and Morehead River floodplains, which were apparently occupied in the recent past by a now extinct people of that name. One Wando informant told me that Weam people have a story that states that the original Warthas are said to have migrated to the coastal plain from the upper Torassi, and that this forms the basis of attempts—totally unaccepted by Wando people—to assert rights to the deer on the Bula Plains.

It would have perhaps been more apposite to call the people I principally worked with (i.e. *Thuntai* speakers) the Thoro, but in general, I found that most *Thuntai* dialect speakers use the term Wartha. This name has been used by Tapari (1977) and Chatterton et al. (1997) to describe *Thuntai* dialect speakers.¹⁰ Further, during my fieldwork I found that most of the Kormbo and Mbavir people self-identified as Kormbo-kor and Mbavir-kor respectively. Therefore, unless otherwise mentioned, I

⁹ For example, Ayres (1979-1983:323,325,436,492) records that ‘Wartha’ was used by Mengete people to refer to Kormbo and Wando people; by Wemenevre people to refer to Mbavir; and by the Mbavir of Bondobol to refer to themselves and Wando people. At Bondobol, she was told by an elderly informant that it is a ‘long time name’, i.e. it is old, and does not refer to a place.

¹⁰ Tapari spells this ‘Waratha’ in early publications (e.g. 1977), but more recently it is figured as Wartha (Chatterton et al. 1997), which is a more correct rendition.

use the term Wartha to refer to the people who speak *Thuntai* dialect, and whose origin place is Thoro.

In several ethnographic reports (e.g. van Baal 1966:13, 1986:262; Nevermann 1939:45-48,57), *Thuntai* dialect speakers have been referred to as the Mani or Munni people. This is the name of a place situated west of the lower Torassi. A group of Wartha lived there between the 1930s and 1940s, the time when they were met with by these researchers.

Williams (1936:34-39) uses the labels Keraki, Gambadi, and Semarki to refer to the three main ‘peoples’ of the Morehead District. His schema was based on the arbitrary use of existing ethnonyms to describe three main cultural areas, defined on the basis of similarities in language, mythology, material culture, and environment. He used the term Gambadi to refer to several dialect groups inhabiting the swampy southwest corner of the Morehead District, including the Wartha, Kormbo, and Mbavir people. The name Gambadi was unknown to most Wartha people; this term is apparently used by the Keraki (Nambu dialect speakers) living east of the Morehead River, to refer to their western neighbours. While there are some linguistic connections, shared material culture, and a tradition of alliance between Wartha, Kormbo and Mbavir, it is still a problematic term. As Ayres (1983:26) notes, ‘Williams’s identification of three groups of peoples implies greater similarity within the groups than between the groups....this distorts the significance of a network-like pattern of differences’.

While the above account may seem long-winded, it is the case that the usage of these terms is politically charged in the contemporary context, forming part of the chains of explanation by which some groups assert rights to lands and resources at the expense of others.

Wartha Society, Territory and Neighbouring Groups

The Wartha own a very large territory by New Guinea standards, given their small population. Early British and Dutch visitors noted that they owned lands for many kilometres on both sides of the Torassi, but that these were situated entirely within Papuan territory, i.e. east of the 1895 international border (Hellwig 1909:9; Jiear 1903:5).

The land belonging to a dialect group has recognised boundaries, especially at points where tracks cross the boundaries, usually at swamps or creeks (Ayres 1983:140).¹¹ To the north, Wartha lands adjoin those of their traditional allies, the Kormbo. One of the marks between their territories is said to be a small creek, immediately to the north of the BWL (Ayres 1979-1983:374).¹² To the west, a border was shared with the Kondo Marind, as well as with the Kurkari, a Kanum people.¹³ Van Baal (1986:268; see also 1966:260) noted that the border between Kondo and Muni (i.e. Wartha) lands went through a swamp called 'Kabayam', probably in the vicinity of the border, several kilometres north of the Torassi rivermouth. Wartha informants also state that the Torassi rivermouth marks the start of Marind lands to the west (O'Farrell 2001:28).¹⁴ To the south, Wartha lands encompass the coastline between the mouths of the Torassi and Morehead Rivers, while to the east and northeast, their lands abut those of the Mbavir and Wemenevre people respectively.¹⁵

A Case of Succession?

Like other parts of PNG, the Torassi area has seen significant demographic changes in recent times. At contact, the South Fly was the scene of endemic headhunting, which resulted in significant depopulation, the extirpation of some groups, and the dislocation and scattering of others. Among the Morehead and neighbouring Kanum peoples, this has been well documented (e.g. Ayres 1983:140; Beaver

¹¹ Contra Williams (1936:51), who found that 'each [dialect group] has its own continuous area of land, though there are no strictly defined boundaries: in a country so thinly populated and so liberally sprinkled with useless areas, land disputes are not likely to be common and strict boundaries are not a necessity'.

¹² At the time of my fieldwork, this border was being disputed by a Wartha Maiawa clan, and a Kormbo Sangara clan. The creek in question is located in the vicinity of the northern edge of the BWL lease area. The Sangaras claim that the boundary falls to the south of the creek, to include the ground on which the BWL buildings are situated.

¹³ Jiear's (1903:13) report notes that the people living in the Kurkari villages of Kondugara and Bau claimed land on both sides of the Anglo-Dutch boundary.

¹⁴ According to a recent Marind declaration, their lands stretch 'from the mouth of the Torasi in the east to the mouth of the Digul river in the west' (O'Farrell 2001:28).

¹⁵ Ayres (1979-1983:324) was told by Mbavir people at Bondobol that the creek located approximately one kilometre south of Balamuk marks the northern boundary of their lands, and the start of those belonging to Wando (i.e. Wartha) people.

1920:106,112,115; Jear 1903:14; Martin 2001:4-5,289; Strachan 1885-1886:91-92; van Baal 1966:701-702; Williams 1936:51,53,212; Wurm 1975:342).

According to many older informants, in the recent past an additional group of people, the ‘true’ Wartha, lived in the swampy lands south of the present day villages on the middle Torassi. These people are often described as a tall, very black people with straight hair—‘like Aborigines’—who spoke a totally different language.¹⁶ The original Warthas are said to have been killed by a Marind raid on their village, which was situated at a place called Betibeti. The people were surrounded in their village, shot by arrows, and the settlement burned. Some people state that there were one or two survivors, who sought succour and then intermarried with the Thoro people.¹⁷ As a result of this intermarriage and succession, the Thoro people also became known as Warthas. As one informant stated, ‘we call ourselves Warthas after [the] people whose land we moved into’. Some people point to the very dark skin colour of some people as evidence of Wartha descent.¹⁸

According to Ayres (1983:161), when a patriline in a dialect group becomes extinct, its lands pass to the closest patriline of the same section. There are also recorded instances of dialect groups occupying the lands of other, extinct dialect groups—indicative of a ‘tendency for the gaps in the system to be filled in’ (1983:140; see also Williams 1936:212).

¹⁶ Local people today point to several people, said to have these physical features, as having ‘Wartha blood’. It is interesting to note that Seligmann heard reports in 1898 (during the Cambridge Anthropological Expedition to Torres Straits) of Aboriginal-like people in this area, and made investigation of these rumours one of the main aims of his visit to the Torassi during the Cooke Daniels Ethnographical Expedition to New Guinea. However, he found the ‘Toro’ people Papuan in physiognomy (Seligmann 1906:425; Seligmann and Strong 1906:366; Urry 1998:213). Jear (1903:13) reported straight hair among the Sukon people of the upper Torassi, and sent a sample to the Government Secretary in Port Moresby.

¹⁷ In several accounts, a woman named Nio is the sole survivor. It is difficult, if not impossible, to put a date to this occurrence. On the basis of the fragmentary knowledge about these people and events, the shallowness of local genealogies, the culture of forgetting the dead (see Ayres 1983:Ch 6, 1984), and the chronology of Marind raiding, I would speculate that it occurred in the late nineteenth century.

¹⁸ Some Morehead people are very dark, and when in other parts of PNG, such as Port Moresby, they have sometimes been identified as Buka people (Budai Tapari, pers. comm., 1997).

The Marer

Perhaps the most confusing aspect of social groupings in the Torassi area is the identification of the Marer or Mareer, a name which appears in early colonial reports and maps, referring to both a group and a village (e.g. Faithorn 1933; Hellwig 1908:9; Militaire Exploratie 1920).

Few contemporary Wartha were able to tell me much about this people. Some said that it referred to a 'sub-group' of Thoro people (i.e. *Thuntai* speakers), mostly comprising Sangara and Bangu section members, who used to live in the country to the south of Wando. At Kormbo in 1927, Williams (1926-1932:M.55 p.107) met the Thoro Village Constable (VC), and in his fieldnotes he reports that 'Torou [i.e. Thoro] & Marer are said to be "one lang.[uage]" ...ie appear somewhat diff.[erent] from Asingabara, Babiri [i.e. Mbavir] etc.'

In some cases members of these sections stated that they were called this name in the past. However, all Bangu, Maiawa, and Sangara *Thuntai* speakers identified Thoro as the origin place of their ancestors. ARM Lambden, during a visit to the Wartha settlement of Kenjo in August 1926, was informed that 'a branch of the TORO people live North of here at KARAMBO and another branch live South of here near the coast at MARERA, YAMU, and PARAM' (Lambden 1926:14).¹⁹

One elderly informant stated that the Marer originally came from a place called Bunter on the Morehead River. In this version, the Bunter group later settled at Thoro, and were then given land on the Bula Plains. Over time, they came to speak the *Thuntai* dialect. Another, Maiawa informant stated that the term Marer comes from the *Thuntai* word *ma*, an exclamation of surprise. According to this account, when the Thoro people first saw these 'newcomers', they were startled to find them living in the area. This version must be treated carefully, however, as this informant is involved in a land dispute with a Sangara clan over the Bula Plains, and is keen to

¹⁹ With respect to the Kormbo, we can only guess as to whether or not the Wartha of this time really meant to cast their relationship with them in such terms. But at the very least, it points to the close relationship between these neighbouring groups, who spoke similar dialects, exchanged wives, and cooperated in food production, feasting, and warfare (see below).

undermine their title to these lands.²⁰ Yet other Wartha and Kormbo people stated that some *Thuntai*-speaking Bangu and Sangara families, living in Wando and Balamuk villages, were descendants of the original Warthas mentioned above.

Some Kormbo informants also state that two groups of Wartha were identified in the past, the Tuf Wartha, and the Masmās Wartha. *Tuf* is a grass that grows along the riverbank, while *masmas* grass grows on the Bula Plains further south; this is indicative of the different environments that were occupied by these groups.

Various groups and individuals have different stories that account for the different social groupings of the past and the present. The following, somewhat cloudy picture emerges from local statements and early colonial reports. First, that another dialect group, the original Warthas, once occupied territories in the lower Torassi area, and were largely eliminated by the Marind-anim (see below). Second, that the Thoro and Kormbo people of the middle Torassi were allies, and that they spoke the same dialect, albeit with some very slight differences (which are largely irrelevant when one considers the differences between them and neighbouring dialects). This may suggest a common origin, or is perhaps the result of alliance and intermarriage over time.²¹ Third, that many people refer to the Marer as either a sub-group of the Thoro who occupied lands south of the middle Torassi, as in-migrants from the Morehead River area, while yet others aver that they were ‘real Warthas’, who joined up with the *Thuntai*-speaking people from Thoro, and later adopted their language. Unfortunately, much of the past is unknowable, on account of extremely shallow genealogies, and the loss of much cultural knowledge as a result of headhunting and epidemics (see below).

²⁰ Ayres (1979-1983) collected Wartha genealogies from a number of people, including now-deceased elders, well before the eruption of major land disputes. These show Thoro as the birthplace of the earliest remembered forebears of Wartha patriline.

²¹ Close links between the Kormbo and Thoro people may also be evidence of ‘dialect splitting’, where subtle differences emerge between two groups within a dialect group with a common origin place, which may lead, eventually, to a sense of separateness in terms of language, and possibly of place (see Ayres 1983:138,140). The Marer-Thoro distinction may represent this, or simply be a slightly differentiated local section group (or groups) of *Thuntai*-speakers, on account of the habitat they occupied (i.e. south of the uplands on which Thoro is located), and the belief that some of them were descended from the original Wartha. This is, of course, pure speculation on my part. It is interesting to note, though, the association of ‘Wartha’ and ‘Marer’ with Bangu and Sangara patriline; Thoro (the place) is identified as belonging to Maiawa people.

Local Section Groups

Membership of the exogamous sections, which are distributed right through the district, is by patrilineage. Within a dialect group, the local section group, usually comprising two or three genealogically unrelated patrilineages belonging to the same section, is the most important unit of social organisation among Morehead people (Ayres 1983:155; Williams 1936:56,66,114). It approaches a corporate group: united by kinship and cooperating in production activities, ritual matters and feasting, and the negotiation of marriage, there is a strong sense of group solidarity, of identifying and acting 'as one' (Williams 1936:113-114,258).

The inhabitants of settlements usually comprise members of only one or two sections, although in rare cases, all three—Bangu, Maiawa and Sangara—may occur (Ayres 1983:153; Williams 1936:57,66).²² Within multi-section villages, same-section households tend to gravitate together; in other words, two or more local section groups may occur in a single village (Williams 1936:66,119). In the case of the Wartha, Dembantjepeth (Wando Patrol Post) and the nearby hamlet of Torwaia are Maiawa settlements; Balamuk is largely Bangu; while Wando has patrilineages representing all three sections.²³

The local section groups are said to have spread out or scattered to settlements in the landscape from the dialect group 'starting place' or 'centre place' (e.g. Thoro). As a result, the tracts owned by the patrilineages of the sections are intercalated through the area. Each tract or place, including the starting place, has a single section identity, that is, it is owned by a particular patrilineage (Ayres 1983:146,150,153), and hence 'one can block out large areas of the country occupied by a dialect group with regard to their dominant section identity' (Ayres 1983:153). Consequently,

²² Where all three sections do occur, this is sometimes an artefact of village nucleation in the colonial period (see below).

²³ Balamuk is a mixed Wartha and Mbavir settlement, comprising a number of families who moved there from Wando and Bondobol to be closer to work opportunities at the Balamuk Wildlife Station, which was established around 1970.

Local section groups identify with one another to form a single [dialect] group on one hand, by virtue of their supposed settlement from one local center, their common dialect, and their lands being contiguous and “mixed” (i.e., intercalated), and on the other hand, by their differentiation from neighbouring groups on the same grounds: that they did not settle from one local center, they speak different dialects, and their lands are not contiguous (Ayers 1983:171).

Patrilines

Ayres (1983) demonstrates the importance of patrilines, which are not clearly discussed by Williams in *Papuans of the Trans-Fly*.²⁴ It is through membership of a patriline that one obtains proprietary rights to lands and resources. Membership of patrilines (which are often called ‘clans’ by local people) is on the basis of patrilineal filiation, i.e. filiation to or descendedness from the father, or grandfather where he is known, rather than descent from named apical ancestors.²⁵ This is because

the genealogies of Morehead people are extremely shallow. Very few people know beyond their grandparents’ generation....On occasion I met with people who did not even know their grandparents, let alone collaterals in the grandparental and sometimes parental generations (Ayres 1983:217).

This genealogical shallowness probably allows for multiple truths and multiple claims in the current context of land disputes; for example, I suspect that some ostensibly genealogically unrelated patrilines of the same section are, in fact, related at higher generational levels, i.e. descended from common ancestors, long since forgotten.

Genealogical shallowness appears to be changing, as most families now document the dates of births, deaths and marriages, and a number of people have charted their genealogies in the context of land disputes. I am aware of one Torassi clan that states that they are directly descended from a storytime figure; they also assert a stronger claim to contested lands on account of a supposedly deeper genealogy (by one or two generations) than their adversaries. Ayres (1983:48,112) states that Morehead people do not cite storybeings as apical ancestors, as humans are spatially and temporally

²⁴ Importantly, she also demolishes his claim that the Morehead people are divided into moieties based on a one-two section division—Sangara and Bangu-Maiawa—wherein Bangu and Maiawa may not intermarry, but either may marry with Sangara (Ayres 1983:183-184; Williams 1936:57).

²⁵ Throughout the thesis, I use clan and patriline interchangeably.

separate from these beings. There is clearly a move toward patrilineal descent reckoning, rather than patrification, which in the particular case cited above, is strengthened via a claim to descent from the beings associated with the beginning of the world. This is largely a political consequence of intensified conflicts over lands and resources. I suspect that it has evolved in the course of exposure to PNG-wide narratives of customary land ownership disputes in the context of compensation claims, and reflects: (1) an awareness that deeper genealogies are the norm in many other parts of PNG, and that questions of tenurial rights in such places often turn on who possesses the longest genealogy, thereby demonstrating the longest occupation and use of the land in question; and (2) a belief that those outsider judges and arbitrators likely to be involved in any future determinations of rights to land in the Torassi area, beyond the village court context, are likely to adjudicate with reference to this principle.

Households

The household is the most basic unit of Morehead society, usually comprising a married couple and their unmarried children. In the past, polygyny was common, particularly among headmen, and this female labour assisted them to amass root crop surpluses for use in prestige-generating ceremonial exchanges (Knauff 1993:76,108-110). With Christian influence, monogamy is now universal. Only one polygynous household exists among the Wartha today, in Wando, comprising two widows of an influential Maiawa man who died around 1980, together with a number of unmarried daughters. Williams notes that the household is more-or-less economically self-sufficient, with the exception of some tasks requiring cooperation between local section group members (Williams 1936:108-110,113).

Wider Socio-Political Organisation

According to Wartha oral tradition, their closest traditional allies were their Kormbo and Mbavir neighbours. The term for this relationship is *nermom*, glossed in English as ‘allies’ or ‘friends’. These groups would exchange wives, feast together, and cooperate in raiding and some food production activities. This relationship was noted by a 1908 Dutch Military Exploration patrol, which recorded that the ‘Toro,

Garambo [Korombo] and Mareer are a powerful federation of tribes, the Bapiri-anim (Hellwig 1908:9).²⁶

Land Tenure

The Morehead countryside is divided into thousands of named places. As Williams (1936:207) notes, ‘the whole countryside is divided into greater and lesser areas, all of which are named. If you ask your guide where you stand at any moment, he will be able to give a name to the land’. In the vicinity of settlements, such places are often as little as one hectare in area, while in open savanna and grassland country, they might be as large as several square kilometres (Ayres 1983:129).

The boundaries of these places are marked by ‘creeks, swamps, or stretches of bush, and they are not always continuous or clearly defined; but despite some haziness regarding their actual limits the tracts are fixed and recognized’ (Williams 1936:207). Ayres (1983:99) notes that ‘trees commonly mark the boundaries of places where tracks cross boundaries’; I also found that isolated stands of large palms, situated on banks of the river, served as riparian boundary markers.

Each patriline owns a tract of land encompassing a number of such places, and therefore, each place has a particular section identity (Ayres 1983:150,153). Ayres (1983:160) has encapsulated the key elements of land ownership:

Ownership entails not only use rights but also the obligation to “look after” the country. Ownership is typically vested in the senior male of the patriline, although all men of the patriline have equal claim to tracts. Tracts may be allocated among sons. Patriline of the same section often, but not always have tracts in the vicinity of one another (Ayres 1983:160).

Williams (1936:148,213) also notes that inheritance is patrilineal (no women ever being named as a landowner), and that a senior man could also divide his lands among his brothers or sons. In both cases, succession is from the father, through the younger brother, and back to the son of the elder (Williams 1936:211,256).

²⁶ The term ‘Babiri’ does not refer to any such collective, but rather the Mbavir people. This Dutch report may reflect a mistranslation (Dutch patrols to the area often took Marind guides with them); perhaps all four groups are meant, which would be more accurate.

Trees are owned by the men who planted them, irrespective of their location (Ayres 1983:163; Williams 1936:220). These are usually situated in former gardens, or abandoned or existing settlement places. Garden plots, and the crops therein, belong to the cultivator, even if they exist on another's lands, but only as long as they are in use (Williams 1936:255).

In theory, individual use of wild resources of a particular tract is restricted to male and unmarried female members of the patriline (and women who married into the patriline, of course). Anyone may ask the owner for permission to use his land, and permission is likely to be given. For the most part, though, a man prefers to use resources of his own place (Ayres 1983:162).

According to Williams, Morehead landownership was 'hardly more than nominal', 'vaguely exercised', and largely concerned with rights 'of permission, and nominally of veto'. He found that the authority of the landowner does come into force when decisions are made with respect to the commencement of gardening activities, such as the selection of a suitable site. Furthermore, a man may make his garden on any other man's tract, provided he has the owner's permission; Williams heard of no instance where consent had been withheld (1936:213-214). No compensation is associated with this usage (Ayres 1983:164; Williams 1936:213). Noting the advantages of saved labour on land clearing and fencing, Williams notes that

it is, therefore, no disadvantage to have another man or a number of men, come and make gardens on your tract, when there is ample land to spare. It is not a favour for which you demand compensation. For you know that when the time comes there will be opportunity for you to cultivate plots on the tracts of others if you wish to do so (Williams 1936:213).

Land could also be acquired by 'discovery' or by gift. With regard to the former, this appears to have been associated with the occupation and use of the lands of groups exterminated by headhunting raids (Williams 1936:211-212).

Men who reside uxori locally, on account of not having an exchange sister, state that they still retain proprietary rights to their own lands. However, where their descendants remain in the matrilineal village, and where their own clan lands are distant, they may rarely, if ever, have cause to visit or utilise them. In these cases, it appears that the descendants only come to enjoy use-rights to the original tracts, on account of time, distance, and genealogical shallowness. For example, a Bangu man resident in Wando, whose Wemenevre ancestor (grandfather, or possibly great-

grandfather) moved to Thoro in order to marry a woman at that place, told me that that he is still allowed to hunt crocodiles in certain Wemenevre swamps, as long as he visited the Bangu landowner, to ‘let him know’.²⁷ Presumably, this man is either a distant agnate, or belongs to a patriline that has succeeded to these Bangu lands; no direct genealogical relationship between the men is known. In their new homes, such men only have use-rights in the affinal patriline’s land, although they may also be gifted a subdivision, thereby gaining proprietary rights. But where living memory exists of their origin, the original landowners may later deny that the rights are exclusive or proprietary, at least in the modern context of land disputation.

In the storytime, the landscape was created by creative speech acts—as the storybeings travelled they called the names of the places, thus creating them (Ayres 1983:177). The basis of indigenous land ownership is ‘*knowledge of the story* of the division by naming of the places by the storyman as he journeyed to the west’ (Ayres 1983:161, original emphasis). In her thesis, Ayres (1983:161-162) presents the storytime account of the lands belonging to Forak of Rouku, on the Morehead River, and notes the customary principle underlying his claim to ownership:

By virtue of his right to tell the story of his places, the knowledge of the tjeveth [origin] of the places, Forak re-affirms his patriline’s rights to the tracts. To sum up, then, ownership of land is fundamentally based on the knowledge of and *right to speak* the “story.” To speak the names in essence recreates the mythical ordering of the world. Telling the story is a performative speech act which both re-establishes the existing order, and recreates the source of that order, the invisible, past mythical age (Ayres 1983:162).

Hence, indigenous title is mythically charted:

The relationship of people to mythical places is based fundamentally on knowledge of the myths about those places, and in particular on knowledge of the proper names of the active beings who people the myths. A claim is not so much made on the site of the storyplace itself, but on the secret knowledge about it (Ayres 1983:122).

In the past, during initiation (*mangu*), Wartha boys would learn about these stories (*piorsei*), and hence, their tracts, or *yarkar* (lit. ‘sleep place’); *yarkar* were described

²⁷ He does not have to ask formal permission, but rather advises the landowner, who than has the right of refusal (which is hardly ever exercised).

by Budai Tapari (pers. comm. 1997) as one's 'nesting place, your country where you were born, grew up'.

Up until the 1970s, government and anthropological reports relating to the area noted the absence or rarity of land disputes, a situation said to be linked to sparse population and large group territories (e.g. Orwin 1972; Ramokasi 1972:8; Williams 1936:51). Today, however, the observer is struck by the constant land disputation, more often than not sparked by resource commoditisation. This has led to a decline in intra- and inter-village sociality, as evidenced by a reduction in cooperation and sharing. For example, some local section groups now prefer to make their own gardens, rather than cooperate with others, and rights to hunt and gather products from land are becoming more exclusive. Further, many people complained that people were today less friendly, and less willing to share food and other goods, on account of the bad feeling engendered by these contests.

These issues have been compounded by demographic and settlement changes, which are documented below. Further, commoditisation has in some cases demanded of the Wartha and their neighbours a more precise, lineal (i.e. cadastral) demarcation of boundary, which contrasts with that seen in the indigenous land tenure system. For example, most Morehead people travel on tracks, and many of the boundaries between named places, and dialect groups, occur on these footpaths (Ayres 1983:99,140,173). We might therefore expect that in infrequently visited areas of bush and swamp, away from tracks, such boundaries might indeed be 'hazy' or even unknown (and where known, may in fact change over time, where vegetation communities form part of the boundary). Clearly, this form of land demarcation corresponds to Burton's 'land tract logic'.

Adoption

Ayres (1983:223) notes the Morehead custom of adoption of females in the context of sister exchange marriage, to obtain a 'sister' for a son, who will then exchange her for a wife. Adoption of male children may also occur in attempts to ensure the social reproduction of patriline; the child does not have to belong to the same section as the adoptive father (1983:252). Subsequently, adoptees have a choice in their section (and therefore patriline) identity, later rejoining their natal section if they so choose

(Ayres 1983:161,249).²⁸ Among the Wartha, I was told that male children are adopted in cases where a man has no sons, to ‘look after the lands’. However, in many instances the adoptive parents already had natural sons. I would suggest that in some cases, adoption provides not only sisters for sons to exchange, but brothers for daughters, as noted by van Baal for the Marind-anim (1966:122) and Verschueren for the Yéi-nan (van Baal 1982:27), who both practice sister exchange.²⁹

Issues of adoption loom large in contemporary land disputes. Where a man does in fact identify with his natal patriline, he is expected to renounce his rights and interests in the lands of his adoptive kin. Some adoptees utilise the inherent flexibility in the system to seek out material advantage from interclan disputes over lands and resources, shifting the emphasis of their identity—adoptive or natal—in the course of different arguments and opportunities with other Wartha, or outsiders.

Men who retain their adoptive section identity are often at a disadvantage in disputes with other patrilines, as they are quickly reminded of their adoptive status, and said to have less authority as a result. Like the descendants of men who were given proprietary or usufructuary rights to lands as a consequence of one-sided, uxori-local marriages (see below), attempts may be made to restrict their participation in such disagreements.

Political Leadership

On the whole, Morehead society may be said to be relatively acephalous. However, in the past it was usually the case that each local group had a senior man, who Williams’s calls the ‘headman’. Providing he is confident and intelligent, this will generally be the oldest and most knowledgeable man in the group. However, there is

²⁸ Williams (1936) makes no mention of male adoption in *Papuans of the Trans-Fly*, but does discuss the giving of classificatory sisters as exchange girls within local section groups, and the purchase of ‘sisters’ from same-section groups further afield (Williams 1936:137-140).

²⁹ Verschueren’s comment regarding the Yéi-nan practice is interesting: ‘parents of an unequal number of sons and daughters normally tried to achieve a balance either by adopting a boy or a girl as a prospective exchange partner for a daughter or son, or by giving a supernumerary son or daughter to a couple in search of one’ (van Baal 1982:27). It would be interesting to re-examine the genealogies collected by Ayres with this in mind.

often disagreement as to who should fill this role, and there could be more than one such person in any such group (Williams 1936:236).

Apart from the headman, other individuals within the group might also emerge as important, through force of personality. For example, it may be the case that a younger brother becomes a leader because of a more assertive personality (Williams 1936:237): ‘the main essential in social influence is ‘personality’ or will-power, the gift of impressing one’s views and purposes on the rest of the community’ (1936:238).

Morehead people have been identified as possessing many features associated with Great Man-type societies (Knauff 1993:80). Among the Wartha and other Morehead groups, Great Man forms of leadership included gerontocratic control of ritual and women, and success in headhunting (Ayres 1983:260-261; Williams 1936:243).

Regarding the functions and expectations associated with his role, Williams (1936:113) notes that ‘he maintains none of the trappings of chieftainship and he does not issue orders to be obeyed, but he is none the less definitely the leader of the group’, and that ‘he is expected while he fills the position to be an energetic gardener, to be a man of wealth and generosity, to initiate feasts’ (Williams 1936:243). Clearly, the exercise of his leadership and authority seems most associated with food production activities:

The headman does not issue orders. He does (at least nominally) give the word for such undertakings as the preparation for a feast, or a combined hunt, or a fencing bee, or sago-making. But such decisions are really reached gradually and after a good deal of discussion, quite at random, among the group at large (Williams 1936:244).

In Morehead society, any man may obtain prestige through success in production of yams; a man able to produce enough yams to fill his yam house, and feed his family until the following harvest, is known as a *kai thambai wongan* (lit. ‘big yam man’; see also Ayres 1983:165). Success in the hunt was also important, and many men still collect trophy displays, consisting of the jaws of pigs and wallabies, and more recently, deer skulls or antlers (see Ayres 1983; Williams 1936:223). But by far the most prestigious activity was the successful staging of competitive yam feasts; headmen were at the forefront of the issue of invitations to, and the preparation and

organization of, these events, whereby they could obtain further renown (Williams 1936:243-244; see below).

As a form of leadership associated with wealth creation (in food), this has been identified as a Big Man trait (Knauft 1993:81). However, it is important to note that competitive exchanges took place in the context of other Great Man leadership forms, such as the control of women and coercion. Gerontocratic control of marriage, and appropriation of women's labour, was essential to the amassing of large quantities of root crops involved in these prestations; in other words, more wives, equalled more garden plots, which equalled more garden produce (see Williams 1936:150; see Knauft 1993:76,184,188). The headman would also publicly exhort kin to contribute to yam feasts (see Williams 1936:238); in so doing, it appears that they would capitalise on fear of shame and public ridicule to increase production and/or productivity in these contexts (see below).

Although colonial imposition of VCs transformed the nature of traditional leadership, those appointed were, in most instances, the true headmen (Williams 1936:242). One can also only speculate as to how the appointment of people to the positions of kepala and mandur by the Dutch, and VCs by the English and Australians, intersected with and perhaps upset this traditional system.³⁰ A common complaint in colonial patrol reports is the lack of suitable candidates for the position of village constable, perhaps reflecting the fairly acephalous nature of leadership at a day-to-day level.

Obviously, many elements of traditional leadership have been rendered obsolete by articulation with the modern world. The exercise of 'push' (Williams 1936:240) is evident in Wartha villages today, where younger men are able to exercise leadership through charisma, or obstreperousness, and where education, travel, and church participation confer power and prestige. As a result, older men are often ignored, or remain silent, as their younger counterparts dominate proceedings. This shift was reported by Wren (1968:13) in an administrative assessment of the Morehead District

³⁰ The Dutch began appointing 'village chiefs' from 1914 (van Baal 1966:40).

in the late 1960s; he found that the ‘nebulous’ and ‘haphazard’ power of traditional leaders was almost non-existent:

the whole sub district and its leaders are rather conservative and anti-progress....As with all parts of the Territory, the younger men with more ideas and a better education have far more say in village affairs than in the old days.³¹

Martin (2001:268) also reports a similar situation at Arufe, on the eastern side of the Morehead District, where ‘Keraakie gerontocracy is losing authority to younger men in a world where education, employment and money have now become power’.

New ideas concerning leadership have also been imported from other parts of the country, demonstrating the importance and impact of wider narratives of landowner politics in contemporary PNG (see Chapter 8). In one case among the Wartha, a local Maiawa man, who had lived in the Highlands, was determined to employ the robust forms of confrontation and disputation that had observed there to the Morehead District, including direct landowner action against developers (e.g. through blockades of roads and airstrip) aimed at securing compensation.

While traditional food production activities continue to confer considerable prestige at the village level, they do not form the basis of leadership in the modern context, although it is often a corollary of it. Within and between settlements, there is tension between men who are better versed in traditional stories and mythology, genealogy, and are more village-centred, and those who are better educated, and who live and work beyond the village, or who did so for a long time before returning home. Higher education means years spent in Daru, Port Moresby, or other distant mission schools, and work in the public service or private industry may see them posted to distant parts of the country for long periods of time. As a result, such men may have less opportunity to learn from their elders. As knowledge about origin myths allowed the right to speak of and for lands and resources, this can put them at a disadvantage during disputes, and they may be challenged by others who have identified a role for themselves as ‘traditionalists’, able to employ knowledge of places and genealogies

³¹ Wren’s (1968) Area Study must be read as a fairly typical post-war administrative narrative, which judges local people with reference to prevailing notions of Australian individualistic leadership, initiative and economic rationality.

to their own political ends. Further, non-resident elites may also be resented by villagers, as they are seen to live a comfortable life, with access to money, housing and so on; they may, therefore, find it difficult to galvanise local people into action for a common cause, or find that villagers reject their claim to be speaking on their behalf.

There may also be competition and conflict between brothers (including classificatory brothers) within patriline, as they vie for authority. For example, the Maiawa clan at the centre of many land disputes in the area had five men (two of whom were adopted) who presented themselves as spokesmen in differing contexts. Although clans might be expected to be a fundamental unit of solidarity and corporate action, such tensions can make them ineffectual in instances where cooperation is necessary to achieve their aims. Indeed, many of these men had wildly diverging interests and opinions regarding the nature of their disputes with outsiders, and some acted very much with their own personal interests in mind. Arguments among themselves were not uncommon, as the issue of adoption prevented a straightforward identification of any one man as the headman (Chapter 8).

Reciprocity and the Ethos of Cooperation

There can be little doubt that reciprocity permeates almost every area of Morehead social life (Martin 2001:198; Williams 1936). In the following sections, I briefly outline three major instances of reciprocal exchange (two of which are no longer practiced), all of which were identified by Williams (1936:167) as being of great importance to the establishment and maintenance of amicable intergroup relations.

Sister Exchange

Marriage is by direct, symmetrical, equal sister-exchange, although sisters can be classificatory, and the exchange may be deferred (Ayres 1983:184; Williams 1936:166). Sister exchange is common throughout the wider south New Guinea area (e.g. Boelaars 1981:34 for Jaqay; Busse 1997 for Boazi; Nieuwenhuijsen-Riedeman 1979 for Suki; Ohtsuka 1983 for Gidra; Serpenti 1965 for Kolepom; see also Knauff 1993: 61, 244n1). A key adaptive function of sister exchange was the establishment

of amicable social relations with neighbouring groups in the context of endemic headhunting (Martin 2001:297; Williams 1936:169).

The most common solution where a man lacks a sister to exchange, is for the husband to reside uxorilocally, thereby negating his requirement to find an exchange. This practice is said to ensure peaceable relations between villages and families. Such men continue to own their own lands, but are also granted use-rights to lands in their wife's clan. Where men travel some distance to marry, continuing to utilise their own lands may be impractical. In some instances, the man might be granted lands permanently. As mentioned earlier, in the modern context of land and resource commoditisation, such arrangements are now subject to dispute. Other 'solutions' to the problem of obtaining a sister include the gift of a girl by the local section group, adoption, and, in the past, purchase of a sister from another local section group (Ayres 1983:222-223; Williams 1936:134-135,139).

In recent times the influence of fundamentalist Christian churches in the area has undermined traditional custom, and previously 'wrong' marriages are becoming more common (i.e. between members of the same section); such unions have led to community disputes in some instances. Furthermore, there have been a number of 'brideprice' marriages in the last couple of decades, but this is a non-traditional, modern custom (Ayres 1983:225). I was told that the Morehead brideprice was relatively fixed, at around K500. Nonetheless, it remains the case that the majority of marriages are by direct sister exchange. Williams (1936:140), discussing the rare instances of sister purchase in the Morehead, noted the pervasive emphasis of this form of 'like-for-like' exchange:

And yet if a man can buy a sister to exchange for a wife it is difficult to understand why he cannot buy a wife outright. But there is evidently a tendency to insist on exchange, to elevate it, so to speak, to the status of an end. If elsewhere wife-purchase has come to be an alternative to or even substitute for exchange, this process has hardly begun in the Morehead district.

In addition to land disputes and accusations of sorcery and adultery, conflict over sister exchange is one of the biggest sources of friction in the community. I recorded a number of disputes, several of which involved intergenerational debt; such arguments are also mentioned in several patrol reports. Interestingly, despite an

exhaustive treatment of the subject, Ayres (1983) makes no mention of any such conflicts.

Although relations between sister exchange groups are usually characterised by mutual respect and hospitality (Williams 1936:256), it is the case that failure to reciprocate a woman in a sister exchange marriage can cause significant problems between local section groups. Similarly, divorcing one's wife, and demanding the return of the sister given in exchange, is a breach of custom that can lead to serious conflict. Given the prevalence of dialect exogamy, among the Wartha such instances usually occur between neighbouring groups such as the Kormbo or Mbavir. However, as such groups often reside in closer proximity to one another today, this has the potential to result in more frequent clashes than was the case in the past. These may be further compounded by accusations of sorcery; failure to exchange is often viewed as inviting sorcery attack. I discuss these developments later in the chapter.

I am not aware of any land disputes directly associated with exchange, where land is exchanged in return for a wife, as discussed by Busse (1987:350). However, it is clear that disputes over sister exchange marriages intersect with other types of disputes on the Torassi, including those concerning land ownership.

Wife-lending

The exchanging of wives between friends for sexual intercourse, particularly at intergroup feasts, was common in the Morehead District (Williams 1936:24,110,159-160). Williams (1936:159-160) identified this as 'an act of hospitality or friendship....[which] is a means of establishing or confirming the bonds of fellowship' (1936:160). Visiting men would then reciprocate at a later feast. These favours could also be extended to outside others who could not reciprocate, such as the police detachment at Tonda, which Williams saw as involving a combination of gratitude, friendship, expediency and ingratiating (1936:160). Early encounters between Europeans and Morehead, Kanum, and Marind people often involved offers of women to the former, in circumstances suggesting that this was done to signify amity and establish relationship (e.g. Jear 1903:12; ARBNG 1889-1890:72; see also

Beaver 1920:128 for an alternative view, that such offers could mask treacherous intent).

The story of the origin of Marind headhunting is couched in the idiom of wife-lending: the rupture occurs when a Wartha man kills his Parma friend for refusing to share his wife—a breach of reciprocity that leads to disaster. One version of the story tells how, upon the conclusion of hostilities, a Parma man from Kondo offered his wife for sex as a sign of peace (see Chapter 6).

Yam Exchanges

Reciprocity and equivalence were also evident in competitive root crop prestations between groups. Such feasts generally took place in the dry season, after the yams and taro had been harvested, and ‘are symbolic representations of the establishment and maintenance of social unity, since all members of the community are involved’ (Martin 2001:329).

Williams (1936:166-167) noted that the balance of reciprocity was carefully observed and honoured with respect to inter-group exchanges of food, the exchange of sisters for marriage, and wife-lending hospitality at feasts, and argued that

all these exchanges possess one important function in common. They serve to bring the groups concerned into closer connexion with one another; they establish relations and confirm them....The gift, then, with the insistence on reciprocal return, is a means of cementing the relations between individuals or groups; it forestalls hostility and commits them to some sort of fellowship. The gift is a gesture of friendship; the return of the gift is a sign of acceptance. Exchanges in general help people to get on together (1936:167).

The competitive element lays within the original prestation, which is made as large as possible in order to demonstrate the group’s skill in food production; very large feasts incur great prestige. In addition to informal sharing of yams to the visitors for immediate consumption, there would also be a formal distribution, carefully counted by the hosts. According to Williams (1936:232), the keeping of such records function not only as ‘safeguards of reciprocity’, but ‘records of achievement’. The guests must reciprocate at a later date with their own feast, but are only required to match the original quantity they received. Failure to do so is shameful. In this respect, Morehead yam feasts mirror those reported by Serpenti (1965:233) on Kolepom, where shame and the fear of public ridicule provided the impetus to match the

original prestation. Yam exchange feasts also had the potential to intensify local food production. Urged on by their headman, people worked harder, and cultivated more crops, in order to make a good 'show' and avoid the disgrace of an inadequate prestation (see Williams 1936:234,238).

Reciprocity, Sharing and Egalitarianism

The above discussion does not seek to essentialize the Wartha in a timeless ethnographic 'present', that is in fact the past. Articulation with colonialism and postcolonialism has resulted in the cessation of some traditional exchanges. During my time in the field, I was informed that yam exchanges had largely ceased in the 1980s, following the spread of evangelical Christianity through the western Morehead District, which identifies such practices as demonic. I did observe one pig-killing ceremony at Pikunjur, which the host conducted in order to finish his one-sided marriage, and a modest yam display rack was constructed for the occasion. Wife-lending, which formerly accompanied such events, appears to have stopped some decades ago. Sister-exchange, too, is under attack from some Christians, and together with the availability of money has seen an increase in 'wrong' and brideprice marriages. In the main, though, direct exchange remains the favoured method of marriage throughout the area. What I have sought to illustrate, through the examples above, is the importance of direct and equivalent exchange, of like-for-like, in Wartha society. These reciprocal exchanges underpinned the reproduction of social life, through the people's wealth in women and food.

An emphasis on sharing and egalitarianism also pervade Wartha society (e.g. Williams 1936:Ch 14). Indeed, Morehead peoples share the same characteristics of the 'moral economy' of Australian Aboriginal peoples, as recently described by Peterson and Taylor (2003); in addition to these values, it includes an emphasis on polite indirectness that makes open refusal difficult. Together, these make individual accumulation difficult, and those attempting it are subject to censure.

Given that this is a gift-logic society, characterised by a continuing emphasis on the above cultural forms, this has implications for the nature of relations with outsiders. I argue that interactions with others are shaped by these cultural orientations, and conducted in the idiom of kinship and personal relationship. Reciprocity, sharing and

equivalence are therefore expected of those who engage with the Wartha. However, where commoditisation of resources has occurred, this has led to problems, as the people must grapple with a new system of exchange, based on the conversion of things into exchange-values. As I will demonstrate in later chapters, the Wartha experience of articulation has been problematic and unsatisfying as a result.

Cultural Conservatism and Cultural Inferiority

With reference to the cessation of certain cultural forms, it is apposite to briefly consider the ‘cultural psyche’ of Torassi and Morehead people in the years following contact with Europeans. Williams (1936:vi,11,34) felt that the area was suffering the effects of cultural confusion in the 1920s and 1930s, with the people being in low spirits, both socially and collectively, following years of headhunting by Marindanim, and the devastation wrought by the 1919 influenza epidemic. He also noted the abandonment of a number of cultural practices, some of which could not be ascribed to the impacts of European contact at this time (e.g. Williams 1936:232-233).

This is hardly surprising given the trauma of Marind ethnocide. In the very early years of contact, a pervasive defeatism was apparent, no doubt the psychological legacy of this suffering, as year in, year out, the people tried to avoid being prey. Pim (1901), during an early visit to a group of Morehead River people, noted that

They were living in wretched maia-maias, inferior even to those of the Queensland aborigines; and when asked why they did not build houses they said, “What is the good of building houses for the Tugeri to destroy?” They seemed to have given up all hope, and appeared to look upon the fact that sooner or later they were fated to have their heads cut off and carried away to adorn Tugerimne’s [sic] houses; as a perfectly natural event, it was hopeless to try and escape.

An ethos of conformity and conservatism has also been attributed to Morehead societies, on account of the fixedness of the physical world and the great attachment to localised ancestral territories (Knauft 1993:185-187; Williams 1936:248-261). According to Knauft (1993:188), this conservatism prevented the development and

implementation of a coordinated, defensive response to Marind aggression, e.g. through alliance and a strong warrior ethic.³²

The social dispiritedness of Morehead people was, I believe, further intensified in the colonial period, as Christianity and contact with outsiders displaced traditionally valued forms of prestige and leadership, such as headhunting and gerontocratic control of women and ritual matters, and large yam prestations. For example, by the 1950s initiation had largely ceased, as men's houses and ritual homosexuality were discouraged by the earliest Christian missionaries, and patrol officers directed the people to construct 'model villages'. Huge yam exchange ceremonies, which entailed the construction of the gigantic display racks observed by early visitors to the district, were also a thing of the past by this time, replaced by smaller examples (see Williams 1936:232-233).

Wartha state that this has led to a loss of cultural knowledge; for example, it was during initiation that details of the storytime were transmitted, through *mangu piorsei* ('initiation stories'). The wealth and technology of Europeans also stands in tension with their cosmology and mythology, which accounts for the origin of all things. This has led to confusion about the nature of relationships with outsiders, dissatisfaction with their way of life, and frustration at their inability to obtain wealth (see Martin 2001).

With the basis of societal reproduction eroded by headhunting and epidemic, and subsequently cast as primitive, irrational and immoral by outsiders, I believe that the loss of these key cultural forms has contributed to a sense of cultural inferiority, of subaltern status, *vis-à-vis* others, and that this has influenced the nature of Wartha articulation. It may, for example, illuminate confusion about the sources of wealth and power, and account for a dependency which results in the failure of many locally run enterprises, once initial outside funding and/or support are withdrawn. Further, it is not unreasonable to suggest that cultural confusion and loss contributed to the

³² While I agree with Knauff's view that elements of Morehead cosmological orientation prevented the development of an effective defence to Marind raiding, it must be remembered that the overwhelming nature of these attacks was exceptional by New Guinea standards. Knauff suggests that their focus on

serious problem of alcohol addiction (in the form of tuba), which is a common theme in patrol reports from the 1950s onwards; and it may also account for the recent, widespread acceptance of expressive forms of Christianity.

Sorcery

The belief in sorcery is widespread in the Morehead District, and anyone who dies at a very young, or very old age, is thought to have fallen victim (Williams 1936:335). Sorcery is generally not imputed to close kin, such as local section group members (Williams 1936:258).

Sorcery obviously has implications for articulation, in that it has a negative impact on social cohesion, and is also a deterrent to entrepreneurial success, as people who do well may be accused of engaging in the practice. Similarly, if such people suffer some misfortune, they may well blame this on a jealousy-induced sorcery attack, as inequality is considered a breach of cultural norms. Sorcery is also associated with the anger and frustration that accompanies pre-existing sister exchange and land tenure disputes, and villages may also be abandoned as a result of sorcery fears and accusations (Ayres 1983:299).

When a sorcerer is identified, they will often be brought to the village court; in other instances, they may be beaten. Needless to say, this can further set the scene for social disharmony and violent payback, physical or magical.

Settlement Patterns

As mentioned earlier, Morehead District dialect groups traditionally consisted of three to four settlements (Ayres 1983:142; Williams 1936:51). In the wet season the people would stay in the village, usually situated on high land to escape inundation by floodwaters; while in the dry, individual families fanned out into the landscape to engage in hunting, fishing and gardening activities, and to be close to water sources

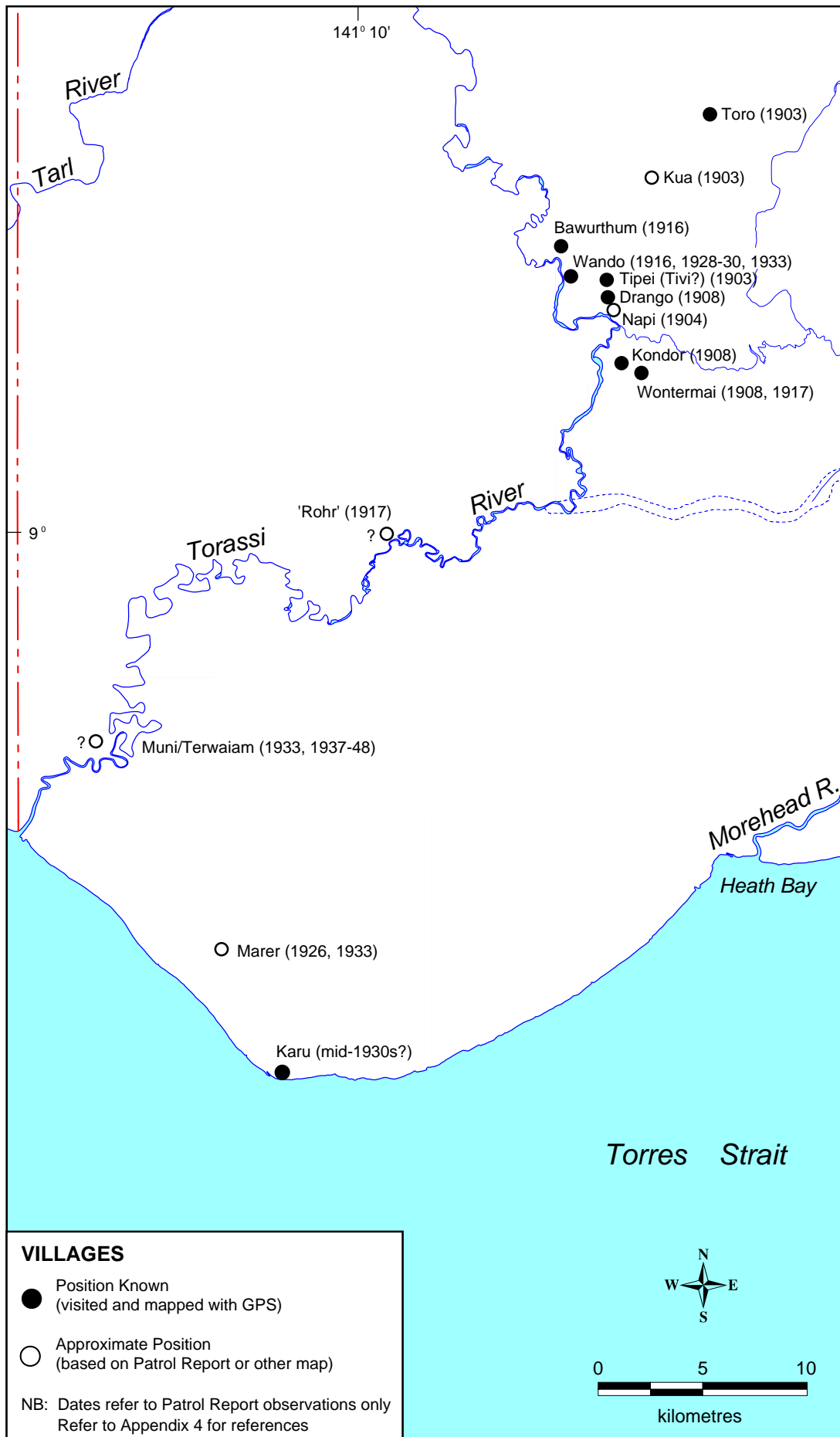
food exchanges as a source of prestige, rather than success in headhunting (and hence their relative passivity), identifies them as conservative. This seems rather value-laden.

(Ayres 1983:155-156; Tapari 1988:8; Williams 1936:12-13,25). Although more permanent villages are now the norm (see below), the people still utilise many garden, hunting, and sago encampments.

Some informants state that in the past, Wartha local section groups would largely live within their own lands (e.g., Bangu patriline would move around Bangu lands). Ayres (1983:158) found that ‘residence as a rule is in on one’s group’s tracts’. It is very difficult to reconstruct the situation prior to village nucleation, and further disentangle it from the rather desperate situation at contact, when people lived in fear of headhunting.³³ The traditional pattern was further complicated by *mati*, the 1919 influenza pandemic, which resulted in many deaths, and the abandonment of the settlements in which these occurred. From an analysis of colonial and ethnographic records, it appears that there were usually one or two principal settlements of *Thuntai* speaking people at any one time. Map 4 shows known Wartha settlements in the period 1903 to 2004; accompanying data appears at Appendix 4.

Settlements were usually abandoned on the death of a person, unless the individual was very young or very old, because deaths are usually attributed to fears of sorcery (Ayres 1983:12,24,156,268). For example, Ayres (1983:299) recorded the people of Wando moving to four locations—Yenir, Tera, Sen and Balamuk—following the deaths of two old men in 1981. I was told that at the time of these deaths, many strange things had occurred in and near the village, including ‘floating lights’, and the people had left in fear. Settlement mobility of this kind is obviously not conducive to the operation of economic activities requiring stability of residence; however, in recent years this practice seems to have ceased with the influence of evangelical forms of Christianity.

³³ Marind raiding parties into BNG left during the north-west season, and started the return journey before the onset of the southeasterly trade winds (Beaver 1920:117). This allowed for canoe travel eastwards along the coast in calm weather, and the advantage of the wind on the way home (van Baal 1966:716).



Map 4: Wartha Settlements, 1903-2004

Village Nucleation

From the 1940s, there was a determined push by the administration to consolidate Morehead people into larger, permanent villages (see Chapter 6). Wartha state that the concentration of people in the one village exacerbated disputes over lands and resources. From the 1970s, however, the traditional pattern, i.e. of several settlements per dialect group, began to reassert itself somewhat, as the constraints of the colonial past disappeared, and land disputes intensified (Tapari 1988:8). Some of these moves have also been influenced by the amenity of roads, government stations and sources of potable water (e.g. Ayres 1983:18). In consequence, it is still the case that many settlements are non-traditional, in the sense that they comprise most members of a dialect group (e.g. Pikunjur), or members of two dialects groups (e.g. Balamuk). Around 1995, ongoing disputation led to a group of Maiawa people, formerly resident at Wando, to establish a new settlement at Torwaia, near the BWL and Dembantjepeth (Wando Patrol Post); all of these places are situated on their lands. Notes on the position of settlements in the western Morehead District appear at Appendix 5.

The Wartha today live in four villages: Balamuk, Wando, Dembantjepeth (Wando Patrol Post) and Torwaia. Wartha women (and some men) are also found in other dialect group settlements as a result of intermarriage, in particular Bula, Bondobol, Korombo and Wemenevre. Since the 1950s, a Sangara man from Wando has lived with his wife's people at Kondo, in Papua Province.

From discussions with Wartha, it seems that detailed knowledge of their western boundaries (i.e. with the Kurkari and Kondo-Marind) is becoming attenuated, on account of increased sedentism over the last few decades in settlements along the middle Torassi. I was told by middle-aged men that although their fathers had told them the names of the places that marked the boundaries, not all men had visited these locations. However, I think it is too soon to assert, as Pula and Jackson (1984:43) have done, that land ownership rights in the Torassi borderland are being abandoned. It is the case, though, that increased sedentism has made it harder to guard against poaching in these areas, as well as along the coast, and it has also impacted on food production activities (see Chapter 5).

Demographic Changes

Headhunting, and the 1919 Spanish influenza epidemic (*mati*), resulted in many deaths among the Wartha and their neighbours. It seems likely that some contemporary conflicts over the origins of particular ancestors relate to this period, as the demographic crash almost certainly caused complications with the sister-exchange system, forcing some men to seek wives in distant communities, and reside uxorilocally. This was the case for the ancestors of several contemporary Wartha families, who were given land rights (property or usufruct) by Thoro people upon marrying Wartha women. The nature of these rights is currently being contested and renegotiated in the context of conflicts associated with resource commoditisation.

Several patrol reports from the 1950s and 1960s mention adjudicating marriage-exchange disputes, and others comment upon a lack of brides, which supposedly forced some young men to marry old widows. Very low birth rates are also a common theme in these reports. Observations of young men and widows may be a misinterpretation of the widespread practice of the levirate, and gerontocratic control of marriage. Nonetheless, it is also probably indicative of a very real problem of finding adequate numbers of marriageable women in this period, the result of a demographic decline which continues to have ramifications for intergroup relations, in the form of intergenerational disputes over sister exchange. As Gardner and Weiner (1992:128-129) note, demographic events of this kind may have negative political outcomes:

It is apparent that if harmonious relations between two communities are primarily expressed through the exchange of women as wives, then serious sex ratio imbalances (given the friction these might bring) would have political consequences. The probability of such chance imbalances is a function of community size. Consequently the larger the communities the greater the chance that each will have enough of each sex to meet its commitments to the other. Conversely, the smaller the exchanging units the more chance there is of sex ratio imbalances within and between them.

The census figures in Appendix 6 indicate that since the 1960s the population has been steadily increasing, which obviously has implications for local communities, particularly with respect to subsistence production (Chapter 5).

Clearly, depopulation from headhunting and the effects of *mati* have had ramifications for contemporary land ownership and disputation in the Torassi area.

As Ayres (1983:24) notes of the influenza epidemic, if ‘we can assume that a greater proportion of older people died than would be normally expected then much esoteric knowledge would have died along with them’. As we have seen, knowledge of the storytime was central to claims about land. Compounding these problems are others associated with groups taking over the lands of extinct patriline and dialect groups, as well as the apparent need for some men to travel to other areas in order to obtain a wife through uxorilocal residence (no doubt, these groups probably welcomed the addition of these males). I would also argue that there is a connection between depopulation, the dying out of elaborate yam exchanges, and a process of agricultural disintensification (see Chapter 5).

Encumbered by Kinship?

The above overview of Wartha exchange and kinship, and associated ideologies and cultural norms, suggests that they are indeed ‘encumbered’ in the terms discussed by Burton (1995) above. While this is a somewhat negative prognosis, it has a positive side, in that it might encourage development activity that is more culturally appropriate, and it might also allow for a rapid assessment of the potential for such activities to succeed.

Given the importance of social identity in the determination of access rights in Melanesia, struggles over meaning are a key part of of struggles over resource ownership and allocation (Bryant 1992:28). Appeals to history, kinship and residence are fundamental to Wartha disputes over lands and resources. In the light of my overview of Wartha society, I now present two case studies of disputes that demonstrate the cultural logics at play in such contests.

Case Study 1

Y is a Bangu man, born in Wando. His grandfather (possibly great-grandfather) is universally acknowledged as having migrated to Wando from the Wemenevre area (*Wanana* dialect speakers). He married a Wartha woman, and was gifted lands south of Wando by his affinal kin (B, his wife’s mother, states that one of the original Wartha women married him). When Y married a woman from a Sangara clan around 1980, he was also given an extension of land by that clan. Y also asserts usufruct in

Bangu lands in the swamps around Wereave, but says that he must first ‘ask permission’ of the landowner who resides in that village. In recent land disputes, his affines threatened to revoke his marriage land extension, and his ownership of the original family lands was challenged on account of his ancestral ‘in-migrant’ status (i.e. his rights to those lands are now said to be rights of use, not property). In response to these arguments, he has often threatened to move away from Wando, to Balamuk, to be closer to the lands of his matrilineal kin, with whom he has a close relationship. He has even thought of moving to Wemenevre, to the lands of his distant ancestors; the fact that he would probably only enjoy tenuous rights there has so far dissuaded him. His counter-threats usually result in a return to the status quo, as his Sangaras affines would not like to see their daughter and her children move away. In Morehead culture, a close relationship exists between mother’s brothers and sister’s sons, and more generally between the families of men who exchange sisters (e.g. Williams 1936:115-116,118).

Case Study 2

X, born into a Maiawa clan, was adopted by Z, a man from a Sangara patriline with extensive holdings of land on the Bula Plains; this group receives a large share of the royalties for fish and Rusa taken by tourists visiting the BWL. X attempted to ‘split’ these lands with his adoptive brothers, arguing that he should control half (some said all) of the area, and receive a significant share of the royalties. The Sangara argued that he had generally identified as Maiawa throughout his life; he had taken a Sangara woman from Kormbo as his wife, and had also been adopted by his true father’s oldest brother. The Sangaras feared losing rights over lands and resources which have guaranteed them a substantial royalty stream over the years, and also believed that he would continue to identify as Maiawa. His claim went to court, where he was defeated. X has since established a new Maiawa settlement at Torwaia in 1995, and regularly activates his natal identity/identities as a key player in that clan’s struggle for compensation from the BWL, for use of the Bensbach airstrip, which is partly built on unalienated customary land belonging to the Maiawa (see Chapter 8).

Summary

The above overview has identified Wartha society as a Great Man-type, with relatively acephalous leadership, restricted sister exchange, and like-for-like reciprocal exchange. Social relations are characterised by an ethic of sharing and reciprocity. This system has guided interactions with outside others, and has in turn been transformed by articulation with expansionist nations and states on a remote borderland—Marind, European and Asian—resulting in considerable sociocultural, economic, political, settlement and demographic changes.

The monetary economy in particular, though small-scale, stands in tension with the Wartha kinship mode of production. New wants and desires, and new understandings of economic and political power, have eroded cooperation, sharing and sociality, and have led to disputes over land and resources. The result is a society that is undergoing significant changes to its social relations, as people come to terms with the exchange logic of capitalism. For example, demands by kin to share goods, which serves to produce and reproduce relationships through exchange and sharing, impede the long-term success of small-scale, locally-run business enterprises. Core values remain in place, however, and the traditional subsistence system continues to underwrite social and biological reproduction.

An understanding of Wartha society is critical if we are to make sense of the political ecology of the Torassi borderland, which is characterised by the articulation of two very different modes of production, with very different understandings of land, resources, and people. I begin this process by considering local and outsider narratives of the Torassi environment in the next chapter.

CHAPTER 4: THE ENVIRONMENT

Introduction

As mentioned in Chapter 2, a criticism of some political ecology research is that political issues are given too much attention, with little focus on how biophysical resources and processes shape, and are modified by, human-environmental interactions (see Vayda and Walters 1999:168-169; Zimmerer and Bassett 2003a:3). It is not possible, however, to ignore or downplay the environmental parameters of the Torassi borderland, for these are central to the indigenous settlement-subsistence system, as well as outsider perceptions of and engagements with the landscape.

In the first half of this chapter, I present both Western and Wartha understandings of local landforms, climate, vegetation, and fauna. This is followed by an overview of Wartha traditional resource management strategies.¹ I also detail long-term environmental changes, and examine more recent threats to local biodiversity stemming from cross-border introductions of pest species from the Indonesian archipelago and beyond. Some of these developments have resulted in significant changes in subsistence production and the local landscape, while others may threaten the wildlife resources that underpin the frontier cash economy of the Wartha and outsiders.

This chapter, then, provides a background to later parts of the thesis, including my overview of subsistence production (Chapter 5) and my critique of recent attempts by the NGO WWF to support the management of the Tonda Wildlife Management Area (TWMA, see Chapter 9). Local biodiversity, environmental changes, present and perceived threats, and traditional environmental knowledge are core narratives in a

¹ Most of our knowledge of the topography, soils and vegetation of southwest PNG comes from a CSIRO survey of the land resources of the Kiunga-Morehead area, conducted in 1967 (Paijmans et al. 1971). The study mapped the area as numerous land systems, each consisting of a recurring pattern of land forms, soils, and vegetation, based on analysis of aerial photography and ground truthing (Paijmans et al. 1971:19). The land systems do not conform with the indigenous classification system, but the vegetation classifications of this study are largely synonymous with locally recognised categories (see below).

dialogue between WWF, landowners of the TWMA and adjacent areas, the PNG government and international conservation donors.

Major Landforms

The environment of the southwest corner of PNG is unique in the country: it is wide, low-lying, and flat—most areas are less than 30 metres above sea level—and the landscape strongly resembles that of coastal and adjacent areas of tropical northern Australia (Blake and Ollier 1970:28; Eaton 1991:69; Paijmans et al. 1971:12,15). The many species of shared flora and fauna are evidence of the recent land connection between them—for example, paperbark trees (*Melaleuca* spp.) and large non-magnetic termitaria (probably built by the termite *Nasutitermes tridiae*) strengthen the similarity (Paijmans et al. 1971:12,17,86). In geological time this separation was only recent: the low-lying land bridge, the Arafura Plain, was inundated by rising sea levels during the Holocene marine transgression, some 6,000-8,000 years ago, which created Torres Strait (Jennings 1972:37; Lambeck and Nakada 1990:143; Woodroffe et al. 2000:343).

The study area lies within the southern part of the geomorphological region known as the Fly Platform. This is the largest tract of low-lying country in PNG, a vast relict alluvial plain extending from the south coast northwards to the foot of the central cordillera (Löffler 1977:18,97; Paijmans et al. 1971:56). The region has been further divided into four major landforms or geographic units; two of these occur south of the Fly River, and thus within the Morehead District: the Oriomo Plateau and the coastal plain (Paijmans et al. 1971:56-58; see Figure 1).

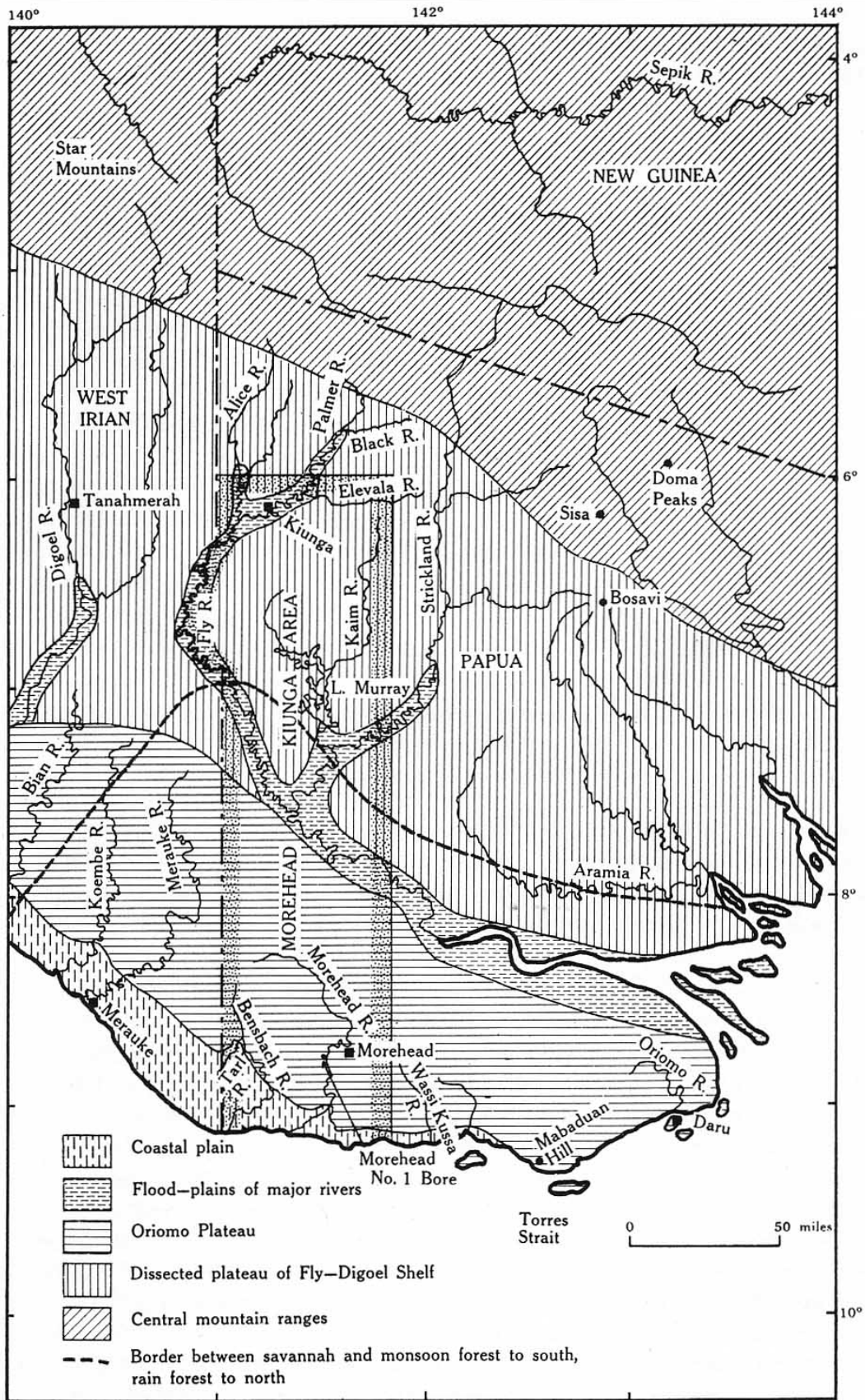


Figure 1. Morehead District landforms in regional context (source: Pajmans et al. 1971:13).

Oriomo Plateau

The plateau is a low, flat to slightly undulating plain, mainly less than 40 m a.s.l., that extends from the Oriomo River, near Daru, to the Digul River in Indonesia's Papua Province (Figure 2). It is bounded in the south by the coastal plain, and to the north by the floodplains of the Fly River. The highest part of the Oriomo Plateau is the Morehead Ridge, an east-west aligned ridge which rises up to 17 metres above the surrounding plateau, up to 55 metres a.s.l. South of the Morehead Ridge this landform slopes very gradually down to the coastal plain; this part of the plateau is inundated in the wet season. Other parts consist of watershed areas that are seasonally inundated as a result of slowly permeable subsoils, and slightly higher, undulating terrain with better drainage characteristics, generally not subject to inundation (Paijmans et al. 1971:14-16,57-58; see also Blake and Ollier 1970).

Coastal Plain

The coastal plain consists of mangrove flats and low beach ridges and swales on the coast, and an inland back plain, dissected by the floodplains of the Bensbach and Morehead Rivers (Figure 3). The back plain, stretching from the mouth of the Morehead River to the middle Torassi, is known as the Bula Plains. Much of this landform, which is mostly less than 3 m a.s.l., is inundated during the wet season as a result of heavy local rainfall, runoff from catchment areas on the Oriomo Plateau, and poor drainage characteristics (low land gradients, very poorly drained soils, and few drainage outlets).² In the dry season most of the area dries out as the waters gradually recede via a network of narrow drainage channels, although lagoons, small lakes and swamps remain in places; in particular, a swampy channel between the Torassi and Morehead River, known locally as Tambari Creek and identified as a relict channel of the latter stream.³ The coastal plain, a Holocene development, is being aggraded by clay deposition during the seasonal inundation (Blake and Ollier 1970:28; Paijmans et al. 1971:14-15,56-57,Figure 8,67).

² In the early wet season on the middle Torassi, the river sometimes rises very rapidly prior to the onset of heavy local rainfall, inundating adjacent floodplains, probably as a result of precipitation in higher rainfall areas to the north.

The coastal plain is traversed by the Torassi, a strongly meandering and rather narrow river, with adjacent narrow floodplains. From the rivermouth, it stretches in a roughly northeasterly direction, and so is entirely located in PNG territory. The Torassi is navigable for small vessels, though floating islands of vegetation and the strong current make navigation difficult in the wet season, while in the dry season fallen trees, sharp bends and rock bars near Weam hinder passage (Paijmans et al. 1971:10). The Tarl River, a distributary of the Torassi, flows in a southwesterly direction across the border into Papua. During the dry season the rivers in south New Guinea have low stream discharge rates, and are subject to tidal inflow of brackish water (Ayres 1983:3; Paijmans et al. 1971:120). In the Torassi, tidal action typically pushes salt water approximately 100 km upstream, in the vicinity of the Bensbach Wildlife Lodge.

On the coast, mud flats extend out for several kilometres at low tide (van Baal 1966:17; Paijmans et al. 1971:57). The strong tides and currents of Torres Strait, together with strong southeasterly winds and the presence of bars over the mouths of the Torassi and Morehead Rivers in the dry season, make what little river traffic exists difficult (Allied Geographic Section c.1943:26; Paijmans et al. 1971:10,57; Wren 1968:32. The entrance to the Morehead River is notoriously difficult to navigate (Beaver 1920:114). In recent times barges supplying Morehead Station from Daru or Port Moresby have become grounded while trying to negotiate the narrow, sinuous channel that affords entry to the rivermouth, and the operators are sometimes reluctant to travel to the area as a result (Brian Brumley, pers. comm. 1997).

³ This is one of several such channels (Paijmans et al. 1971:57); it is inundated in the wet season and is used as a short-cut to Morehead Station by Torassi people travelling there in canoes and dinghies.

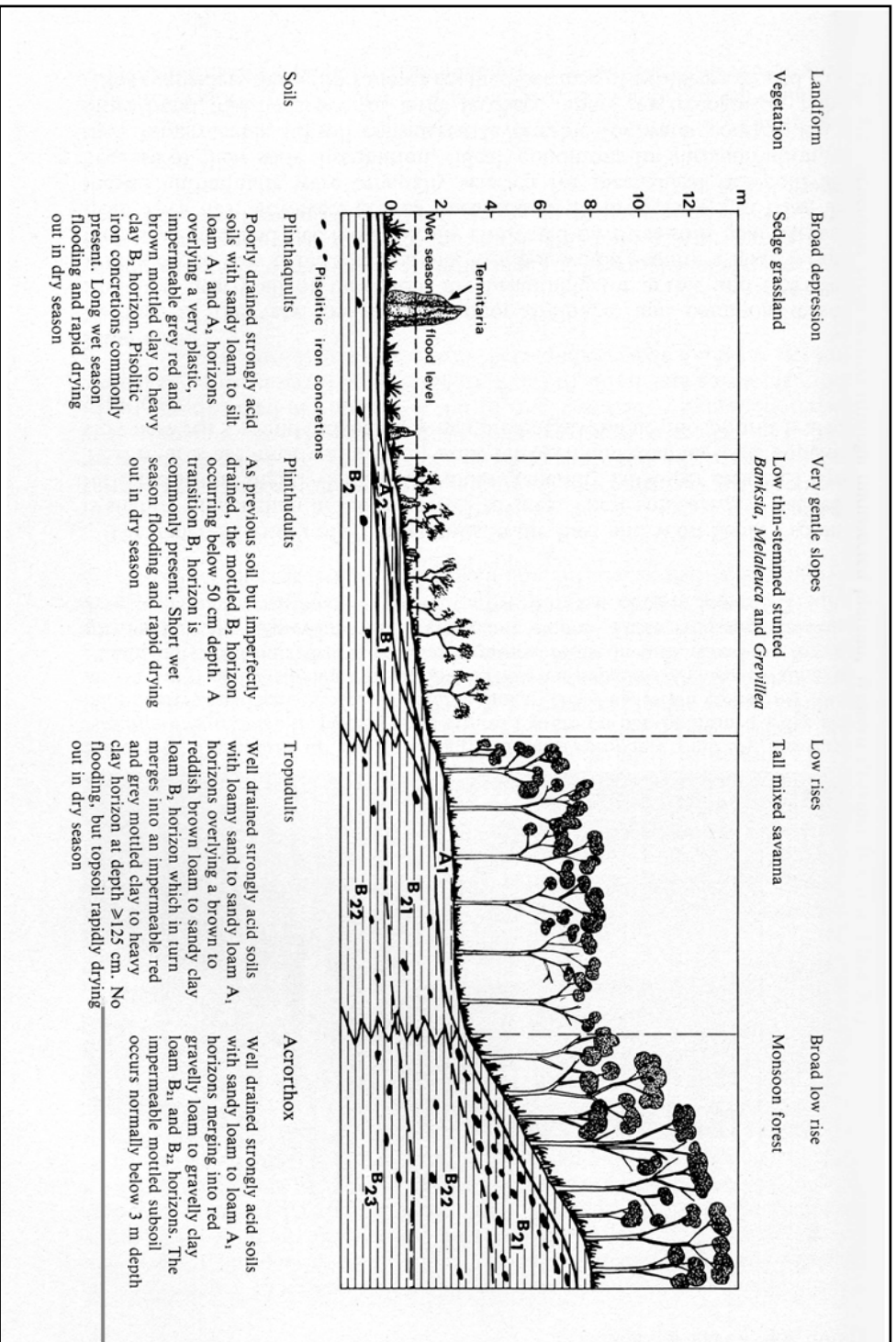


Figure 2. Schematic cross-section through Oriomo Plateau (source: Bleeker 1983:Fig 9.2).

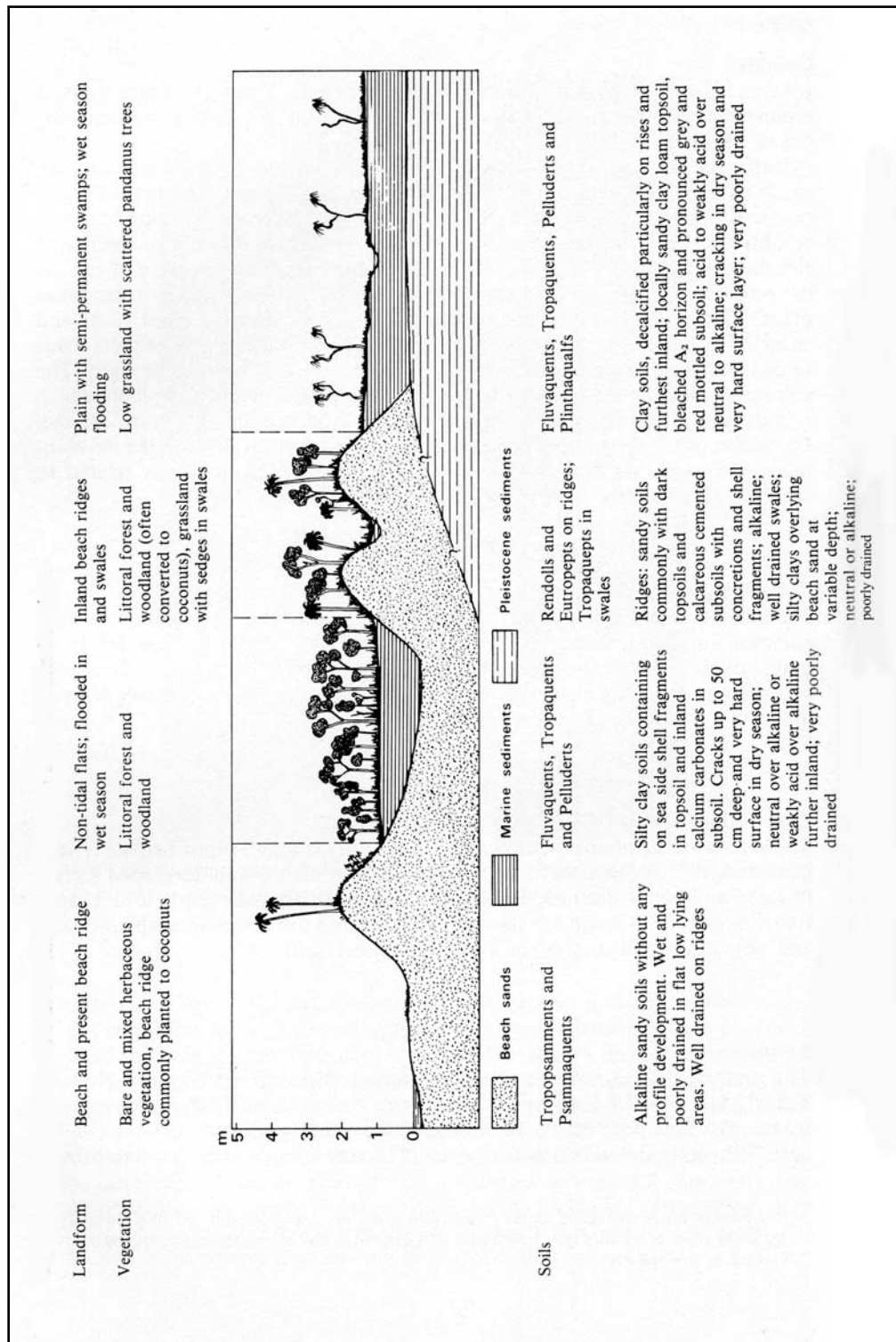


Figure 3. Schematic cross-section through Coastal Plain (source: Bleeker 1983: Fig 3.5).

Climate and Seasonality

The Morehead District experiences a climate that has been variously described as a monsoonal, tropical savanna or subhumid tropical type (Paijmans et al. 1971:12). Most recently it has been classified as a lowland subhumid climate, characterised by the following: altitude less than 500 m a.s.l.; hot conditions; only slight seasonal variation in both temperature and relative humidity; precipitation between 1,500 and 2000 mm; and a pronounced dry season, with soil moisture falling to drought levels in this period (McAlpine et al. 1983:Table 9.1, 154).

In PNG, it is often more correct to define seasons by degree of wetness rather than temperature (Menzies 1975:42). This is perhaps more true of the study area than any other part of the country, in terms of both rainfall and the presence (and absence) of surface water. Seventy-five percent of annual rainfall (approximately 1,700mm) falls during the wet season, between December and May (Lindgren 1972:7; Paijmans et al. 1971:12, Table 2; Waithman 1979:314).¹ The ‘two extremes of climate’ (Williams 1936:7) have a striking effect on the landscape. At the height of the wet season, the coastal plain and river floodplains are inundated by a great sheet of water, creating an inland sea dotted by ‘islands’ of higher ground (Paijmans et al. 1971:14,57,90; Williams 1936:3). Most movement during the wet season takes place by canoe (Paijmans et al. 1971:10). This landscape (more correctly a waterscape) is transformed into parched and baking-hot plains by the end of the dry season. The alternation of inundation and drought determines to a great extent local ecological processes, and the settlement-subsistence pattern of Torassi people.

There are no available temperature or humidity records for the area. Daru, located 215 km to the east, has a mean annual temperature of 26.9° Celsius (Paijmans et al. 1971:50), while Merauke, situated some 100 kilometres northwest of the middle Torassi, has a mean annual temperature of 29.8° Celsius.² I found that early mornings

¹ In 1987, an El Niño year, I recorded a total of 857.5 mm rainfall at Wando village (i.e. 50 % of the average). There was no rain in August, October and November, and only ½ mm fell in September. These figures, and rainfall records for Weam and Morehead, are presented in Appendix 7.

² Average rainfall for these places is around 2,000 mm and 1,500 mm respectively (Brookfield and Hart 1966:Table1; McAlpine et al. 1983:178).

in July and August could be quite cold; morning fogs are also common along the river at this time of year. Merauke's annual mean relative humidity is 83%, while for Daru it is 85% (Paijmans et al. 1971:Table 5). Southeasterly winds (the trade winds) blow steadily during the dry season, while in the wet season northwesterly winds (the monsoon or northwest winds) predominate (Paijmans et al. 1971:14,46).

The study area is subject to the effects of the El Niño/Southern Oscillation phenomenon. This appears to occur at intervals of around eight-twelve years, with major drought episodes in 1972, 1979 and 1997 (see Burton 1995:9; Jackson 1982:52117; Stronach 2000:91; Department of Minerals and Energy 1979:2).³ The 1997 El Niño event was the most serious drought of the past century in the Western Pacific, and significantly affected PNG, particularly agricultural production (Allen and Bourke 2001). Even in years with good rainfall, seasonal drought has serious implications for the people and wildlife, as sources of potable water becomes scarce (Eaton 1985:5; Paijmans et al. 1971:9; Stewart 1981:4). Uncontrolled fires are increasingly a problem during El Niño events (see Stronach 2001:91-92).

Vegetation

The strongly seasonal climate of southern New Guinea results in an environment which is dominated by grassland, savanna and monsoon forest vegetation, often Australian in character (Paijmans et al. 1971:12,88,110; see also Paijmans 1976:16,54).

Topography, drainage and burning also play a part in determining the character of the area's vegetation. Minor elevation differences, as little as 30-60 cm, can determine vegetation height and composition (Paijmans et al. 1971:88,109; see also Ridsdale 1968:11-12). Large areas are subject to prolonged inundation, or at least waterlogging, in the wet season. In the dry season, semi-arid conditions prevail, and fires occur over large areas as a result of natural lightning strikes, and hunting by villagers (Paijmans et al. 1971:88,90; Stronach 2000). Grazing and trampling by

³ For a discussion of ENSO events in PNG see Allen (1992:45). There are year-to-year differences in the pattern of rainfall and hence duration of the seasons and associated flooding and drought.

wallabies and deer also impacts on local vegetation (Herington 1978:14-15; Paijmans et al. 1971:89; Stewart 1981:8-9).

The Oriomo Plateau is covered by a mosaic of vegetation. Melaleuca savanna is found in lower areas near the margin of the coastal plain; monsoon scrub, low sedge-grassland, and low mixed savanna occurs on seasonally inundated watershed areas; and tall mixed savanna and monsoon forest exist on the better-drained undulating terrain (Bleeker 1983:Fig 9.2; Paijmans 1971:15,90).

Vegetation in the low-lying coastal plain is largely determined by depth and duration of wet season inundation. Mangroves and littoral forest are present on the coast and beach ridges respectively. The floodplains of the Torassi consist of reeds and tall sedges in permanent swamp; low swamp grassland and Melaleuca swamp forest in semi-permanent to seasonal swamp; while on slightly higher ground Melaleuca savanna and Imperata grassland are found. The back plain (Bula Plain) consists of low sedge-grassland and scattered Pandanus trees. As one ascends the river, mangroves lining the banks in estuarine areas give way to a belt of Nipa palm (Nypa fruticans). Upper reaches are generally a narrow belt of mixed woodland (i.e. 'gallery forest'), except in the Bula Plains area, where grasslands extend to the riverbank (Bleeker 1983: Fig. 3.5; Paijmans et al. 1971:14-16,89-90).

Given the extent of grasslands in the area, and the complexity of recent vegetation succession in these areas (discussed below), it is important to distinguish between natural and anthropogenic grasslands. In New Guinea, lowland grasslands have sometimes been uncritically viewed as a fire disclimax resulting from long cycles of shifting cultivation and burning associated also with hunting.⁴ Discerning the status of south New Guinea grasslands is difficult, and the boundaries between the two types can be indefinable. This is particularly the case with respect to grasslands and savanna occurring on higher areas within the floodplains of the Torassi, and on the Oriomo Plateau (often dominated by Imperata cylindrica), which are maintained by burning in the dry season. Swamp grasslands on the coastal plain and lower-lying parts of the river floodplains are considered natural, but here too annual burning

⁴ E.g. Johns (1982:319); see also Axelrod and Raven (1982:935).

takes place (Haantjens et al. 1967:7-8; Henty 1969:2, 1972:502, 1982:459,469; Paijmans 1976:49,79; Paijmans et al. 1972:88,94,100,110).

A detailed description of the composition and ecology of the various vegetation types is presented in Paijmans et al. (1971:92-105,109-111). Other descriptions of south New Guinea vegetation are to be found in Brass (1938); Gillison (1983); Haantjens et al. (1967); Johns (1995); Rand and Brass (1940); Ridsdale (1968); and van Royen (1963).

Economic Potential of the Native Flora and Commercial Crops

With the exception of a very few areas on well-drained, higher ground, there is little potential for the development of commercial arable or tree crops on account of flooding and inundation, acid and infertile soils, very poor drainage, and drought risk (Bleeker 1983:146; Paijmans et al. 1971:17,116-120). There are also insufficient timber resources to sustain any extensive logging operations, which in any case would be unattractive on account of distance from markets and wet season transportation problems (Paijmans et al. 1971:17,109; see also Beaver 1920:289). Bleeker (1983:40) asserts that wetland rice cultivation may be possible on the coastal plain, given the success of rice-growing in similar environments in the Merauke area.⁵ In the mid-1970s there was almost no cash cropping in the Morehead District (Wilson 1975:39), a situation that remains the same today. Village income derived from the small-scale sale of local floral resources is discussed in Chapter 10.

Fauna

South New Guinea has a rich and diverse fauna that shares many components with Australia, again reflecting the recent landbridge that connected the two areas. Liem (1977) and Osborne (1989:1139-1140) provide listings of faunal species found in the TWMA. These cannot be viewed as comprehensive, however, as the fauna of this part of PNG is among the least known in the country (Flannery 1990:20). This is evidenced by the fact that Waithman's (1979) collection of 42 mammal species in the

⁵ Rice-growing experiments by local people in the Wando area are discussed in the next chapter.

Morehead District in the early 1970s added six species and one genus to the New Guinea mammal fauna (Flannery 1995:36); two of the mammals he collected were subsequently recognised as new species (Van Dyck 1996, 1997). In the course of my research I recorded two Australian mammals hitherto unknown in New Guinea (Hitchcock 1997, 1998). Other researchers have also made significant discoveries in the Torassi area (e.g. Allen 1991:183; O'Shea et al. 2004). Lists of faunal collections made in the course of my research are presented at Appendix 8.

Mammals, Reptiles and Amphibians

The South Fly lies within what Flannery (1995:35) identifies as the Austral Zoogeographic Province. The predominant affinities of the fauna of this region are with monsoonal northern Australia; most of the species are savanna dwellers, although there are also some Australian rainforest elements (Flannery 1995:35; Kikkawa et al. 1981:1721,1723; Schodde and Calaby 1972).

To date, 50 mammal species are known to occur in the Morehead District, including several not found elsewhere on the island (see Hitchcock 1997, 1998; Waithman 1979; Van Dyck 1996, 1997). The coastal plain supports huge populations of agile wallabies (Macropus agilis), pigs (Sus scrofa) and introduced Rusa deer (Cervus timorensis) (Paijmans et al. 1971:16). As one Patrol Officer put it, 'the deer, magani [wallaby], pig and bird life on the Bensbach, below Wando, has to be seen to be believed' (Randolph 1968:5).

The reptiles of the study area are also largely Australian in character. Lizards, including monitors (goannas), agamids, skinks and frogs are common, as are snakes and pythons. Snakebites are not uncommon. As in other areas of the country, all snakes encountered are quickly dispatched, particularly in village areas, whether venomous or not (see O'Shea 1996:18). Freshwater and saltwater crocodiles (Crocodylus novaeguineae and C. porosus) are also present in the river, swamps and coastal areas (Paijmans et al. 1971:16-17; Williams 1936:8). Crocodile shooting,

which has been going on since before the Second World War, has considerably thinned their numbers, making hunting for skins more difficult today.⁶

Birds

TWMA is well-known for its rich and diverse avifauna, particularly wetland birds. An AusAID (1997:Table 1.1.1) birdlist that incorporates previously published records gives a total of 193 species.⁷ The bird communities also comprise many Australian species, as well as several endemics. The swamps, lakes and rivers on the coastal plain have been described as ‘an El Dorado for thousands of waterfowl’ (Paijmans et al. 1971:17). The river, floodplains and coastal plain also provide an important role as a refuge and staging point for various species migrating to and from Australia (Beehler et al. 1986:20, 26; Milton 1998:31; Osborne 1987:105). Birdwatchers make up a significant number of the tourists who visit the Bensbach Wildlife Lodge.

Fish

Ichthyologists recognise two main zoogeographic provinces in New Guinea—a northern and a southern, divided by the central highlands. The southern is more speciose, reflecting its long and relatively stable geological history. Within this province, the highest diversity of freshwater fish species occurs in the central-southern area, which includes the Torassi (Heads 2002:287). In addition to a number of endemic fishes, this province shares 34 species with northern Australia (Allen 1991:15; Osborne 1987:24; Unmack 2001:1077).

At least 55 species of fish are known to occur in the Torassi (Hitchcock 2002).⁸ The largest and most important is Barramundi (*Lates calcarifer*). Most of the tourists who

⁶ Williams, writing in the 1930s, noted that the rivers teemed with crocodiles, and that every year one or two people were taken by them (1936:8; see also Beaver 1920:114). During my major period of fieldwork I was told that the last victim was taken in the Morehead River some time in the 1970s. However, during my most recent visit in 2002, I was told a small boy was taken at Bula, on the mouth of the Morehead, a year or so earlier.

⁷ These include Lindgren (1971) and various contributions to the Papua New Guinea Bird Society Newsletter, of which the most important are Finch (1980) and Stronach (1981).

⁸ Fish species present in the Torassi are listed in Appendix 9.

visit the Bensbach Wildlife Lodge are sportfishers who aim to catch this species, although Saratoga (*Scleropages jardinii*) and Tarpons or Ox-Eye Herrings (*Megalops cyprinoides*), both noted ‘fighting fish’, also provide sport.⁹

Insects

Mosquitoes are common, particularly in the wet season; and are found year-round in permanent swamps (Paijmans et al. 1971:17). There does not appear to be a high incidence of malaria in the District (Ayres 1983:7), although I did witness a minor outbreak during the height of the El Niño drought. Non-magnetic termitaria and green ants—with a fearsome bite, but fortunately no sting—are common. The area is practically free of leaches (Ayres 1983:7; Paijmans et al. 1971:17; Williams 1936:9); I never encountered any during my time in the field.¹⁰ Stewart (1981:8) reports that they were formerly more common in permanent swamps, which have since been destroyed by the introduction of Rusa deer.

Wartha Ethnoecology

The Wartha perceive and engage their biosphere with reference to a body of traditional environmental knowledge that recognises distinct resources and biophysical processes. These include emic categorizations of animals, plants, landforms and climate. This knowledge integrates with a range of food procurement systems, technology, mobility, and the social relations that determine labour organization and access; together, this affords Wartha a range of subsistence options over the course of the seasonal cycle (see next Chapter).

Examining these emic categories is important not only for understanding subsistence production, as it can also elucidate other fields such as history, social organization, and religious and aesthetic expression (e.g. Hunn 1990:4). For example, Wartha encounters with colonialism and capitalism on the Torassi borderland are often

⁹ Barramundi is a recognised game fish under the rules of the International Game Fishing Association (Grey 1987:19).

¹⁰ Martin (2000:112) notes that leaches are a problem in the western Morehead District during the wet season.

evoked with reference to changes to their environment and shifts in subsistence activities, and their identity in relation to their neighbours is at times evoked with reference to animals, plants and landforms.

The Seasonal Calendar

The Wartha yearly cycle is divided into a number of distinct seasons.¹¹ These are defined largely with reference to floodwater levels, precipitation and wind direction. The seasons are marked by changes in fauna and flora, and often heralded by so-called ‘calendar plants’.¹² As Martin (2001:39-40) notes for the Keraakie, this is

a time calendar based on the changes in plant life as numerous trees, bushes, bamboos, bulbs and other plants flower or produce fruit or shed their leaves at regular times. This flora calendar is a means of telling when certain foods are available, when certain economic activities should be undertaken or when certain animals and birds will be eating those fruits [and hence more easily captured].

The early wet season, *rarapu* (typically November-December) begins with the arrival of thunder and the northwest winds, called *mborembor*. The flowering of *yambro* (Freshwater Mangrove, *Barringtonia* sp.) and *ngau* (unidentified riverbank grass) also signal this season’s arrival. Very strong gusts occasionally blow down young bamboo stems, and sometimes even houses (see also Martin 2001:98).¹³

Rarapu is followed by the wet season proper, *weneiterkan* (*wenei* = ‘water’; *kan* = ‘just’), when the floodwaters reach their highest level (typically December-May). Wet seasons with higher than average rainfall and subsequent high flood levels are called *kai weneiterkan* (*kai* = ‘big’). *Saber*, known as the ‘hungry time’, occurs around February to May, when the supply of stored yams and taro runs low (Williams 1936:220; see next chapter). This is not a season as such, but rather an

¹¹ The months associated with seasons must not be taken too strictly, as they vary with the actual onset of the rains and beginning of the dry season (see Serpenti 1965:289).

¹² I did not discover any method of reckoning of lunar calendar months, nor astronomical lore, as has been reported among the Marind-anim (Geurtjens 1956; Kooijman 1960).

¹³ In 1987 I was caught in one such gale and observed a house in Wando destroyed by what can only be described as a mini-cyclone; on another occasion in the same year an abandoned house collapsed during high winds, killing a Timor pony that was sheltering underneath it. When *mborembor* blows, adults admonish noisy children, believing that if they make too much noise, the wind will be stronger.

annual period of dietary privation. Times of dietary stress are common in tropical savanna environments (Weiner 1980a:418-419, 1980b:426).

The late wet season, *nenengai*, sees the floodwaters begin to recede, as drainage and evaporation take their course. *Waworsei* (*wawor* = ‘southeast wind’; *sei* = ‘rain’) is a short season lasting several weeks around June-July, and is marked by a series of light showers accompanied by early southeast winds.

The dry season is called *thabrathair* (*thabra* = ‘sun’), and typically lasts from around August through to November. As the season progresses the plains become baked, hard, and cracked, and the Torassi becomes sluggish and brackish as tidewater flows northward. Baiio (1995:51) reports that in Wando village, the flowering of a species of *Eucalyptus*, and *garadi* (unidentified plant), also signify the start of the southeasterly season.

Land Classification

Place: Villages, Storyplaces and Bush

According to Ayres (1983:127), Morehead people recognise three categories of cultural places in the landscape: settlements, storyplaces, and the remainder of named locations in the countryside, referred to as ‘just places’ (Ayres 1983:127). This is certainly the case for Wartha, who distinguish between anthropomorphically modified places—villages (*kar*), and also gardens (*narakei*)—and the rest of the environment.¹⁴ The presence of coconuts is a diacritic of settlements, present and past, while banana trees are the definitive marker of human habitation. When these trees disappear, the land reverts to ‘bush’ and is forgotten as a settlement place, unless it is reoccupied at a later date (Ayres 1983:145).

Other forms of anthropomorphic transformation are evident in the landscape, and are also named, including roads, footpaths (*yoi*) and canoe roads (*ngarnta yoi*) between

¹⁴ The Wartha, like other New Guinea peoples, identify as horticultural, village people, rather than ‘forest people’. Baiio (1995:62) asked 52 Morehead people whether ‘human beings are/should be part of the [sic] nature’; 75% responded no. This has implications for biodiversity conservation programs (Filer 2000:21-22; see Chapter 9).

villages, and extensive areas of relict mound-and-ditch agricultural systems (*montjmontj*, see next chapter).

Places that are not villages or gardens are called *sabro kar* ('wild/bush places'). The term *sabro* is also used to refer to domesticated species that have run wild, such as dogs and cats (*sabro ngatho*, *sabro pus*). Storyplaces, the sites of events that occurred in the mythological age, are a third major category of place.

Places

Kar not only means 'village', but can also mean any place. There are hundreds of named examples throughout the Wartha homeland (cf. Ayres 1983:128). The meaning of the names of many places is discoverable (Williams 1936:209); some appear to derive from mythological stories or events of long ago, while some are proper nouns (e.g. *ngrangra* = cormorant). Many, however, appear to have no meaning at all, at least to people of today, being 'just names'. Place names comprising a combination of proper nouns and the suffixes *thum* (headland or point), *mbont* (island), *tjepeth* (base of tree-trunk) and *tjen* (place) are particularly common. For example, the place called Parmangambutjen (lit. 'Marind-head-place') refers to a locale where the heads of some defeated Marind warriors are said to be buried; a small, raised area of ground marks the spot. Other examples include Bawurthum ('tandan or eel-tailed catfish headland'), Dembantjepeth ('Demban [type of tree] base of the tree-trunk'), and Wamathnatjen ('Wamath's [man's name] place').

Wartha Classification of Landscape and Vegetation Communities

The Wartha classify their physical environment into a number of categories. At a high level, there is the distinction between *edof* (sea) and *mbintu* (land in general; see Ayres 1983:128). This latter term also connotes areas of high land or uplands, higher than the level of wet season flooding. Hence, a distinction is also made between the landforms in the District: swampy, seasonally inundated areas which predominate in the study area (Coastal Plain), and better-drained, higher ground to the north (Oriomo Plateau). A general term the Wartha use to name peoples living to the north of their Karmbo neighbours, *mbintu-kor*, literally means 'high ground' or 'upland people'. Similarly, inhabitants of the Oriomo Plateau are said to call the Wartha

territories *wanga mbintu*, apparently a reference to the different soils of the lower swamps and floodplains (see also Williams 1936:35-36).

Various land- and waterscape features are also identified. So too are a number of vegetation communities, ranging from coastal mangroves on the coast to monsoon forest on the highest areas of ground, which are identified with reference to floristic composition. Ayres (1983:5-6) divided the Morehead District into four ecological zones: big bush (i.e. monsoon forest); open bush country (i.e. open forest with grass understorey); open or clear places; and swamps. These are the common English glosses used by locals to describe their environment when speaking to Europeans, and belie what is in fact a very complex emic system of landscape classification.

As the cross-sections in Figures 2 and 3 demonstrate, the environment has very little gradient, and the highest ground in the middle Torassi does not exceed 40 metres a.s.l. Yet within this narrow lens, the topography and vegetation is diverse, and made more variable by the dramatic seasonal changes. These differences in microrelief, plant communities, and their relationship to seasonal flood levels are well known to local people. Knowledge of these is of crucial importance to settlement and subsistence (see next chapter).

Faunal Ethnotaxonomy

Wartha classify animals as a means of storing information and simplifying communication about nature (Hyndman 1994:28). Wartha taxonomic ordering of animals is based on two intermeshing systems: one that orders all animals into lifeforms, genera and species, largely on the basis of perceived similarities and differences between organisms; and the second on criteria of edibility with reference to three categories of macrohabitat.

Some informants give the term *yanjei kakauna* (lit. ‘meat things’), as being equivalent to the English ‘animal’. Of course, this excludes many recognised lifeforms, generics and species that are not eaten, and which are simply glossed by an implicit cover class representing ‘things we don’t eat’. Edible animals are divided into three recognised classes: *wenei kakauna yanjei* (‘water meat things’); *mbintu kakauna yanjei* (‘land meat things’); and *warumbu kakauna yanjei* (‘up-above meat things’).

In addition, many features of the ecology of such species are known, such as breeding physiology, seasonal movements, and their occurrence in particular biotopes, including favoured microhabitats. This system represents an extensive store of precise zoological knowledge, which guides production activities when enjoined with other knowledge about the environment and food procurement methods and technology.

Floral Ethnotaxonomy

The names for the major vegetation types are presented in Table 1. In some instances, communities dominated by a particular species are named using a combination of the generic or species name for a tree, suffixed with the word for tree or forest, *per*. For example, the general term for Melaleuca forest is *kuranja per* (= ‘Melaleuca tree/forest’). *Kuranja* is also the specific term for Melaleuca cajaputi, and hence *kuranja per* also refers to monotypic stands of this species. Vegetation communities where one tree dominates are also described thus (e.g. *kand per*, mangrove forest). Similarly, the general name for grasslands is *sou per* (*sou* = generic name for grass, also specific name for Imperata cylindrica), while other specific grassland communities are also identified separately (e.g. *tjuntjum per*, *barkak per*).¹⁵

Culturally Recognised Landforms

Like the swamp-dwelling Suki to the north, the Wartha distinguish a number of landform categories (Table 2), including many that refer to waterways, and the landforms bounded or surrounded by these, and wet season floodwaters (see Burton 1995:48-49).

¹⁵ I also heard the term *wamena* used to mean tree, but never grass. I believe that *per* is used both as a synonym for tree, as well as to designate any terrestrial plant community.

Table 1. Major vegetation categories of the Wartha.

Wartha name	Vegetation Category*	Notes
<i>kand per</i>	mangroves	<i>kand</i> = mud crab, <i>Scylla serrata</i>
<i>sou per</i>	general term for grassland	specifically refers to <i>Imperata cylindrica</i> grassland
<i>puwathan</i>	monsoon scrub	uncommon in area; more prevalent in uplands further north
<i>kuranja per</i>	<i>Melaleuca</i> swamp forest	
<i>karimu</i>	secondary forest; also gallery woodland along rivers	general term for forest
<i>katan karimu</i>	minor monsoon forest or secondary forest	<i>katan</i> = ‘small’
<i>kai karimu</i>	monsoon forest	<i>kai</i> = ‘big’
<i>korei</i>	savanna	

* Vegetation categories according to Pajmans et al. (1971:92-105).

Small areas of high ground which become ‘islands’ in the wet season are called *mbont* (these are always *kai mbintu*, ‘big ground’). Rivers are called *karipa*, while creeks are called *tuti* (which also means ‘branch’). Creeks have individual names, which are often the same as the place in which the *ngambu* (‘head’ = creekmouth) originates; e.g. Tambari *tuti* (Tambari Creek). The lowest parts of the floodplain, which are the first to flood in the wet season, are reedy, marshy areas adjacent to river meanders. These are called *baba*; many of these appear to be point bars. *Puwe*, extensive areas of grassy river floodplains, are located somewhat higher, while *par*, riverbank levees, are slightly higher again. Open places, such as the Bula Plains, are called *mirmir kar* (‘clear places’).

Table 2. Major land- and waterscape features.

Wartha Name	Description	Notes
<i>edof</i>	sea	
<i>karipa</i>	river	
<i>karipa thatha</i>	riverbank	
<i>tuti</i>	creek	
<i>ngambu</i>	mouth of river or creek	<i>ngambu</i> = 'head'
<i>tha</i>	end of river or creek	<i>tha</i> = 'tail'
<i>yewei</i>	hole or waterhole	often associated with <i>bob</i>
<i>weio</i>	perennial/permanent swamp	now uncommon
<i>bob</i>	ephemeral/seasonal swamps	Some people say synonymous with <i>weio</i>
<i>mirmir kar</i>	'clear places', e.g. Bula Plains	
<i>baba</i>		Typical vegetation = grasses: <i>ngatho ngatho</i> ; <i>sipi</i>
<i>puwe</i>	river floodplain	<u>Phragmites karkar</u> predominates
<i>par</i>	riverbank levees; slightly higher than <i>puwe</i> ; also slightly higher areas within river floodplain	
<i>korei</i>	seasonally inundated, higher areas of ground	open forest is common vegetation type
<i>mbont</i>	small area of higher ground surrounded by floodwater during wet season, i.e. island	are always <i>mbintu</i>
<i>kai mbintu</i>	high land, not subject to inundation	
<i>thathawar</i>	embayment formed by higher areas of land enclosing? lower area of floodplain	
<i>thum</i>	end of a point of high land; headland	occurs on <i>mbintu</i>
<i>merther</i>	narrow neck of land connecting two larger areas	occurs on <i>mbintu</i>
<i>yama</i>	waves	refers both to ocean and inland floodwaters
<i>want</i>	whirlpools	occur in river, now said to be uncommon

Other, smaller features which occur in the context of the larger categories also have their own names. These include *thathawar*, embayments formed by the interdigitation of points or promontories of high ground (i.e. low ridge spurs) and cusps, indented margins of the lower floodplain (Figure 4; see Paijmans et al. 1971:28). The word *tha* means ‘tail’, and connotes that such areas are the ‘ends’ or margins of swamps. Anthropomorphic metaphors are evident in the terms for two other minor topographic features: points of high ground are called *thum* (‘nose’), while narrow sections of high ground separating two larger areas are called *merther* (‘neck’).¹⁶

Waterscape features include sunken logs under riverbanks (*ror per*) and *yama* (waves). The latter occur on the flooded plains when strong *mbombor* winds blow. This can upset dugout canoes, and several people have nearly drowned in such accidents. Whirlpools were once common on certain bends of the river during the wet season, but are said to be rare today (see below).

Environmental Management Practices

The Wartha engage in a number of practices aimed at conserving and managing the productivity of resources and the landscape. Further, a number of other customs result incidentally in conservation. For example, restrictions on entry to lands following the death of a landowner are common; this is done as a mark of respect. These announcements may be made publicly; in 1995 I saw a handwritten notice posted on the door of a building at Balamuk Wildlife Station, stating that the places belonging to the recently deceased person were now closed to hunting for several months. Baiio (1995:59,72) reports that this practice occurs throughout the Morehead, that the taboo stays in place for around 6-8 months, and that it incidentally conserves resources. Similarly, instances of totemic food taboos

¹⁶ The same term is used by physical geographers: Blake and Ollier (1971:5) define meander neck as being formed when two meanders (the more or less regular, looplike bends in a river) nearly meet.

(Williams 1936:91,254) also have this function, although this system appears to be breaking down with the influence of Christianity.¹⁷

Other examples of restrictions which have a de facto role in conservation include bars on entry to, and the extraction of resources from, major storyplaces and origin sites (see Ayres 1983:44; Baiio 1995:60; Chatterton et al. 1997:40-41).

A 'conscious' conservation practice is the closing of access to lands where the landowner feels that the area is under excessive hunting pressure (see also Baiio 1995:60). I was told that this particularly applied to game such as cassowaries, wallabies, pigs and deer.

Fire Management

Fire is a natural component of the environment of tropical savannas of central-southern New Guinea and northern Australia, and the vegetation is resilient to even frequent fires. When fires do occur, they are often carried in the ground layer, typically as grass fires, and there is little penetration of certain vegetation types, such as monsoon forest (see Gillison 1983; Russell-Smith 1995b:118,225; contra Stronach 2000:90). According to Paijmans et al. (1971:110), annual fires in surrounding savanna often penetrate monsoon forest, but the forest regenerates quickly. Frequent burning at the same site will result in the establishment of grasses and a transformation to savanna vegetation over time. Stronach (2000:92) states that fire events associated with the 1979 drought led to considerable tree death, opening of the canopy, and a shift to woodland. During the El Niño event of 1997-1998, large, uncontrolled fires occurred throughout the study area. While large areas of grassland and savanna were burnt out, the several fires I observed in monsoon forest did not appear to penetrate much beyond their edges, and were largely restricted to the ground litter. Local people also stated that a number of their gardens and sago stands were destroyed by these fires.

¹⁷ The food proscriptions observed by adherents of the Seventh Day Adventist church might also be considered implicitly conservational (see Chapter 5).

The traditional use of fire by the inhabitants of south New Guinea has not been systematically described (Stronach 2000:91). I found that among the Wartha, fire (*men*) is used in a number of ways, and is a key element of subsistence production. Burning is used to produce a green pick that is attractive to wallabies and deer. This is said to make them ‘fat and greasy’; if people do not burn, the game will be ‘thin and not good to eat’. Hunters will also return to burnt areas after the grasses have begun to shoot, to lie in wait for feeding macropods and deer.

Burning also increases the visibility of game and the mobility of hunters and their dogs during the hunt. The increased visibility of snakes, and reduction of suitable habitat for them, is also cited as a benefit of regular burning of savanna grasslands.¹⁸

The use of fire in game drives, involving parties of hunters, has been reported previously in the literature (Williams 1936:221-222). However in some cases a single man, working with his dogs, will burn grassland in an attempt to flush out game.

An interesting use of fire is the creation of *ngarnta yoi* (literally ‘canoe paths’). During the dry season, when floodplain swamp grasses are short and dry, long lines are burned in the grass between higher areas of ground and canoe landing areas. In the wet season, the grasses do not grow as high as they do in unburnt areas. This affords better passage along the ‘road’, as the grasses will not ensnare canoe paddles and poles.

Fire is also used to reduce fuel loads around important areas, such as villages, gardens, and valued natural resources, such as stands of *Melaleuca*, an important building material. For example, people will create long firebreaks, several metres wide, by brushing away the thin layer of leaf litter to expose the bare earth underneath (see also Baiio 1995:56). Grass and bush around such sites is often fired in the early wet, which lessens the risk of ‘hot’ fires that might burn out of control on account of higher fuel loads and greater levels of curing. During the dry season, if

¹⁸ As mentioned above, snakebites are common, and several highly venomous species are present in the area, including the Papuan Blacksnake (*Pseudechis papuanus*), Taipan (*Oxyuranus scutellatus*), and Death Adder (*Acanthopsis* sp.) (O’Shea 1996:158,162,164).

uncontrolled fires threaten, people will also endeavour to make firebreaks at that time as well.

Fire, and changes to the traditional fire regime, is also implicated in widespread environmental changes that are occurring throughout the study area. These are discussed later in this chapter.

Crocodile Translocation

Another example of resource management relates to the ‘rearing’ of crocodiles. Wando people reported that they sometimes capture young crocodiles from the lower reaches of the river, and then release these into swamps that are close to settlements. These are then more readily accessible to the hunter when they grow to a mature size.

Exotic Animals and Plants on the Border

A number of exotic species have been introduced to the Torassi area from across the border in Indonesia. These have had, or have the potential to have, largely deleterious impacts on the local environment and economy, although in some cases there have been positive dietary benefits for local people. Three sources of introductions can be identified: (1) government introductions, usually with the aim of improving the local diet of indigenous people and/or newcomers, or the biological control of other species (e.g. mosquitoes); (2) importations by colonists, especially Indonesian transmigrants, bringing Asian foods with them to their new homes; and (3) unintentional or incidental introductions, especially weeds and diseases.

These introductions pose a threat to the biosecurity of New Guinea and Australia. The fauna of the Australia-New Guinea region is very different to that of Southeast Asia. It has developed in isolation, and is delimited in the north by the edge of the continental shelf, Lydekker’s Line. The Oriental fauna of Southeast Asia is delimited by Wallace’s Line, one of the world’s most important biogeographical frontiers. The British naturalist Alfred Russel Wallace identified this area as a major area of faunal disjuncture in the nineteenth century, based on underlying geology history. It runs through Makassar Strait, between Bali and Lombok and between Borneo and Sulawesi; separating areas that have not been connected during periods of low sea

level. Major groups such as mammals, birds, amphibians and freshwater fish on both sides of the line are very different.¹⁹ The region between these two lines is generally viewed as a transitional one, called Wallacea (Clode and O'Brien 2001:113-114,118-119; Cribb 2000:22; Erdelen 2001:124-125,130; Gressitt 1982:916; Keast 2001:288,305; Osborne 1987:24).

Merauke as the most southeasterly settlement of the Dutch East Indies, and later the Indonesian state, is a key point for the introduction of Asian fauna west of Wallace's line into PNG. Numerous pests and diseases have been brought into this region as a result of the Indonesian state's transmigration program (Heinsohn 2001:155; Wright et al. 1998:26). The following sections document these introductions to the south New Guinea borderland. As the Merauke District in Irian Jaya continues to receive Indonesian transmigrants, it is almost certainly the case that further exotic species will enter the Torassi area from across the border.

Deer

The arrival of Javan Rusa deer (*Cervus timorensis*) in the Torassi area has had a profound impact on the local environment. Though released in Merauke by the Dutch in the early years of last century, deer were not encountered locally until after the Second World War. However, once in the Bula Plains, their numbers dramatically increased, and today they number in the tens of thousands (Dickens 1978:9.1; Downes 1968-1969:98-99; Osborne 1989:1140). Deer are now a key food animal, and have provided a source of cash income from meat sales and royalties from the BWL (see Chapter 8). They have also radically altered the Torassi environment. These and associated changes are discussed below.

Horses and Cattle

Small Timor ponies (guda [BI]) have for many years been used by local people. These are either the descendants of animals bought with crocodile skins, from across

¹⁹ It should be noted that some New Guinea groups, such as insects and plants, are largely derived from southeast Asia; however, the savanna country of south New Guinea is identified as an 'Australian outlier' in terms of flora and fauna (Gressitt 1982:897,900-908).

the border (Stewart and Eng 1981:8), or of ponies released by Javanese cross-border refugees (Marsh 1946:3). Their numbers have expanded in recent years (Tapari 1988:16, 1995:7). In villages, it is not uncommon to see one or two tethered horses, which are occasionally used for riding.²⁰ The majority, though, are semi-wild, but aggregate in and around villages during the wet season, to escape the inundation of the surrounding floodplains. During this time they prove to be something of a nuisance, causing damage to crops in kitchen gardens and keeping people awake at night with their noise and habit of rubbing their bodies up against houses.²¹ Several Australian quarterhorses were used by kiaps to patrol in the area in the late colonial period; all of these horses have since died. The riding gear associated with these animals is used by local people on the ponies. Many of the wild ponies are owned (nominally at least) by individuals, and a local horse trade exists. In 1995 male ponies were said to be worth K100, females K200.

Cattle ranching takes place in Wasur National Park, contiguous with the TWMA (Petocz 1989:81,105; Stronach 2001:91; see also Manning and Rumbiak 1989:41 for a brief overview of government-assisted livestock introductions to Papua Province). Since the 1980s, there have been several instances of cattle wandering across the border. In August 2000 I observed a Brahmin bull (*Bos indicus*) near Pikunjur, on the Torassi, one of several that had strayed across the border (Plate 4).

In 1957 the colonial administration began examining the feasibility of a pastoral industry based on cattle in the savanna country of southwest Western Province (Frew 1957:1,3-4; Robson 1958:69).²² The 1961 *Handbook of Papua and New Guinea* states that the resulting report was not particularly accurate, and suggested that the Bensbach area, already abounding in game, would be an ideal location. (Robson and Tudor 1961:68). Recognition of the extreme seasonality of the area, isolation from markets, and potential disease risks and quarantine problems emanating from the proximity of the border, seem to have finally quashed these plans (Tudor 1966:270;

²⁰ One Wando villager told me that he had been trained in horse-breaking methods by Australian staff of a deer farming business (see chapter 7).

²¹ Horse manure is not used on gardens, as it is considered, like all excreta, to be unclean.

²² Earlier assessments of the potential to raise cattle in this area are discussed in Chapter 6.

Willey 1965:226; Wren 1968:19).²³ A later study by Pajmans et al. (1971:121-122) found that the Oriomo Plateau savanna country had potential for beef-cattle raising, but again noted these problems, as well as a lack of knowledge about soil fertility and the nutritional value of local pastures. Water buffalo (Bubalis bubalis) were suggested as a suitable introduction on the seasonally inundated coastal plain (Pajmans et al. 1971:121; see also Bleeker 1983:40,147; Wilson 1975:26). Given the adverse impacts of this species on the wetlands of northern Australia, it is fortunate that this did not occur (e.g. Corbett 1988; Levitus 1995:90; Stocker 1977).

Feral Dogs and Cats

Packs of wild dogs (Canis familiaris) roam the Bula Plains, and predate on deer, fawns in particular (Stewart 1981:32). In the past, there have been some attempts to cull these animals by the BWL, but conflict arose when some people claimed ownership of some of these animals, said to be hunting dogs that had run wild. Domestic cats (Felis catus) are found in some villages, though in small numbers.²⁴ Several are said to have gone wild, becoming *sabro pus* (wild cats).

Other Animals, Birds and Insects

Rats (Rattus rattus) are found in the grounds of the BWL, and have almost certainly arrived on boats bringing supplies and building materials to the site. During my time in the field a solitary goat (Capra hircus) was kept as a pet by the BWL manager. Domestic fowls (Gallus gallus) and Muscovy Ducks (Carina moschata) are present in several villages. These are said to have been introduced from the Merauke area.²⁵

²³ The cattle-tick, Boophilus microplus, is carried by deer on the Bula Plains, which would 'form a potential hazard for any proposed cattle industry in the Western Province'. Lindgren (1972:18; see also Stewart 1981:34)

²⁴ The first domestic cat was obtained by the Wartha in 1933 from the Marind village of Buti, near Merauke, and called *poes*, the Dutch name for the animal (Nevermann 1939:46).

²⁵ As early as 1917 Flint (1917:2) recorded the term '*aium*' (from BI ayam) for domestic fowls among the Waratha; presumably these were present when he compiled his vocabulary.



Plate 4. Brahmin bull at Susukon, Torassi River (between BWL and Pikunjur), 23 August 2000.

The Asian Honeybee, (*Apis cerana*) is also present in the area; Grimshaw (1998:14) states that this insect was introduced to Papua Province by Indonesian settlers, and has spread from there to PNG and islands in the Torres Strait. It competes with native bees for nesting space and access to nectar and pollen, and also carries a mite that could damage the Australian beekeeping industry. It is thought to have been introduced into West Papua from Indonesia in the 1970s, and was detected in Western Province in 1992 (Wright et al. 1998:25).

Asian Fish

The fish fauna of the Australia-New Guinea region is very different to that of neighbouring southeast Asia, on account of the markedly different geological origins of these land masses, and the barrier of deep oceanic water between them (known as Weber's line), which has prevented faunal exchange of freshwater fishes (Allen 1991:10,211).

Four Asian species are recent introductions into the Torassi River: Climbing Perch (Anabas testudineus), Tilapia (Oreochromis mossamba), Walking Catfish (Clarius batrachus), and Striped Snakehead (Channa striata). It seems likely that some of these fish were introduced by transmigrants from other parts of Indonesia who have brought their food fishes with them to the Merauke border area; Garnaut and Manning (1974:89) and Manning and Rumbiak (1989:42) also report an Indonesian government program of fish introductions to inland rivers and lakes aimed at improving the nutritional status of West Papuans, but give no indication of the species involved.²⁶ West Papuan border-crossers I met at Wando claimed that the Indonesian army had once used helicopters to disperse such fish in the waterways of Wasur National Park. Among Torassi people, these fish are sometimes referred to collectively as *jawa morm* (Javanese fish). Most of the exotic fish introductions to Papua New Guinea have had a negative impact, either by competing with native species for space and food resources, or by feeding upon them (Allen 1991:209).

Since the late 1980s climbing perch has been present in the river, probably via the Merauke area, but its date of introduction there is unknown (Allen 1991:209-210; Baiio 1995:75). Government records at Balamuk village suggest that A. testudineus was first encountered in the Torassi near Weam in 1985. It seems possible they entered the river via drainage ditches associated with the building of the Trans-Irian Highway, which in 1982 crossed the international border in two locations near the headwaters of the river (see May 1986b:111). However, Miller et al. (1994:79-80) reports that the species was first collected in the Morehead River in 1979, and was found in the Fly River in 1985.

This fish is called *betik* by some people in the Morehead District—a corruption of its Bahasa name, betok—and is also mistakenly termed *tilapia* (Baiio 1995:66). Allen (1991:215) notes that it is extremely hardy, possessing an accessory air-breathing organ that enables it to live out of water for up to six days. Climbing perch also have tough spiny fins which they use to pull themselves along when out of water, which apparently allow them to ‘migrate long distances overland in search of better living

²⁶ The development of inland fisheries in New Guinea was begun by the Dutch (Garnaut and Manning 1974:89).

conditions' (Allen 1991:215). Local people state that the fish waits out the dry season in underground holes when caught in areas that dry out at the end of the wet, to emerge at the start of the rains of the following wet season in November/December. I have observed the fish emerging from the ground near Wando village, in November 1995. A thunderstorm struck, bringing the first wet season rains, and suddenly large numbers of this Climbing Perch appeared in puddles on a riverside foot path. The fish immediately walked down the bank and entered the river. This path, which was several metres above the river channel water level, was dry when I first visited the area in mid June 1995—some five months earlier. This dry season burrowing behaviour has been reported from Bangladesh (Rahman 1989:285).

The Wartha people have begun eating this fish, and using it as a baitfish. But they also report that it kills barramundi and catfish, which apparently choke on the tough spines of Climbing Perch (see Chatterton et al. 1997:21). This has also been reported by communities on the Fly River (Storey et al. 1999:112; Swales 1999:401). Some people also blamed it for a reported decline in the number of File Snakes in the Torassi, as well as the deaths of some waterbirds.

Walking catfish and tilapia are more recent introductions, first encountered by villagers on the middle Bensbach around 1995 (Hitchcock 2002:121). These are known to local people as *muchail* (or *mujaia*) and *ikan leilei* (see Baiio 1995:66).²⁷ The former also has an airbreathing capability, and can 'walk' over ground (Allen 1991:212). Tilapia, a southern African native, was introduced to Indonesia in the Dutch period in uncertain circumstances; the first fish was caught in 1939 in East Java (Eidman 1989:58-59). In the post-war period it was deliberately introduced to south New Guinea by the Dutch, to control mosquito larvae (Knödler 1997:371). While the present and potential impacts of these species are as yet unknown, their very presence signals the possibility of competition with local species. Tilapia is

²⁷ *Ikan* in Bahasa Indonesia is the general name for fish, while *lélé* is the name for freshwater catfish. Tilapia was first caught in Java by a Mr Mudjair, whose name was given to the fish (Eidman 1989:59).

known to dominate native fish faunas through its highly adaptive feeding strategies and prolific breeding (Allen 1991:214; Miller et al. 1994:80).

Two specimens of the fourth introduced species, Striped Snakehead (*Channa striata*), were observed by me in August 2000 at Balamuk and Wando villages. These were among the first of this species to be caught by local people. The Balamuk specimen was hanging from a tree, so that other villagers might see this new and curious fish (Hitchcock 2002:121-122). It too is able to survive for days at a time out of water, provided it is in a moist environment (Whitley 1951:236). Snakehead is a particularly voracious predator of native fish (Allen 1991:216). In 2003 I was told by local people that this fish has had an immediate and significant impact on freshwater prawn and crayfish populations. Local people also report that it bites people when they walk through the swamps.

The recent introduction and rapid spread of these fishes may threaten the biosecurity of the Torassi and other freshwater ecosystems in Papua New Guinea. For example, it is possible that these introduced fish could endanger stocks of economically important species, in particular Barramundi, for which the BWL is world famous. There is concern that the poor Barramundi fishing had by tourists in the 2002 and 2003 seasons could be due to the negative impact of the Striped Snakehead (Brian Brumley, pers. comm., 2003).²⁸ It is possible, however, that this could simply reflect natural fluctuations in the south New Guinea population, and/or the impacts of netting of juveniles along the South Fly coast—fisheries research has identified a major spawning ground just off Sigabadura village, opposite Saibai Island. Marind poachers and Kiwai fishers have long engaged in this practice, resulting in a decline in catches in the Daru area. (CSIRO 2003; Milton et al. 1998:499-500,505; Moore 1982).

Introductions of Weeds

The wetlands and river systems of the south New Guinea border area have clearly provided a corridor along which species introduced into Papua Province from other

parts of Indonesia are then able to cross into PNG. This movement is not restricted to fish however, as Torassi people have reported the introduction of a number of exotic plants.

Weeds that are currently present in the area include the common sensitive plant, Mimosa pudica, prevalent in the vicinity of the government station at Dembantjepeth (Wando Patrol Post), and along nearby roads. This species is a potential problem for gardens, smothering other plants and preventing access to food crops with their prickles (Orapa 2001:312). Another, more widely present species is Sida acuta, a woody weed native to South America (Smith 1995:23-24). This has been called 'mbithan' by the Wartha; this means 'broom' and refers to a small native herb that was formerly used for sweeping. According to villagers, the exotic species first appeared in the Weam area a few decades ago, and was subsequently brought to the Wando area by a man who was impressed by its superior sweeping qualities. Grassy areas within villages on the middle Torassi are now congested with this weed. It is not clear if it was introduced from the West Papua side of the border, or as a result of the establishment of Weam patrol post, by the Australian administration, in 1963.

A number of other pest species have been introduced into Papua Province as a result of Indonesian settlement, and are likely to spread eastward into PNG as a result of cross-border traffic or dispersal by seasonal floodwaters (Waterhouse 2003).²⁹ Present at Merauke, and on the 'target list' for PNG and Australian quarantine agencies, is Christmas bush (Chromolaena odorata, identified as one of the world's most damaging tropical weeds); the perennial vine Mikania micrantha; and the perennial herb Cleome rutidosperma. Of these, C. odorata has been identified as a species likely to cause extensive damage to the TWMA should it reach the area (Orapa et al. 2002; Waterhouse 2003:479; see also Wilson and Maudita 2000). Waterhouse (2003:481) also notes that Limnocharis flava, an aquatic herb native to

²⁸ This view is disputed by one fishing tour operator, (Garry Barmby, pers. comm., 2004) who states that he has caught Barramundi in the Torassi, which had juvenile Snakeheads in their mouths.

²⁹ It is probable that the Dutch were also responsible for some introductions. However, I have not come across any references to introduced weeds from that period. Extensive wet season flooding of adjoining river systems is a key vector for the eastward movement of such pests.

Central and South America, is also present in the Merauke area, and that the 'Tonda Conservation Area around the Bensbach River floodplain in PNG will be under direct threat of invasion if L. flava becomes widely established east of Merauke'.

The world's most serious aquatic weed, water hyacinth (Eichhornia crassipes), appeared in 1990 in the Maro River in Papua Province's Wasur National Park. The presence of the weed, which forms dense monocultures, makes water travel difficult, if not impossible in some places, and deleteriously affects water quality, fishing and biodiversity (Anonymous 1996:1; Tjitrosemito 1996:1-2).

Mimosa (Mimosa pigra), which is capable of blanketing seasonal floodplains, has also been recorded on the Maro. In the mid-1990s it was restricted to the banks of the river. However, the floating seed-pods of the plant could be carried over the border by wet season floodwaters (Barano and Hartono 2004:53); Orapa (2001:312) also notes that a feral buffalo herd on the Sepik Plains in northern PNG could spread the seeds, and so the possibility that deer could be a vector in the south cannot be discounted. Mimosa is regarded as the greatest biological threat to Australia's Kakadu National Park, where the plant has infested hundreds of square kilometres of wetlands, replacing natural plant communities and associated animal life, in particular water birds, which find the thickets uninhabitable (Russell-Smith 1995a:155-157).

Mimosa pigra and other weeds in Kakadu are subject to a control program (Kakadu Board of Management and Parks Australia 1998:72-75; Russell-Smith 1995a:157, 159-160); in West Papua, too, biological agents have controlled the Mimosa and water hyacinth infestations on the Maro River (Anonymous 1996:1; Tjitrosemito 1996:1-2). It is difficult to imagine the possibility of such a program in TWMA being able to respond to any such introduction, given the lack of government funds, resources, trained personnel and infrastructure, and the overall lack of a PNG strategy for dealing with weeds (Orapa 2001:315). Since the 1970s both salvinia (Salvinia molesta) and water hyacinth (Eichhornia crassipes) have infested the Sepik River. While the former weed has been brought under control, eradication of water hyacinth has been less successful (Orapa 2001:309-310).

A Mimosa infestation on the Torassi riverbanks would present serious problems for people, who make gardens in these areas during the dry season (see next chapter), while water hyacinth would restrict canoe movement of locals, as well as BWL boats taking tourists along the river.

Several other exotic species appear have become naturalised, and are not considered exotic introductions by local people. These include the South American plants Wild Passion Fruit (Passiflora foetida) and Candle Bush (Senna alata). The yellow fruit of the former is eaten, while the leaves of the latter are used as a tinea treatment. Both plants are considered weeds in Australia (Smith 1995:20,33).

Other Pests, Present and Potential

The potentially fatal mosquito-borne virus Japanese Encephalitis (JE) was first identified in Torres Strait and Far North Queensland from the mid-1990s, probably arriving via wind-blown mosquitoes from southern New Guinea (Hanna et al. 1996). This disease is associated with rice-paddy agriculture, and has moved progressively southwards in recent decades. Waterbirds and pigs are key vectors for the disease. Subsequent testing has demonstrated that JE is present in several areas in Western Province, and is almost certainly present in the Torassi area (Johansen et al. 2000).³⁰ JE is a recent introduction into southwest PNG, and ‘it seems likely that the virus was introduced...from Indonesia by its gradual movement in mosquito and vertebrate host transmission cycles through the Indonesian archipelago and Irian Jaya’ (Johansen et al. 2000:636).

In Daru in November 2002, I was shown two shells of an introduced freshwater snail by inhabitants of Kondo-Marind, a settlement of West Papuan refugees. These snails, which they called *betichok*, were collected from the Merauke region, where they are said to be common. These have been identified as the Golden Apple Snail (Pomacea canaliculata).³¹ In Asia it is a food source, and it also used in the aquarium trade. It is specially adapted to wetlands, being able to survive the dry season by burrowing into

³⁰ This testing also found the first evidence of Ross River virus in a mosquito in PNG, from an insect collected at Bensbach (Johansen et al. 2000:635).

³¹ Staff of the Queensland Museum identified the snails from a photograph.

mud (Laup 1991:56), and damages crops including rice and taro (Eldredge 1994:57). This freshwater gastropod has previously been recorded in PNG, in Morobe, Eastern Highlands and possibly East New Britain Provinces, apparently introduced into the country by Filipino agricultural officers (Laup 1991:55). I am not aware of any records of the species from Western Province, but its existence in southeast Papua suggests that it is only a matter of time before it establishes itself in the Torassi wetlands.

State Quarantine Regulations

Even before the introduction of the above pests, the border dividing New Guinea was of concern to both the colonial administration and Papua New Guinea with respect to quarantine matters. From the early 1950s there was cooperation between the Australians and the Dutch to establish uniform border quarantine policies and practices (Herlihy 1986:187). The Indonesian takeover and reports of a subsequent relaxing of human and animal quarantine precautions in West Papua was cause for alarm on the Australian side (Downs 1980:231; Ryan 1970:91). In the immediate aftermath, there was a freeze on border movements, ostensibly for quarantine reasons, although avoidance of 'border incidents' with Indonesians was a key concern (Verrier 1986:32,35). In July 1962 the TPNG administration established a 32 km border quarantine zone, east of the international boundary (Blaskett 1989:41; Tapari 1988; Wilson 1975:22; Verrier 1976:289). These regulations are poorly publicised and misunderstood, with conflicting statements from officials as to what is and is not permissible in the zone (Blaskett 1989:61,108; Herlihy 1986:187-188).

Agricultural development, including village-based cash cropping schemes, has been inhibited by the PNG policy on quarantine, which apparently forbids cash cropping and cattle production, and movement of plant food and animals beyond the 32 km zone into other parts of PNG (Kirsch 1991:57; May 2001:297). In the past, this has seen the destruction of coffee plants along the border in Western Province, although it is not clear if this occurred in the Morehead District or in areas further north

(Blaskett 1989:108; Wilson 1975:22).³² In the Torassi area, this also resulted in a ban on any road development between Weam and Sota (Bensted 1969).

At present little information is available on the current status of PNG border quarantine regulations.³³ According to one PNG veterinary officer, the fact that it is a policy rather than regulation means that it is not well known, and as there is virtually no commercial development along the length of the zone, the policy is not challenged anyway (Ifor Owen, pers. comm. 2004). At any rate, since its inception, the zone has not stopped the introduction of some crops from the Indonesian side, nor the export of both traditional and introduced crops to other areas of PNG (see next chapter).

In 1989 the Australian government, recognising the porous nature of the land and sea borders between Australia, PNG and Indonesia, established the Northern Australian Quarantine Strategy (NAQS) as a sub-program of the Australian Quarantine and Inspection Service (AQIS) (Wright et al. 1998:10). In addition to surveillance activities across northern Australia, this project provides for joint Australian-PNG quarantine patrols along the PNG side of the New Guinea border, and joint Australian-Indonesian border patrols on the Papuan side. There are usually two annual patrols, for animal and plant health, consisting of Australian, PNG and Indonesian veterinarians, botanists, and quarantine officials (Thompson et al. 2003:414; Waterhouse 2002:478).

For Torassi people, NAQS surveys are one of the few regular instances of government contact; a fairly constant stream of officials collecting weeds and bloodletting chickens, horses, pigs, and sometimes people.³⁴ While they are generally supportive of this work, some complain that the survey results are seldom

³² From 1960 the extension of coffee production was actively promoted throughout Papua (Mair 1970:121), but Wren (168:42) states that coffee and cocoa will not grow in the savanna country of the Morehead District. Given the previously mentioned poor potential for cash crops in the district, the imposition of the border has had any impact on this aspect of development, although the same cannot be said for livestock.

³³ I have contacted a number of Australian and PNG quarantine officials about the 32 km quarantine zone, including NAQS personnel; none were able to confirm whether it is still official PNG government policy.

³⁴ E.g. Owen et al. 2001.

divulged to them—for example, there are no plain summaries or community meetings where they can obtain information about the ‘new diseases’ they have heard about. This causes some anxiety; for example, when I was in the field some people were unsure whether it was still safe to eat *tamur* (Black Flying Foxes, *Pteropus alecto*), as they had been told by a NAQS party that they might harbour a ‘disease’ (the potentially fatal Lissa Virus, carried by these mammals). In the past, the Wartha have complained about Department of Primary Industries (DPI) staff shooting game for various tests; they were of the view that these officials were engaging in hunting, and should therefore pay royalties for this resource, just as tourists do (Ranck and Tapari 1984:168). During my time in the field, it was clear that many Wartha understood the necessity of shooting associated with research, but remained unhappy about the fact that royalties were still not being paid.

The NAQS program in northern Australia is aimed at early detection and eradication to prevent the spread of pests to the rest of the mainland. However, its work in Papua Province and PNG is mainly detective. It certainly provides a level of support, training and travel assistance to Indonesian and PNG quarantine staff, which they would otherwise not have. However, it is largely motivated by Australian self-interest, i.e. concern about the threats posed to Australia’s economy and environment by the introduction of pests and diseases from its northern neighbours, especially via movements of transmigrants and livestock from western Indonesia to southeast Papua, and from there into PNG, Torres Strait, and Cape York. NAQS certainly does not make provision for the extirpation of any pests encountered in Papua or PNG, nor does it provide any real benefits for local border communities. Blaskett (1989:108) reports that some Papuan New Guineans feel that borderland villages are paying the price, in terms of lost development opportunities, for both PNG’s health and Australia’s interests (see also Herlihy 1986:186).

While Indonesia may have the resources to deal with outbreaks of disease and introduced weeds and pests (e.g. the aquatic control measures mentioned above), I am not aware of any attempts on the PNG side to deal with any of the introductions that have become established along the borderland. In fact, Australia has expressed little confidence in the ability of PNG quarantine authorities to stop the eventual passage of new diseases and pests from Western Province into Australia (Wright et al. 1998:29).

Another area of concern is the disinterest NAQS has shown in anything other than animal and plant pests and diseases. It does not monitor exotic fish introductions—despite the fact that three of the recently introduced species are airbreathers and land-walkers, and Climbing Perch in particular could possibly enter the Australian mainland at Cape York, via dinghy movements across Torres Strait (Storey et al. 2002:113).³⁵

Major Environmental Transformations

There is clear evidence that the Torassi borderland is a dynamic landscape that has experienced profound environmental changes. The following sections document local accounts and scientific accounts of the nature and origin of these long-term transformations.

Indigenous Narratives of Environmental Change

The people of the Torassi borderland report that changes in vegetation, topography and floodwater hydrology have occurred since the time of their grandfathers. Of these, the most obvious has been widespread colonisation of floodplain grasslands by Melaleuca swamp forest (Plate 5).

Specifically, eight major processes of change are identified by local people: (1) colonisation of grassy river floodplain and coastal plain by Melaleuca, and changes in the floristic composition of grasses and herbs in these areas; (2) colonisation of upland (i.e. Oriomo Plateau) grasslands by forest, and changes in the composition of species in remaining grassy areas; (3) an increase in the height and firmness of the ground in many places; (4) a reduction in the level of wet season floodwaters; (5) loss of formerly permanent swamps; (6) a northward progression of the limit of salt water intrusion up the Torassi in the dry season; (7) an increase in the extent and intensity of uncontrolled bushfires; and (8) a decline or extinction of certain fish and reptile species as a result of some of these processes.

³⁵ Responsibility for exotic fish introductions in Queensland rests with that State's Department of Primary Industries and Fisheries (see Queensland 1999. Climbing Perch has been declared a noxious



Plate 5: Emergent Melaleuca seedlings in *puwe* (floodplain grassland) between Wando and Balamuk village. June 1995.

Elderly local people state that when they were young, the clear, grassy areas on both the coastal and river floodplains were much greater in extent, and they report that their fathers told them that it was even more open in their time. Since then, Melaleuca forest has rapidly colonised the grasslands (AusAID 1997 I:3-3; Stewart 1981:7). Villages state that the Bula Plains were apparently much more extensive, and that there was no Melaleuca forest at all between the villages of Bondobol and Wando, just clear open plains. Today, substantial stands of these trees occur between these settlements. Further evidence for the rapid and ongoing nature of this process in the area was provided by the manager of the BWL, who noted that the grassland area of the Bula Plain halved in the twenty year period between 1975 and 1995

fish by this agency, and the threat posed to Australia's native freshwater fishes by its occurrence in south New Guinea has been explicitly recognised (Queensland 1995, 1999:7).

(Brian Brumley, pers. comm., 1995). This colonisation pattern has also been reported in neighbouring Wasur National Park, Papua Province (Stronach 1995:8).

Changes have also occurred on upland areas bordering the plains, which in the past had much less forest cover, and more areas of grassland; *tjuntjum*, a species of grass, is said to have been very common. Cassowaries and other birds are recognised as having a role in monsoon forest expansion through the spread of seeds. One positive aspect of this change has been an increase in the amount of land suitable for yam gardens. Wartha also note that in *korei* (open savanna with a grass understorey) uplands, *sou* (*Imperata cylindrica*) is being replaced by other grasses. Again, a similar process has been reported on upland areas across the border, in Wasur National Park (Stronach 2000:92).

Throughout the study area, the ground is said to be ‘higher’, ‘bigger’, and ‘harder’ than in decades past. The perceived increase in elevation is attributed to a build up of soil from decaying leaves and other vegetative matter.³⁶ For example, a creek is said to have once dissected Wando, draining a swamp at the back of the village into the Torassi.³⁷ There is no sign of this creek today, and the particular area is substantially higher than the highest level of wet season flooding. On the Bula Plains, deer are blamed for soil compaction.

There has also been a dramatic reduction in permanent swamps covered by a dense floating mat of grasses (*weio*), which retained water throughout the dry. *Weio* ‘moved’ when walked upon, and clean, cool water was obtained by cutting through the thick grass. One of the most serious impacts of this process for local people has been reduced availability of fresh water during the dry season. A patrol officer provides a description of obtaining water in a grassy swamp in the Mbavir country, between the Torassi and Morehead Rivers, in February 1933:

³⁶ This may also refer to the relationship between the land and a now lower water level during the wet season.

³⁷ Crocodiles were said to have used this creek to ambush village dogs.

Half-way across the swamp we came on to a drinking place of the natives a mere hole of no greater circumference than a breakfast cup but by the combined weight of several natives standing on one side of the hole the springy soil is depressed tilting and expanding the hole until a fine flow of clear water gushes out (1933:3-4).

Wando people also note that a swamp at the back of Wando used to be *weio* (i.e. permanently flooded), and was a good source of turtles. Today, it dries out in the dry season, and is now identified as *bob* (seasonal swamp). Similarly, a nearby waterhole, once a reliable dry season water source, has been unusable since the 1970s. In the last few decades since the arrival of the deer, water supplies have reached a critical level during protracted dry seasons, forcing some communities to travel many kilometres in search of potable supplies.

Rusa deer, which appeared in the area in the late 1940s or early 1950s (see Chapter 10), have been responsible for the destruction of the aquatic herbaceous swamp vegetation, which inhibited evaporation of the underlying water (Stewart and Eng 1981:8). The particular grasses that comprised *weio* are listed in Table 3; with the exception of *P. karkar* these species now occur only along the river near villages, where deer are prevented from grazing (Stewart 1981:8-9).

Table 3. *Weio* grasses.

Species	<i>Thuntai</i> Name
<i>Phragmites karkar</i>	<i>barkak</i>
<i>Echinochloa praestans</i>	<i>tuf</i>
<i>Oryza minuta</i>	<i>sevui</i>
<i>Hymenachne pseudointerrupta</i>	<i>ngathongatho</i>
<i>Leersia hexandra</i>	<i>imaxi</i>

Source: Stewart (1981:9).

The loss of permanently swampy areas has also had a profound effect on the local wildlife. For example, the deer have destroyed an important magpie geese (*Anseranas semipalmata*) breeding area at Kithwai on the Bula Plains, where the grasses *pember* (*Ischaemum barbatum*) and *barkak* once provided suitable nesting

habitat (Stewart 1981:9).³⁸ Pig numbers have also declined as a result of the loss of previously permanent swamps and creeks (see Stewart 1981:8-9). Wartha people note that several fish species that inhabited the riverbank grasses and permanent swamps have disappeared, and populations of swamp-dwelling reptiles such as *mekei* (probably the Brown Water Python, Liasis fuscus) and *karmunta* (Arafura Filesnake, Acrochordus arafurae) have significantly declined. Disturbance to the swamps by wild deer has also had an economic impact, as landowners have reported that ponds favoured by breeding crocodiles now dry out (Tapari 1995:11). Similarly, floating mats of swamp grass in the Kakadu wetlands of northern Australia have been identified as important crocodile breeding areas (Russell-Smith 1995a:148).³⁹

In addition, Wartha report that seasonal inundation is today not as deep, nor as long, as in the past (Stronach 2000:92); I was told that the floodwaters recede more quickly at the end of the dry season, than was the case in the past.

Local people also say that the limit of dry season salt water intrusion in the Torassi has been moving progressively further upstream in recent decades. Today, it is usually said to reach a point between BWL and Pikunjur. During the El Niño Southern Oscillation event of 1997-8, the salt water limit moved even further upriver, to near the junction with the Tarl River. I observed large numbers of dead freshwater fish and turtles along the middle Torassi during this time, and riverbank grasses were also clearly stressed. Together with the loss of water supplies obtained from holes and swamps, river salinity means that the Wartha now encounter the same water problems that confront their inland neighbours in the dry season.⁴⁰

During a major uncontrolled fire that threatened Wando in 1979 (an El Niño year), people fled across the river in canoes. This was said to be the worst fire the people had ever encountered, and

³⁸ Stronach (1995:2) reports similar experiences in Wasur National Park.

³⁹ Russell-Smith (1995:148) notes that floating mats of grasses in Kakadu are not rooted to the substrate, often comprise Leersia hexandra and a species of Hymenachne, and are stable enough to walk on.

⁴⁰ Traditional seasonal mobility patterns are discussed in the next chapter.

caused considerable alarm among the local people, suggesting that there had been little experience of these conditions in living memory. The sounds of exploding melaleuca trees were misidentified, serious injuries were sustained when people walked into smoldering swamp soils, and people cultivating remote gardens were alarmed at the severe grass fires (Stronach 2000:91).

Fires also create impediments to vehicle transportation, as log bridges over creeks often burn out, and large trees are felled across roads.

Wartha are keenly aware of changes to their environment, and their transgenerational, *in situ* observations allow a deep-time account of dramatic landscape changes. Many of the natural processes behind these developments are understood, including the colonisation of upland areas by monsoon forest; and the role of deer in swamp destruction and ground compaction. However, there is some confusion, and various interpretations, about the relationship between Melaleuca colonisation of the plains, the deer, and changes to the fire regime (e.g. Anonymous 2001). This is perhaps explained by the relatively recent nature of the changes, and their genesis in a complex network of natural and anthropogenic factors. Scientific perspectives have the potential to complement and amplify local understandings, but must take into account the Wartha observation that successional processes predate the arrival of deer.

Scientific Narratives of Environmental Change

Scientific knowledge of tropical ecosystems and studies of wetland ecology in comparable environments, such as Kakadu National Park, clearly validate the observations of the Wartha, and go some way to providing an explanatory framework with which to account for the full range of observed landscape changes.

To date, reports and research on these changes in the Torassi area have focused on the role of the deer, which have obviously had an enormous and highly visible impact (Stewart 1981; Stronach 2001; Chatterton et al. 1997). However, local people insist that vegetation succession was occurring in the decades prior to the introduction of this ruminant; an oral history supported by the recent (circa 1920s-1930s) abandonment of swamp drainage taro cultivation on mound-and-ditch field systems throughout the middle Torassi (see next chapter). If deer postdate the start of

Melaleuca colonisation of grasslands, then other processes must be involved, and must be identified.

In explaining these developments, it must be remembered that floodplains are dynamic environments that change spatially and temporally in response to short-term cyclical processes, such as seasonal rainfall, and long-term, non-cyclical processes, such as climate change and ecological succession (Osborne 2000:231,233; Russell-Smith 1995a:142). The Bula Plains and river floodplains are comparatively recent, dating to the Holocene, and were created by the in-filling of a former coastal lagoon with fluvial sediments carried by the Bensbach, Tarl, and Morehead rivers (Paijmans et al. 1971:Fig. 8,67).

Floodplain vegetation oscillates seasonally between aquatic plants communities in the wet season, which are replaced by terrestrial plants when river levels fall and floodplains dry out (Osborne 2000:229). However, a reduction in water levels over time may result in a shift in the biological community towards one containing species better adapted to drier conditions. This process, known as wetland succession or hydrarch succession, occurs through a lowering of mean water depth as a result of a rise in the level of the swamp floor (e.g. through depositional inputs from the catchment, material produced within the floodplain, or both); it can also occur as a result of a lowering of the water table (Osborne 2000:231; Paijmans 1976:48).

With respect to the former cause, Paijmans et al. (1971:64) note that annual flooding in the Torassi area results in the deposition of a very thin layer of alluvial clay on the coastal plain, and fine sand, silt and clay deposition in backswamps and on levees of the river floodplain. A steady rate of sedimentary aggradation, 0.2 mm per year, has been reported over the Magela floodplain in northern Australia (Russell-Smith et al. 1995:116).

As Stewart (1981:7-8) has noted,

since the Bula Plains is considered, in recent geological history as being a sediment filled coastal lagoon...it may be that the deposition of sediment and the accumulation of plant litter/detritus has only recently resulted in raising the plains to a level where seasonal inundation is not prolonged enough to inhibit tree growth.

Young Melaleuca trees are killed by inundation or burning (Specht 1990:405). However, once established at over a metre tall, they will usually survive prolonged flooding. Ongoing aggradation, and perhaps a combination of other events, such as several 'dry' wet seasons (and subsequent low inundation levels) and the absence of fire, would enable increased germination of Melaleuca, and the growth of trees to establish to the point where they would survive future inundation and low-intensity bushfires.

This process may be promoted by the new vegetation itself, which traps silt and organic matter such as branches and leaves (see Osborne 2000:234; Paijmans 1976:48). Together with ground uplift associated with root development, the area around Melaleuca stands becomes higher as a result; this can clearly be seen when one sees discrete blocks or 'islands' of such trees on the Bula Plains, surrounded by open grasslands: from a distance a convex 'lens' of higher ground is evident.⁴¹

In both the study area and Kakadu National Park in Australia, Melaleuca viridiflora occurs in swamps which are inundated for relatively short periods, while Melaleuca cajuputi and Melaleuca leucadendra are common in the more permanently wet swamps, and develop adventitious roots as a result (Gillison 1983:218,221; Paijmans et al. 1971:101; Russell-Smith 1995a:141). M. cajuputi is the species most associated with Melaleuca swamp forest colonisation in the Torassi area. It is to be expected that a plant adapted to prolonged waterlogging would be among the first colonisers in a process of swamp succession.

A lowering of the water table may also account for some of these developments. Osborne (2000:233) notes that continued down-cutting by rivers results in a progressive fall in the wetland water table and leads to a succession of plant communities suited to progressively drier habitats. Alternatively, colonisation by Melaleuca may also have reduced the water table in swamps through transpiration. These processes on the Bula Plains may account for the local belief that the level of wet season inundation is lower than was the case in the past, and that the ground has

⁴¹ It is possible that such 'islands' occur on slightly higher ground, or that the processes above allow other trees to establish themselves at the edges; certainly the latter is clearly observable on the Bula Plains.

risen in many places. Increased runoff as a result of compaction and loss of swamp vegetation might also lead to lower level of infiltration to the water table, and an increase in the reach of salt water up the river (Geoff Humphries, pers. comm., 1996).

Another factor that may have assisted the establishment of Melaleuca is a change in the firing regime. As previously mentioned, the grassy floodplains are considered natural, although in some other, higher areas, anthropogenic Imperata grasslands do occur. A reduction in the intensity of the indigenous burning regime, attributed to depopulation by raiding headhunters or the 1919 influenza epidemic, has been suggested (Stewart 1981:7), a view with which I concur. A further reduction in the extent of burning has taken place since the people abandoned their traditionally more mobile settlements to reside in fixed villages (see Chapter 6). This has resulted in a decline of firing in areas of Wartha territory remote from villages.

In areas that are seasonally dry, plant succession may be retarded by fire. In areas of grass swamp and herbaceous swamp, fires damage and kill pioneering shrubs, seedlings and trees (Paijmans 1976:48). As Wilson and Mudita (2000:65) note, 'regular fire tends to act against trees and in favour of grasses, leading to the conversion of tropical forest into savanna and grassland', and hence 'a reduction in fire can enable the reversion of grassland to woodland'. However, severe fires in established Melaleuca forest may kill the large trees, and thus provide significant amounts of fuel in subsequent years (Stronach 2000:91).⁴² Development of monsoon forest has also been reported in Wasur National Park (2000:92).

The Role of Deer

I believe that a combination of natural factors and a change in the fire regime was initially responsible for the above vegetative changes, and that deer have

⁴² Melaleuca and other elements of the savanna vegetation are fire-resistant (Axelrod and Raven 1982:935). While small Melaleuca seedlings are killed by fire, large trees generally survive all except the hottest of fires, as damage is generally restricted to their outer bark (see also Russell-Smith 1995:225; Specht 1990:402,405). The occurrence of charred trees in Melaleuca swamp forest indicates that dry season fires sweep through most stands (Paijmans 1976:48; Paijmans et al. 1972:101).

subsequently provided a trigger that has very much exacerbated these processes. As Stocker (1977:31) notes with respect to the introduction of buffalo on Mary River floodplains in northern Australia, 'changes in the structure and floristics of any plant community are inevitable following the successful invasion of a new species of herbivore', and trampling and wallowing often over-shadow the effects of grazing.

This has certainly been the case in the Torassi area. There has been a dramatic reduction in both plant species diversity and grass and swampland plant biomass through grazing (Stewart 1981:13). As Henty (1982:471) notes of New Guinea grasses, they 'are not well adapted to grazing and the initial effect is usually destructive'. This has allowed other naturally occurring, but unpalatable species, including Melaleuca, and herbs and low sedges, to dominate in the absence of competition from grasses (see Pajmans et al. 1971:94). For example, a small herb now dominates many parts of the Bula Plains. This is clearly an unpalatable plant for the deer.⁴³ Grazing has also caused some grasses to disappear, to be replaced by other species. In the early 1970s Henty (1982:472) noted the following about the vegetation of the Bula Plains:

The short dense turf (in the dry season) is almost exclusively composed of *Pseudoraphis spinescens*, which elsewhere is known as a coloniser of bare ground. Here the grass is heavily grazed by deer....Probably the area was originally a reed-bed of *Phragmites karka*, which has been eliminated by grazing. A few patches of *Phragmites* remain, and regeneration by rhizomes on fenced quadrants has been demonstrated.

He also states that on areas of higher ground, Imperata grassland has also been degraded by grazing, leading to its replacement by Chrysopogon aciculatus (Henty 1982:472).

Overgrazing by deer can also assist Melaleuca to become established through ground disturbance. Animal grazing reduces the available fuel load, 'resultant fires are smaller and patchier, giving tree seedlings and suckers an opportunity to become established' (Wilson and Mudita 2000:66). In 1967 the CSIRO land resources team

⁴³ On the basis of a government-collected, pressed specimen I found at Balamuk Station, I believe this herb is *Epaltes australis*; it is probably native to the area.

found that in higher parts of the Torassi floodplains, and along the beach ridges marking the southern border of the Bula Plains,

...herbs and sedges occur...in open patches where the grass has been flattened, trampled, and killed by deer. Numerous *Melaleuca* seedlings occur locally in these open patches but they will not survive the next fire (Pajmans et al. 1971:94).

Melaleuca did not regenerate in the dense *Phragmites* reed beds that were characteristic of the plains and have since been devastated by deer grazing; however, they can do so in the short grasses and herbs that have replaced it, which reduce fire intensity (Stronach 2000:92). In other words, less competition from dense grasses, and the absence of fire, aids *Melaleuca* expansion.

Similarly, Stronach (2001:91) found that grassland and swamps are subject to substantial pig disturbance, which ‘supports less grass, forming fire breaks and seed beds for the regeneration of *Melaleuca* spp., promoting the spread of woodland and forest at the expense of grassland and open swamps’.

The loss of herbaceous swamp vegetation, combined with soil compaction caused by trampling, has undoubtedly led to a higher rate of seasonal runoff from the coastal plain. In Kakadu, it was found that increased soil erosion and sediment loads are also a result of trampling (see Storrs and Finlayson 1997:28). I suspect that in the past, wet season floodwaters were trapped in the *weio* swamps, and would have slowly drained away via the river channel or one of the few creeks on the coast. More fresh water would have been present throughout the area in the wet and dry seasons, and this slower draining of the floodwaters back into the main river channel may have pushed brackish water further downstream during this time. As Osborne (2000:234) notes:

Wetlands play an important role in modifying the hydrology and reducing flood flows. They act like a sponge during periods of high water inflow, absorbing water and releasing it more slowly than the flood input. The hydrology of the outflow is often more constant, and this has significant implications for downstream ecosystems.

Increased runoff would also favour the survival of seedlings that would otherwise be killed by prolonged inundation. As Specht (1990:405) has pointed out,

prolonged waterlogging reduces the chances of survival of tree seedlings and may even lead to the death of mature trees—treeless grassland or heathland results depending on the fertility of the soil. If prolonged waterlogging is not too frequent, trees and shrubs tend to re-establish themselves.

The expansion of forest and loss of permanent sources of fresh water in the dry season has also had a serious impact on local wildlife, including the catalyst of these changes, deer. Large numbers of deer die as a result of long dry seasons: it is estimated that approximately 2,000 succumbed during the protracted drought of 1979-1980 (Tapari 1988:36), and many more died during the 1997 El Niño event (Brian Brumley, pers. comm. 1998). The creation of dry season waterholes using explosives has been suggested as a solution to this problem (Stewart 1981:33).

The Role of Fire

The traditional fire management regime has been replaced by less structured practices, a result, in part, of the concentration of the formerly dispersed peoples, which has reduced traditional early burning in remote areas (Stronach 2000:91). Also, depopulation by the Marind and the 1919 influenza pandemic, led to a considerable decrease in the number of people on the landscape, and hence the amount of burning associated with hunting.

The changes evident in the Torassi area are the result of complex interactions between vegetation, wetland ecology and geomorphology, fire regimes and animal behaviours. More detailed studies on the relationship between these factors will be required to understand the implications of these ongoing processes for people and wildlife. It is also possible that other factors, such as long-term patterns of rainfall or watershed hydrology, are at play. Wetlands are highly productive environments (Osborne 2000:235), but it is clear that the Torassi wetlands have suffered an ‘erosion of biodiversity’ as a result of these interactions (AusAID 1997 I:3-3), which have directly impacted upon the local subsistence system.

Stronach (2000:92), in a recent overview of fire and vegetation succession in the area, states that the colonisation of floodplain grasslands is coincident with arrival of Rusa deer. This focus on Rusa as the prime determinant obscures the true nature of landscape change.

Consequences of Exotic Introductions and Environmental Change

Exotic animal introductions and changes to the local landscape have had positive and negative effects for local people. Residents of villages situated inland, or on reaches of the river subject to tidal influence, must travel to seek potable water during the dry season. The problem is ameliorated to some extent by the presence of dynamite holes made by mining survey teams many years ago, which retain water during the dry, although these are often fouled by animals. A United Nations Development Project officer, who worked on the deer farm and jerky projects, also assisted Wando village when he organised for funding to construct a water tank there. Presently, there are also one or two operable government water tanks at Balamuk. Other villages in the area, however, do not have tanks or permanent waterholes, and must rely on water supplies from the more fortunate settlements. This has led to inter-community conflicts over the 'ownership' of the tanks and the water. As the 1997 dry season progressed and water became progressively scarce, there was some dispute between Wando people about granting other villagers access to their large tank; some wanted to put a lock on the tap, while others thought the water should be shared among kinfolk in other settlements.

The introduction of Rusa deer is one of the most visible changes. This has provided some money-earning opportunities, through sales of meat and antlers (Chapter 9), royalties from the BWL, and from short-lived government and commercial culling and farming ventures (see Chapters 8, 10). Damage to local gardens has been a significant problem with the arrival of the deer, and heavy fencing is now required to protect crops; in the past, such fencing was not as necessary (see Chapter 5).

The vegetation changes currently in train are likely to see a reduction in overall deer numbers in the Bula Plains, as forest environments support lower densities of deer than open grasslands (Downes 1968-1969:98; Stewart 1981:5-7). Consequently, large-scale commoditisation of deer, long viewed as a surplus resource that could be 'exploited on a self-perpetuating basis' (Ranck and Tapari 1984:164), may not be possible in the future.

Summary

The Torassi area is a remarkable wetland environment, comprising a diverse range of habitats, many of which change markedly from season to season. It is also home to some of New Guinea's most rich and diverse flora and fauna.

Wartha recognise that theirs is a dynamic landscape, subject to long-term ecological processes. The proximity of the border, and major sites of Indonesian transmigration, has also resulted in exposure to new pests and diseases from Asia. Deer, in particular, have had a profound impact, exacerbating what appear to be natural environmental shifts that were in train long before the arrival of these irruptive ungulates. A porous border, and lax quarantine arrangements within Indonesia, has exposed the people to a range of threats to their biosecurity and lifeway. As I will demonstrate in later chapters, it was introduced deer that brought the promise of economic development to the region. Now, other introduced species threaten this resource, the tourist and subsistence fisheries, and the wide open plains. The region's biodiversity, and perceived threats from species introductions and vegetation succession, have also resulted in increased interest in the area, in particular by the World Wide Fund for Nature (WWF). This has engendered new relations and trajectories of articulation between Wartha, their neighbours, and outsiders, which are discussed in Chapter 9. These environmental changes have also led to profound changes in the subsistence system of Torassi people, developments which are discussed in the next Chapter.

CHAPTER 5: SUBSISTENCE PRODUCTION

Introduction

In the previous chapter I sketched the biophysical components of the Torassi environment. In this chapter I describe the subsistence production system of the Wartha, which underpins past and contemporary life.

The experience of living a border life—a frontier zone for various colonial powers and their successor states—has shaped the nature of Wartha interactions with their environment since first contact with outsiders. Major environmental changes have also had an impact on the landscape, and transformed the subsistence production system.

I begin by delineating the food-procurement strategies of the Wartha, with reference to the above social and ecological processes, and the social organisation of production and the labour process. This is followed by an examination of the distribution and circulation of the products of social labour. It will be shown that an ethic of cooperation, sharing, reciprocal relations and equivalence pervades production.

Food Production Systems

Marked seasonality is a key determinant of settlement, mobility and production activities among the Wartha. The oscillation of wet and dry sees the expansion and contraction of vast areas of wetlands. The food production system of the Wartha varies with respect to these natural phenomena and the requirements of the horticultural round. It also influences the movement of the people between ecological zones over the course of the seasonal round, between permanent villages, and short-term hunting, gardening and sago camps.

A detailed knowledge of the location and ecology of resources in the landscape, according to biozones and season, underpins food security. Various subsistence strategies are associated with particular ecotones. In the following sections, the plant and meat procurement systems of the Wartha are identified and discussed, with

reference to these culturally recognised habitats, and the role of gender in different production strategies is outlined.

Plant Procurement Systems

Gardening

Agriculture is the key component of the subsistence system: ‘it is above all in the garden that the Keraki find their work and their livelihood’ (Williams 1936:18). Williams (1936:234) wrote that an entire monograph could be devoted to food production in the Morehead District.

Gardening in the Morehead District is strikingly seasonal on account of the marked contrast between the wet and dry seasons (Williams 1936:217). The Wartha utilise a number of gardening systems, but the two main ones are wet season, swidden yam gardens, and dry season, riverbank gardens. All new gardens, irrespective of type, are called *tatama narakei* (new gardens). Once the crops have been harvested and the garden is left to fallow, it is referred to as a *ndurndur narakei* (old garden), *ndurndur kar* (old place), or *ndurndur narakei kar* (old garden place). Even when no crops are evident and the bush has grown up, it retains this name, perhaps as long as the living memory of the gardener.

Most households construct and maintain several gardens in the course of the seasonal cycle. These usually include plots in a large, communal yam garden made by a local section group, village, or dialect group, several other family yam gardens, one or two riverbank gardens, and a kitchen or house garden (see Ayres 1983:164). The names of Wartha cultivars are presented in Appendix 10.

Yam Gardens – *kai mbintu narakei*

During the wet season, when most of the land is under water, yams and other crops are grown in swidden gardens located in woodlands and forest along high riverbank levees or the low ridges or uplands that escape inundation. Such gardens are usually located within a couple of hours walking or canoe distance of villages.

The Wartha call these gardens *kai mbintu narakei* ('high/big ground gardens').¹ These higher, better drained sites support forest such as *karimu* (gallery woodland along higher river levees, and secondary forest in other upland areas) or *kai karimu* (monsoon forest on higher upland areas). These gardens are characterised by short cropping periods, and long fallows.

In addition to yams (*Dioscorea esculenta*), other staples grown include long yams (*D. alata*), taro (*Colocasia esculenta*), sweet potato (*Ipomoea batatas*), bananas, pumpkin (*Cucurbita moschata*) and cassava. To keep out marauding wild deer, pigs, and other animals, stout bamboo fences surround these gardens; they are constructed in the late dry season, and the yams and other crops are then planted around the time of the first rains, which make softens the soil. The main yam harvest takes place in July-August. An overview of this garden type is presented in Williams (1936:217-220).

Old gardens remain productive. If the fence is maintained properly, in order to keep wild animals at bay, it will continue to supply cassava (*Manihot esculenta*), bananas (*Musa* sp.), pineapples (*Ananas comosus*) and pawpaw (*Carica papaya*) for a year or two after harvest (see also Ayres 1983:165; Williams 1936:218). The supply of cassava in particular can help overcome the wet season hungry time.

Yams are by far the most significant crop in the Morehead District (Allen et al. 1993:48; Beaver 1920:88). Indeed, yams are considered to be the 'true food'. *Mam*, the *Thuntai* name for yams, also confers this meaning. By extension, yam gardens are considered to be most important type, they are 'real gardens'. As Ayres (1983:165) notes, 'gardens, by definition, are yam gardens, just as food, by definition, is yams'.

Yams (*thambai*) and ceremonial long yams (*nasei*) are planted in the centre of these gardens, with less important cultivars (e.g. *biskar*) around the edge, so that if animals manage to penetrate the fence, they will eat these crops first. When yams are taken out of the middle of gardens, cassava is planted there.

¹ *Kai mbintu narakei* gardens may also be called *thambai narakei* (yam gardens), or *rot narake* (*rot* refers to the longitudinal bamboo palings of these gardens).

A local section group usually constructs such gardens, in part because it is convenient to cooperate in clearing and cultivating large areas of land (Williams 1936:113,213). Sometimes though, several related, unmarried men may make separate gardens together, and individual families will also garden. Most members of a dialect group will also make a single main yam garden together, unless the distances between settlements are too great. Patrilineal groups in dispute with one another may also choose to make gardens in separate locations (Ayres 1983:163-164). Torassi people report that cooperative gardening by the dialect group is less common than in the past, the result of a breakdown in sociality as a result of modern land disputes (see below).

Although Williams explained the environmental variability that is a consequence of the wet-dry climatic cycle, and gave considerable attention to horticulture, he only visited the Morehead District in the dry season (Williams 1936:7). As a result, his ethnography fails to capture the variability in food production strategies over the yearly cycle, in particular those employed in the wet season.

Riverbank Gardens – *darakei narakei*

With the arrival of the dry season from around June-July, gardens enclosed by light split-bamboo (*darakei*) fences are made on the grassy banks of the Torassi to take advantage of the sediments deposited there, as the surrounding waters drain into the river channel, and the water level in the stream goes down. The general name for these gardens is *darakei narakei*.

These gardens are further classified as either *par narakei*, or *baba narakei*. This refers to their location in the microrelief of the riparian landscape, either on the highest part of the riverbank, on levees (*par*), or in low-lying, marshy river flats (*baba*). The two types are sequentially cleared (by cutting or burning river grasses), fenced, and planted as the water levels recede. There is no fence on the side bordered by the river; people will often make a fence across a meander core (the land enclosed by a meander, or loop-like bend, in the river). Internal plot divisions may be marked by plantings of aibika, as well as sticks inserted in the ground (not laid on it, as is the case with yam gardens). The fact that these gardens require far less labour than *kai*

mbintu narakei probably accounts for why they are made by individual or extended families, rather than a whole village.

Ayres (1983:164-5) states that these gardens typically contain sugar cane, cassava, taro and bananas—to which may be added *aibika* (*Hibiscus manihot*), snake beans (*Vigna unguiculata*), and, more rarely, tobacco (*Nicotiana tabacum*). There is a real dearth of leafy greens in the area (Stewart and Eng 1981:3), with the exception of small amounts of *aibika* grown in these gardens. Sweet potato is, however, probably the most important crop in riverbank gardens (Plate 3).

During *rarapu* (early wet season) when the waters start to rise up the riverbank and inundate these gardens, the people sequentially harvest their crops, from the bottom of the bank, to the top. Water intolerant crops such as sweet potato are among the first to be removed. Plants such as *biskar* and water-tolerant taro may be allowed to become inundated; people can return to harvest these. When the rising waters finally cover the leaves of these crops, they pull them out. By December-January, when water floods the garden completely, it becomes a *ndurndur narakei*.

Another type of *darakei narakei*, planted largely with watermelon (*Citrullus lanatus*), is made on low, flat riverbanks located further downstream, between Balamuk and the Bula Plain. These gardens are called *wayati narakei* (watermelon gardens). Often, sweet potato is grown here as well. They are similarly fenced lightly with bamboo, but many melons are still lost to wallabies, as well as the depredations of *kapei*, Sulphur-crested Cockatoos. Twigs and grasses are put on top of the melons to try and prevent loss to these pests. The lower Torassi is known throughout the Morehead District for the quantity and sweetness of its watermelons. When transport is available, large numbers are shipped to the District station for sale to public servants, where they sell for between K3.00 and K5.00 (see also Baiio 1995:43).

These gardens are susceptible to river flooding caused by earlier than usual rainfall in areas to the north. In early November 1996, these caused the river to rise and fall several times, in quick succession. Wando people rushed to salvage what they could, but many watermelons and sweet potatoes were spoilt.

I would suggest that the importance of these gardens has increased with the introduction of new crops which grow well in this environment, such as cassava,

sweet potato, and watermelons. Together with an increase in the availability of meat (see below), it has helped to ameliorate the impact of *saber* (the hungry time), and led to a decline in the use of those stop-gap foods traditionally employed to get through this period of scarcity.

Household Gardens – *kui kar narakei*

As Allen et al. (1993:48) note, household gardens are common in the Morehead District, and range ‘from plots of tobacco to mixed plantings of several crops’. Among the Wartha, these gardens are called *kui kar narakei* (lit. ‘piss-place-gardens’).

Other Gardens

Gardens that predominantly contain one particular crop will be identified as that type of garden. For example, taro gardens are called *tjuku narakei* (taro garden). Sometimes, taro suckers are planted next to swamps during the dry season, to conserve them for later transplanting in *tjuku narakei*; these gardens are called *tjuku pitei narakei* (taro sucker garden). Martin (2001:204) describes a similar practice of planting taro in swamps ‘as a nursery during the dry season’ by the Keraakie; it has also been reported from the Highlands (Morren and Hyndman 1987:312; Swadling 1983:14).

Gardening and the Seasonal Cycle

In south New Guinea, a number of unfavourable climatic-environmental events impact on food security. The region’s marked seasonality should not be taken to mean that the seasons are regular, for there can be considerable variability in the timing, intensity, and duration of rainfall, flooding and drought. Early flooding of the river (e.g. October-November) can destroy riverbank garden crops. Serpenti (1965:3), writing of the Kimam people of Kolepom, notes that the harvest is often spoiled by the onset of unusually early rains and subsequent flooding. Exceptionally ‘big’ wet seasons (*kai weneiterkan*), with extensive floodplain inundation, can similarly ruin yam gardens (Williams 1936:4). If the waters take a long time to recede, this also restricts the planting period for riverbank garden crops. Droughts, such as the 1997 El Niño events, also impact on yam harvests: insufficient rainfall

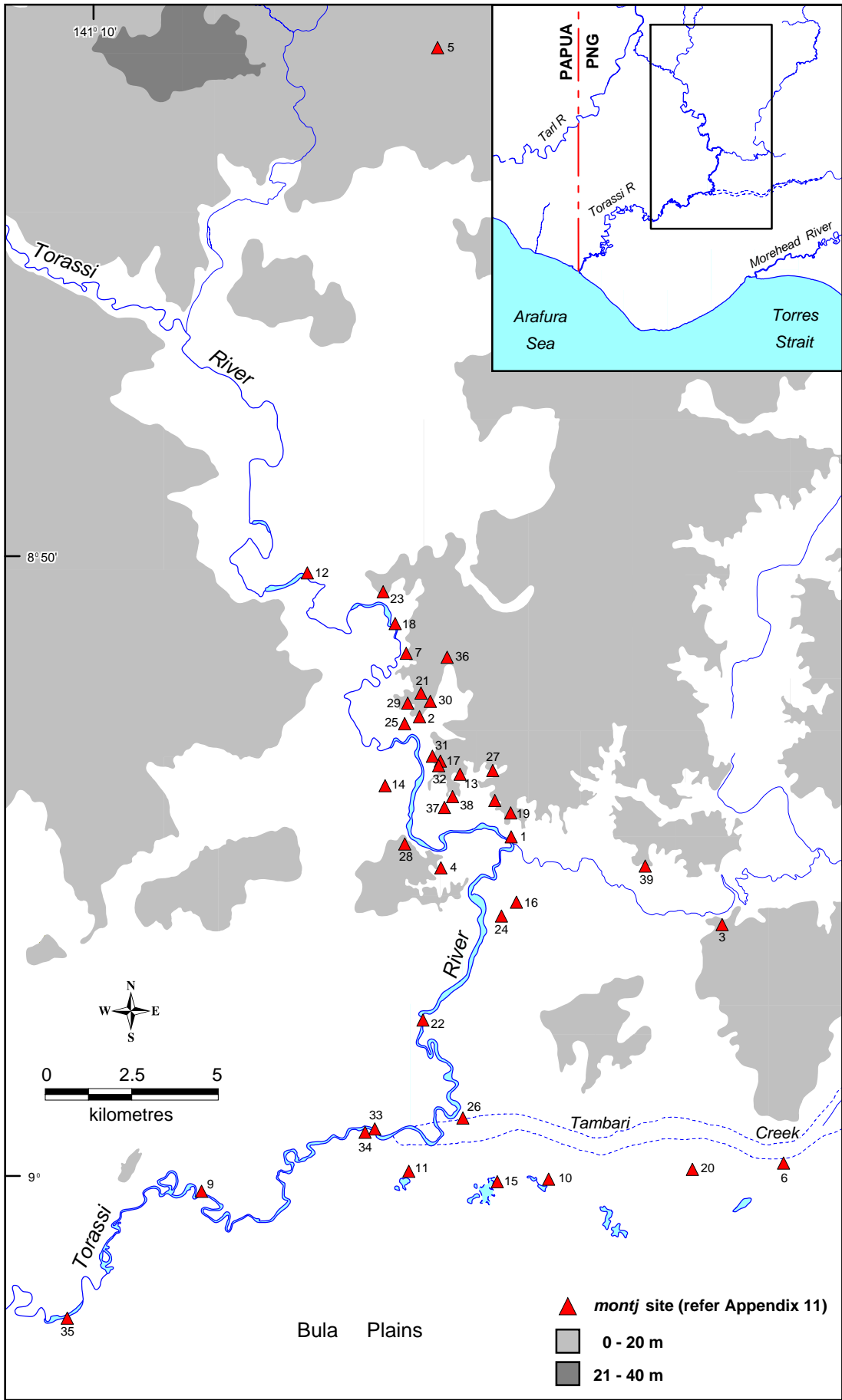
results in poor quality tubers, ‘small and hard’. A sequence of such events is the worst case scenario for the Wartha gardener.

Taro (*montj*) Gardens

While yam is today the most important cultivar, this has not always been the case. Old people recount that taro, a water-demanding crop (Hackett 1985; Spriggs 1984:124), was once the mainstay of gardening. This is evidenced by extensive areas of relict mound-and-ditch agricultural systems in the middle Torassi area, called *montj* by the Wartha. These comprise long parallel mounds, measuring 3-5 m in width, separated by ditches less than one metre deep.

Wartha elders state that these systems were last constructed around the 1930s. Spatulate digging sticks were used to dig long trenches (*yeweyewe*; *yewe* = ‘hole’) in marshy grassland, the excavated earth was thrown up between them to create a planting surface for taro that stood proud of wet season flooding, and the cut grass used as a mulch. Similar systems have been recorded from swampy environments elsewhere in southern New Guinea and the Pacific (e.g. Barham et al. 2004; Hitchcock 1996; Swadling 1983:Figure 12; Thaman 1984:109).

I mapped the occurrence of *montj* gardens at 39 named locations in the middle Torassi area (Map 5; Appendix 11). In some places the systems merge to form networks covering hundreds of hectares. Examination of the location of these sites with reference to topographic maps, satellite imagery, and personal observation reveals that the majority are located on the margins of *kai mbintu* (big ground), where the land slopes down to *puwe* (river floodplain). Other examples occur on higher ground along the river, and yet others are situated on the northern margin of the Bula Plain, which appears to be slightly higher than the rest of the coastal plain to the south. The ditches in these three environments drain into seasonal swamps, the river, and nearby lagoons respectively. Spriggs (1984:123) notes that the aim of such systems ‘is not complete drainage to create a dryland environment for planting but only to control the water table within required limits’. While this appears to be the case with the systems on the flat, low-lying Bula Plains, many of the ditches on upland areas are on slight gradients, and were designed to effect fast drainage.



Map 5: Relict mound-and-ditch garden sites on the middle Torassi.

It is unclear whether the great extent of the systems indicates a large population, maintaining and re-using the systems (e.g. Spriggs 1984:133; Thaman 1984:117), or the steady accumulation of *montj* over many generations, as old systems were left to fallow, and new gardens were constructed elsewhere; possibly both. Some informants report that *montj* gardens were left fallow after harvest. Certainly, this form of gardening would have been very labour intensive (Thaman 1994:109). Barrau (1980:255) notes that

in grasslands, tilling the ground requires more elaborate work than simply digging with a stick, as is done in forest swiddens; and, where rhizomatic grasses are abundant, it is necessary to break the sod with a digging stick which is used as a ploughing tool, as in the Markham valley of New Guinea and in New Caledonia where a wooden spade was also used.

It is also possible that complex social relations of production were associated with these systems, such as more hierarchical social structures, and more organized forms of cooperative labour associated with an intensification of food production (e.g. Thaman 1984:107). As noted earlier, the amassing of huge surpluses of root crops for use in ceremonial prestations was highly important to male prestige (Williams 1936:233-235). Men were dependent on female labour to produce food stores, and polygyny was common (Knauff 1993:76,184; Williams 1936:149). There is evidence of the ability to marshal labour beyond the immediate family to hold such prestations. Williams (1936:231) found that local groups, and sometimes several neighbouring villages, would combine their efforts, with leading men taking an active role in the organisation of the production, and formalised distribution of yams at the feast. Williams (1936:234) himself noted of feasts, 'there is no question either that they provide a stimulus for food-production', and that a 'good show' was a source of great satisfaction and pride.

This process of intensification might be expected to transform other areas of Morehead social life, such as the manipulation of marriage exchanges by leaders to obtain more wives. This might also encourage expanded food production; for example, to make a 'one-sided feast', a non-reciprocated marriage exchange feast for affines that negates the normal obligation to live uxori locally where a sister is not given in exchange (see Ayres 1983:228; Williams 1936:139-140). Unfortunately, we can only speculate about these aspects of the past operation of the taro cultivation system. I suspect that their abandonment was also linked to a decline in population

associated with headhunting, and the pneumonia epidemic of 1919. This obviously would have impacted on a system that relied heavily on labour-power. If the cycle of Marind raiding was comparatively recent, as suggested by Ernst (1979), it may be the case that the nature of Wartha society was quite different in the past.

Taro irrigation systems, including swampland drainage systems, were once common throughout the Pacific, but their use has declined in most areas. A number of reasons for the disintensification or abandonment of these agronomical practices have been postulated, such as depopulation as a result of warfare and epidemics, increasing reliance on cash crops, introduction of less labour-intensive cultivars, land alienation, and breakdown of social systems (Harris 1995:850; Spriggs 1984:133; Thaman 1984:115). Environmental change has not been suggested as an alternative factor.

The Wartha explain that they abandoned this type of gardening in response to dynamic vegetational and hydrological changes. As mentioned in Chapter 4, the people report that a process of forest colonisation of grasslands on uplands and floodplains has been in train for many decades, and continues today. They also state that wet season flood levels have dropped substantially, and the ground in areas traditionally used for mound-and-ditch agriculture is now 'harder' and more 'dry' than in the past. This suggests that there has been a reduction in the water table, as well as a building up of humus on *kai mbintu* (high ground) areas as a result of forest colonisation. In response to these developments, the Wartha ceased making mound-and-ditch gardens and shifted to an agricultural regime based predominantly on swidden cultivation in forested areas above the highest level of wet season inundation. In December 1996 I visited a yam garden at Boombei, on the west bank of the Torassi, with a middle-aged man from Wando. He noted that this place used to be 'too low' and 'too wet' for yams; when he was a child in the 1950s, water would stand in the ditches during the wet season, but today the water quickly dissipates.

According to some Wartha, steel tools also led to the abandonment of *montj* gardening. It is highly probable that the Wartha practiced both forms of agriculture prior to the abandonment of mound-and-ditch field systems. Informants stated that they always had yam gardens in the vicinity of Thoro, located on some of the most elevated country in the area. Today, the vegetation here is thick monsoon forest. In the past, stone tools, including axes, were very rare in this part of New Guinea (e.g.

Hitchcock 2004b; Williams 1936:428-429). The import of axes, knives and shovels from Merauke—at the very time that the environmental changes were creating more forest, and a drop in the water table—probably accelerated the shift to swidden agriculture, given that *montj* gardening was now comparatively less productive and more labour intensive (and people were now far fewer).² The introduction of other cultivars also had a role (see next section); Ayres (1983:9) argues that the introduction of easy-to-grow cassava, probably in the late nineteenth century, displaced labour-intensive taro throughout the district.

These relict systems still prove useful today. Due to their vast extent, they are often encountered when people clear forest on *kai mbintu* (big ground). Gardeners will take advantage of their morphology, planting water-tolerant taro in the ditches, and yams on the top of the mounds, so that in the rainy season the former will be irrigated, and the latter will not rot as a result of inundation. I have also observed taro suckers planted in relict ditches within Wando village. The shift from planting taro on the mounds for drainage, to incidental planting in the drains to take advantage of wet season runoff, provides further evidence of a shift in local hydrology. In very flat areas with poor drainage characteristics, heavy rain may result in a lot of water standing in the relict ditches. In such cases, they are brought back into commission by clearing them with shovels, allowing water to exit the garden.

These findings add weight to Knauff's (1993:61,67,119,188) argument that past characterisations of low intensity political economy in south New Guinea are no longer tenable. They also dispel notions of the people as conservative cultivators (see next section). Throughout time, Melanesian horticulturalists have not only adapted crop production to a wide range of environments, they have also made adjustments to cultivation techniques as a result of environmental changes (Barrau 1980:255).

² Williams (1936:217-218), writing at a time when steel axes had replaced stone, notes that clearing yam gardens in forest is relatively light work, given the absence of troublesome ground-level vegetation.

Introduced Crops

Wartha, like other New Guinea peoples, are avid gardeners, keen to experiment with new varieties. A large number of introduced crops, and new varieties of traditional cultigens, can be found in the region. These have been brought in by trade, people returning from government postings and visits to other parts of the country, and the past efforts of government agricultural extension officers. Many have been introduced from across the international border with Papua, and from the islands of Torres Strait. The plants in Torassi gardens and settlements, then, might be said to form maps indicative of trade, marriage, and work linkages extending far beyond the river.

Some of these introductions were observed by Williams (1936:216) in the 1920s-1930s; he lists the following as post-European crops: cassava, sweet potato, pineapple, pawpaw, sour-sop, mango, and possibly a superior variety of breadfruit. Cassava appears to have entered the District from Dutch territory, and/or from Boigu and Saibai in northwest Torres Strait, via Buji. This settlement, opposite Boigu, was established in 1897 as a police post to protect the district from Marind raids (see also Ayres 1983:9; Beaver 1920:124; ARBNG 1895-1896:42; Serpenti 1965:41-42). In October 1916 PO Flint (1917:4) found sweet potato, pawpaw, and cassava growing in Wartha gardens.

Local people state that kiaps introduced a number of crops, including cashews. PO Griffin (1951:5) stated that the distribution of corn, pumpkin and bean seeds in the area had not been a success, but today these crops are among the most successful of the introduced cultivars. A Motu LMS pastor is also said to have introduced a superior variety of breadfruit. The BWL is an agent for gardening change as well; it sells commercially packaged seeds, such as eggplant, watermelon, rockmelon, corn, tomatoes and snake beans.

In the 1956 Wando people independently began experimenting with rice production, using seed obtained from a village across the border (Frew 1957a:3). In mid-1956 Giffard (1956:4) reported the following:

A little rice is now being grown by the Wando villagers. Some has already been harvested and is hulled by pounding the seed with a pole after it has been placed in a hole gauged out of a log. A small area of rice consisting of about half a sq. chain was found to be doing very well during the visit.

This experimentation was short-lived however; possibly rice production proved too difficult on account of seasonal fluctuation, and its large-scale adoption would have been culturally inappropriate, as nothing can substitute for root crops, which as ‘true food’, form the basis of exchanges.³ Allen et al. (1993:48) note the increasing importance in the Morehead of a triploid banana called ‘Derwaki’, originating in Papua; it is called *dewaka* by the Wartha. At the Suki village of Aewa, Burton (1995:67) was informed that a local man had brought this banana (known there as *deiwaka*) to the district from Papua Province. It is more likely that numerous people in the district have had a role in introducing this variety. Also popular are small, ‘birdseye’ chillis (*Capsicum frutescens*).

As Healey and Hunn note:

The emphasis on experimentation with new crops and their varieties is an important aspect of traditional ecological knowledge in Papua New Guinea and elsewhere. It shows that “tradition” does not consist of slavish adherence to unchanging custom, but rather, encompasses a genuine sense of enquiry and determination to learn from personal experience and the collective experience of others...and is thus crucial to the adaptation of contemporary subsistence horticulturalists to their environments (1988:28).

Martin (2001:207) contends that the Morehead people are conservative gardeners, based on the failure of attempts to introduce major changes such as contour farming, and to engage in major citrus crop production.⁴ He states that the harshness of the environment, and extreme seasonality of the area, makes them unwilling to deviate

³ Even though such exchanges were very rare at the time of fieldwork, the status of yams as the cultural superfood remains.

⁴ While I do not deny that aspects of Morehead culture evidence conservatism (see Knauff 1993:185-187), that these developments were not taken up is more explainable with reference to issues pertaining to the social organisation and availability of labour; access to machinery; cultural food values; and the absence of marketing opportunities. Morehead gardening is indeed ‘tried and true’; it is adapted to variation in landscape and inundation, with reference to soil microrelief, and consequently nothing to compel the creation of new contours. Baiio (1995:64,74), a Morehead man from Dimisisi, holds that local people are generally receptive to food crops and technologies that can ease their burden, such as axes.

from tried and true gardening methods.⁵ While these factors certainly constrain production, the Wartha have shown themselves to be as devoted to experiment as any other New Guinea people, within certain cultural and environmental parameters. A number of crops have proved to be very successful introductions, in particular low-maintenance tropical cultivars which have easily ‘slotted in’ to existing gardening practices, such as cassava, watermelons, pineapples and pumpkins.

Sago (mbei) Groves

Sago (*Metroxylon* sp.) is an important and common staple in the swampy lowlands of New Guinea (Barrau 1959; French 1986:26). While a primary staple in areas to the north and east, such as Lake Murray, Boset Lagoon, and the Eastern Trans-Fly, it is rare and prized in the Morehead District (Allen et al. 1993:48; Lawrence 1994:254; Paijmans et al. 1971:16; Williams 1936:7,220).

This is true for the middle Torassi, despite the existence of both permanent and semi-permanent swamps throughout the study area, and the fact that ‘sago groves thrive exclusively in swampland’ (Ohtsuka 1977:150). This suggests that the particular type of swamp which supports sago is not common in the area. Sago grows best in shallow swamps with a regular in-flow of fresh or slightly brackish water, or where the water table is just under the surface (Flach and Shuiling 1989:271-272,276; Hackett 1984:24,34,38; Osborne 2000:228). Most swamps in the area recede to a great extent, or dry out completely, in the dry season, and are not recharged by watercourses during this time. Ayres (1983:9) and Martin (2001:254) note that palms are few in the district on account of drought stress and bushfires. Slightly higher rainfall figures for the eastern South Fly, around 300 mm, may also play a role in this distribution.⁶

⁵ Martin worked among the Keraakie (Williams’ ‘Keraki’) at Arufe village, in the eastern Morehead area. From his descriptions of the area, it sounds much less productive an environment than the middle and lower Torassi, which straddles the District’s two major land units, and includes the game-rich Bula Plains.

⁶ Daru’s annual rainfall is around 2,000 mm (McAlpine et al. 1983:171).

The Wartha call sago *mbei*, and recognise two varieties.⁷ It is a very minor form of food production, but one that assumes considerable importance during drought events. Sago is a fallback food during *saber*, the hungry time, when whole villages will travel to their groves to cut and process the palms (see also Williams 1936:220). It is commonly eaten as a sago porridge, or dry ‘cake’ (see Barrau 1959:158). During the El Niño drought event of 1997, I observed large numbers of Torassi people travelling to sago groves. A number of plots here and in the wider Morehead District were destroyed by bushfires, while others were damaged due to drought stress (see also Ohtsuka 1977:150).

The 1982/3 National Nutrition Survey (NNS 1982/3) visited the area in February-March 1983, and asked local families what they had eaten the previous day. Forty-one per cent of 37 families, from five villages in the District, said they had eaten sago. Having noted the lack of palms in the District, Allen et al. (1993:48) declare this level of consumption ‘higher than expected’. The figures make sense when it is realized that this period corresponds with *saber*.

According to informants, the number of sago places is now increasing. This is surprising, given that people also report a decline in swampy areas throughout the region. Perhaps it reflects an increase in plantings over time (all sago is said to be planted). Each dialect group has an identified sago place: Senji for Wartha; Kentar for Korombo; and Barmbar for Wemenevre.

Arboriculture and Silviculture

This refers to the planting and management of trees. *Nungra* (Coconuts), mangoes (*Mangifera indica*), *mekei* (?*Terminalia kaernbachii*) and *ngati* (breadfruit, *Artocarpus communis*) are all planted around villages. Some trees that have a dual status as both ‘wild’ and ‘cultivated’ (cf. Harris 1977:449) are also planted in village areas, such as *ngamboiam* (*Syzygium* sp.) and bush mangoes (*Mangifera minor*).

⁷ In contrast, peoples for whom sago is a more important dietary item appear to recognise more varieties; Barrau (1959:156) reports that the Marind-anim recognise at least eight varieties; Ohtsuka (1983:94) that the Gidra, of the Oriomo River area, have more than ten.

Bamboo (Bambusa sp.) and pitpit (Saccharum sp.) are grown within and adjacent to villages, to supply building materials, weapons, and other utensils.

Other local trees are also planted within settlements for shade and aesthetic reasons. For example, *narmo* (Leichhardt tree, Nauclea orientalis) is planted around villages for its shade, but not for its fruit, which is obtained from wild specimens; these are said to be sweeter.

A number of tree species have been introduced from Merauke and elsewhere. These include asam (tamarind, Tamarindus indica); *siporo* (lemon, Citrus limin); *orses* (orange, Citrus sinensis); and *monyat* (cashew, Anacardium occidentale).⁸ This last tree is said to have been established in the area by kiaps.

Several other trees have been brought to the area by the management of the BWL. For example, a grapefruit (Citrus paradisi) tree at Pikunjur was identified as having been planted there by the manager's daughter. A Queensland 'Bowen' mango, esteemed in Australia for its sweetness, and an avocado (Persea americana) tree have also been established within the grounds of the BWL. These are watched for new fruit by BWL workers from Pikunjur, who are eager to establish them in their village. A list of tree crops appears at Appendix 12.

Gathering

A wide range of wild plant foods are gathered. PNG agricultural specialist Bruce French asserts that Morehead people utilise wild plant food resources to a greater extent than most other peoples in the country (cited in Martin 2001:183-184). In the wet season, many edible fruits ripen. Most of these resources are obtained from gallery woodland along the river and creeks (*karimu*), and monsoon forest (*kai karimu*). The inner flower stalks and flower base of *ngor* (water lillies) are also a popular snack at this time. Edible wild plant resources are listed in Appendix 13; in

⁸ asam is the BI word for Tamarind; '*sipora*' is the Police Motu word for lime, *Citrus aurantifolia* (French 1986:223; Wurm and Harris 1963:59); *orses* appears to be a corruption of the English 'oranges'. I have not been able to discover the etymology of *monyat*.

addition to wild fruits, they include the nuts and the hearts of various palms. Both men and women gather.

Formerly, a wide range of wild plant foods were gathered during the hungry time. This period of comparative scarcity typically occurs in the late wet season (around January-May), when supplies of stored yams and sweet potato may dwindle (Williams 1936:220; see also Martin 2001:253).

In addition to sago, *saber* foods included *gont* (possibly a cycad, *Cycas* sp.; the nuts are said to have required leaching in the river to render them innoxious); *keper* (a root that is cooked and chewed); *maramb* (new bamboo shoots, which were roasted on a fire); the hearts of the palms *ukak* and *tenter*; and the wild yams *mbutha* (*Dioscorea pentaphylla?*), *murta*, *kakritu* and *kemara*.⁹ Geophagy was also practiced during *saber*: a sticky white clay called *ngontj* being added to certain foods such as *keper*, perhaps to make them more palatable.¹⁰

Today, people still experience food stress during *saber* (and very much miss their yams), but traditional stop-gap foods (see below) are not used to the extent that they were in the past. When questioned about this, most people state that they are less reliant on the old famine foods due to more meat (i.e. introduced deer) being available, and access to store foods. But there can be little doubt that the success of a number of crop introductions has significantly contributed to the amelioration of wet season hunger, in particular cassava, which locals today identify as a ‘famine food’.

Meat Procurement Systems

Domesticated and Tame Animals

The raising of pigs (*ngoi*) is today less common than it once was; nonetheless, it probably never contributed much to the diet, as such animals are husbanded for use

⁹ Ohtsuka (1983:91-92) has reported cycad consumption on the Oriomo River. Informants report that in former times, *mbutha* and *kemara* were also cultivated.

¹⁰ Geophagy has been reported from other South Fly groups, as well on Kolepom and among the Marind (Anell and Lagercrantz 1958:8-9; Beaver 1920:144; Wirz 1922:96), and was widespread in Aboriginal Australia, including parts of the northern continent that are biogeographically similar to south New Guinea (Rowland 2002).

in pig killing ceremonies. All such animals are wild-caught piglets (females and castrated males), housed in square pens that afford only limited movement. Such pigs often become very tame: they may wander the village, are given personal names, and are the playmates of children. Fed food scraps in their small enclosures, they can reach enormous proportions (see Ayres 1980:4-5). Williams (1936: 224) found that Morehead animals ‘grow to an amazing size’, and that he could ‘not remember seeing larger pigs in any other part of the Territory [Papua]’.

Both men and women care for pigs, although the latter do most of the feeding. Pig killing ceremonies have in recent years been discouraged by the fundamentalist Christian churches that are active in the area, and are now rare. Further, pigs are part of the enzootic transmission cycle of the JE virus, only recently confirmed in PNG and adjacent Torres Strait (Johansen et al. 2000:631). Border quarantine patrols by PNG and Australian officials are now discouraging people from keeping pigs in village areas (Ifor Owen, pers. comm. 2004). Of the attachment between men and their pigs, Williams (1936:24,225) notes that owners never shoot their own animals at feasts, as it is said that their arms would be too much weakened by sorrow and compassion.

Cassowaries (Casuarius casuarius) are also caught as young chicks, kept in enclosures and fed food scraps until they become adults, when they are butchered. They are never allowed to roam outside these enclosures, on account of their sharp claws and aggressive behaviour (see Kofron 1999, 2003; Reid 1976).

Dogs (Canis familiaris) are indispensable in hunting, and most men own at least several, which are given individual names. They are most often used to chase and bail up pigs and wallabies. Considerable numbers of wild dogs live on the Bula Plain, feeding off deer and wallabies (Stewart 1981:32). Past attempts to destroy these by government officers have been hampered by some villagers claiming ownership of some of the animals; pets which have gone wild. The dogs have interbred with introduced breeds, including some ‘fierce’ animals, said to have been introduced by the Dutch to the Merauke area.

Chickens (Gallus gallus)—known by their Indonesian name, ayam—and Muscovy ducks are also present in the villages. The raising of these birds is made difficult by

constant predation by *teuwiteuwi* (Goshawks, Accipiter sp.) which perch in large trees within and around the villages, awaiting the chance to swoop on chicks and ducklings.

Mention should also be made of the fact that a range of other animals are also kept within villages as pets. These include cuscuses (Phalanger intercastellus), and waterbirds such as Brolgas (Grus rubicunda) and Black-necked Storks or Jabirus (Ephippiorhynchus asiaticus), which are caught as juveniles in the swamps. Dogs sometimes kill these pets, and also attack the chickens (cf. Dwyer and Minnegal 1992).

Hunting (pio)

Securing meat is not difficult in this part of New Guinea, for the savanna country abound with large mammals. The Wartha and their neighbours in south New Guinea probably have the highest protein diet in all of New Guinea. Van Baal (1966:18), reporting on the fauna of the Merauke area, states that 'there is more game here than I found anywhere else in New Guinea'. The same applies for the Torassi.

Pio refers to hunting by individuals or in small groups. A special type of hunting is called *tatan*. These are cooperative hunts involving men and women that are undertaken in the wet season, when the Bula Plains become a vast inland sea, and game (deer, wallabies, pigs) seek refuge on small 'islands' of land above the water level. One or two lines of people will spread out across a small island or isthmus, and march forward. As the wallabies become cornered at the edge of the water, rough clubs or sticks are thrown to stun and kill the animals; those that turn and attempt to break through the first line may be dispatched by the hunters in the second. Very large amounts of game can result from this method. Serpenti (1965:55) notes the same tactic on Kolepom; a 1961 game drive resulting in a catch of more than 100 'kangaroos' (i.e. Agile Wallabies).

Hunting is predominantly a male activity. However, women may occasionally participate in hunting drives in village areas, using clubs, bush knives or axes. Some informants stated that the women who tended to hunt were more 'like men' (i.e. large and muscular) than others. All women may also take part in *tatan* game drives.

Pigs are the ‘cultural superfood’, prized for their fat. Several men bear the scars of close encounters with these dangerous animals. They are hunted using bamboo bows and pitpit arrows with a large, flat metal blade.

Hunting of pigs with *manga*, a looped pig-catcher made from rattan, is no longer practised (cf. Baiio 1995:46). There was considerable prestige attached to being able to snare, wrestle and dispatch a pig this way; the *coup de grace* delivered by stabbing the exhausted animal through the heart with a *yes*, a thin, black palm dagger or needle. In former times, competitive *manga* hunts on the Bula Plain were organised between local section groups, and might include Mbavir and Kormbo men. The section catching the most number of pigs was declared the winner.

Wallabies are hunted using bow and arrow, with or without the aid of hunting dogs. One technique is to creep up on wallabies, intermittently thumping the ground with the palm of a hand, which piques the interest of the animal. Bounding closer, the animals are shot at very short range (see Williams 1936:221; Martin 2001:198).

The cassowary may also be ambushed in the wet season, by lying in wait at a fruiting tree known to be favoured by the birds, such as *ngamboiam* (*Syzigium* sp.). I have also observed a juvenile cassowary captured from a dinghy whilst swimming across the Torassi. This and other animals may also be ambushed at waterholes during the dry season.

Deer may be chased into flooded areas during *tatan* hunts, and are caught and drowned. Nowadays, men will chase deer swimming across the river or floodplains in dinghies with outboard motors; they are hacked at with axes or bush knives from the boat, or a man will jump on an animal’s back, hold its antlers, and drown it (Plate 6). Another strategy is night time hunting using a torch and bush knife or axe. The hunter shines the light into the animal’s eyes, which temporarily blinds it, allowing him to steal upon the animal and dispatch it at close quarters.

Another aquatic hunting method involves a man swimming underneath ducks, and catching hold of their legs; the trick is to swim with only the nose above water, to avoid detection.

Wallabies, pigs and deer are also killed using motor vehicles, both day and night. This 'roadkill' method can be either accidental or intentional. At night, wallabies and deer are often struck down while driving on the local roads or across the Bula Plains. In the daytime, pig are sometimes chased and run over. On one hunting expedition to the plains, a giant boar was discovered sleeping in a muddy creek bed. A hunter shot it, but the arrow failed to penetrate its tough hide. The hunters then chased it in a Toyota four wheel drive. Amazingly, the pig bravely turned and charged the vehicle. It was run down twice more, the last collision breaking its hind legs. The animal was finally killed by several sharp blows to the head, just above the snout, with the back of a hatchet.



Plate 6: Siwai Nema attempting to catch a swimming Rusa stag from a banana boat. Torassi River, March 1997.

Williams (1936:223) noted the pride and public approval given successful hunters, and their use of trophy arrays of pig skulls and cassowary breast bones. Today, the antlers of Rusa deer are more commonly seen. Such success is measured in terms of the ability to provide and share food: 'these records [trophies] attest not only his skill but the fact that he has helped to feed the village' (Williams 1936:223).

Many men would prefer to hunt with shotguns, but the police have sought to limit the number in the area, on account of the proximity of the border and the activities of the *Organisasi Papua Merdeka* (OPM, see Chapter 7). There was only one licensed shotgun in Wando during my time in the field.

Fishing (tjer)

Tjer means ‘fishing’, and also means ‘hook’, ‘tooth’, and ‘sharp’. Fishing is an important activity, especially in the dry season when fish are concentrated in the river (*karipa*). In the wet season, when the Torassi breaks its banks and the surrounding countryside becomes inundated, this activity declines markedly as the fish become dispersed and harder to catch as a result (cf. Serpenti 1965:57). While women do most of the fishing, men are also active participants.

There are over 54 species of fish in the Torassi (Hitchcock 2002). Of these, at least 40 are eaten. The most important economic fish are Barramundi (*jarwan*), Saratoga (*kewari*), forktailed and eeltailed catfishes, and various types of grunters (see Appendix 9).

There are a number of fishing strategies. Most fishing takes place using nylon lines and metal hooks, from canoes or the riverbank. Women and young girls are often seen fishing from canoes on the river in the afternoon, in the hours prior to the evening meal. Fishing lures are also popular but rare; these are obtained from foreign anglers visiting the Bensbach Wildlife Lodge. Fishing around the mouth of creeks (*tuti ngambu*) in the early dry season, immediately after a downpour, is often very successful, as barramundi and other fish congregate to predate on small fish flushed out of these channels. Night fishing from the riverbank (*karipa tha*), using *seres*, a light spear with several metal prongs, and flashlights, is conducted by men to capture fish and crayfish, including the Giant River Prawn, *Macrobrachium rosenbergii*. Previously, torches made from rolls of melaleuca bark were used. The BWL sells metal bicycle spokes which are used to make the prongs of *seres*. Hand captures of fish are also made, e.g. of baitfish, such as the introduced *betik* (*Anabas testudineus*), among the grasses in shallow creeks, and of fish caught in ponds or waterholes (*yewei*) during the late wet to early dry season. Another fishing method is spearing

fish, such as saratoga, using a bow and arrow from a canoe. Nets are set across rivers in the dry season, and across swampy embayments (*thathawar*) during the wet.

The strategies of fishing have changed over time, in response to technological changes brought about by trade, as well as to environmental change, such as the destruction of riverbank grasses by deer. Circular fishing nets (*parei*), made from bamboo and twine, are now rarely employed. These were formerly used by women to scoop up fish from under riverbank grasses; men could not touch or use them lest they get 'boils'. A three-pronged fishing spear (*tapir*), was also used by men to spear fish through the thick riverbank grasses; it is no longer made. According to the local people, the destruction of much of this habitat has also resulted in a marked decline of certain species, such as eleotridids (Hitchcock 2002:121).

There can be little doubt that metal hooks, synthetic lines and nylon nets were revolutionary introductions that greatly increased fishing productivity, and contributed to the abandonment or decline of other methods, such as the *parei* and *tapir*. Past techniques included the use of a fish gorget made from an unidentified thorny vine, stupeficans, and cooperative fish drives. Two ichthyocides were employed, but are now uncommon; one, known as *suwar*, is probably a species of *Derris*, while the other is made by scraping and crushing the roots of the freshwater mangrove (*Barringtonia* sp.). These were used by men and women to catch fish trapped in waterholes and swamps in the early dry season. Cooperative, late wet season fish drives are also uncommon; these entailed men, women and children driving fish out of swamps and down creeks into *bangar* (fish fences) constructed across the intersection of the creek with the river channel.

Collecting

Following Hyndman (1994:53), this refers to the acquisition of small animals as food. Both men and women participate in this production activity; they are often opportunistically caught and eaten away from the village, during hunting trips, visits to gardens, or journeys between settlements. Animals collected include varanids (*Varanus* spp.), fledgling birds, bird and turtle eggs, shellfish, crayfish, mudcrabs (*Scylla* spp.), and insects. Pythons and echidnas (*Tachyglossus aculeatus*) are also sometimes caught, although it is mainly old people who consume them. Such

resources are usually obtained by hand probing or collecting, or the use of sticks. Frogs are not eaten by Torassi people; in fact, the people express revulsion at the frog-eating habits of other Papua New Guineans (see Serpenti 1965:287 for similar sentiments on Kolepom).

During the dry season, flying foxes (Pteropus spp.) sometimes congregate in trees, close to the ground. These are caught by bending small trees over by hand, or hitting the bats out of them, which can kill many. In the past, people would cut down trees to obtain the smaller bats, *beenbenant*, which they had observed flying in and out of the tree.¹¹

Crayfish are hand-caught around the roots of trees (e.g. Barringtonia sp. or Mangifera minor) along the riverbank, as well as among the grasses of seasonally flooded *puwe*, when the water level has dropped to around knee height and below. Another method is to scoop handfuls of sticks and other rotten vegetation on the floor of inundated Melaleuca forests (*kuranja per*), where these crustaceans hide, and throw these on to adjacent dry land. In canoes, people will also lift up riverbank grasses onto the side of the canoe, and pick them out.

Turtles are also collected by probing the muddy banks of the river; these may be stored in empty fuel drums and other containers for some time before eating. The eggs of both freshwater and marine turtles, and crocodiles, are consumed.

Edible marine shellfish include *basik* (Telescopium telescopium), *fedada* (Nerita articulata), *eino* (Anadara lischkei) and *edof keth* (Polymesoda spp.), which are collected during visits to the rivermouth (*Torassi ngambu*) or coastal beaches.

Entophagy, the eating of insects, is rare and contributes little to the diet. *Mbeiwathum*, a grub of the sago palm is eaten during visits to the groves to cut and process sago. Queens of the green tree ant, *munji*, are eaten; these have a citrus-like flavour, and a species of flying ant or termite (*konjo mam*) is also consumed. The honey (*bith*) of bees (*bafi*) is collected, as are bees in the white pupal stage.

¹¹ People state that these are no longer eaten due to the abundance of meat provided by deer.

Consumption of a similar suite of insects by the Gidra people has been recorded by Ohtsuka, who provides identifications for some of the species (1983:92-93).

Mobility in Production

In the twentieth century, there were marked changes to the settlement system of Morehead people. Traditional, smaller settlements were consolidated by the colonial administration into large villages from the 1940s. Since Independence, there has been a return to the traditional pattern, although these movements have been influenced by modern developments, such as roads, government stations, and other sources of work (e.g. the BWL). Other contributing factors include the desire to return to one's own lands, conflicts over lands and resources, and the abandonment of villages following deaths ascribed to sorcery.

These movements have had implications for subsistence. Prior to nucleation, people would stay in their villages during the wet season; in the dry season, individual families would disperse into the landscape to fish, hunt, and access water, living in small bush encampments (Lambden 1926-1927:13; Williams 1936:12-13,25). Ayres (1983:156) has accurately summarised the pattern:

A man might have three or four yam houses at different garden places in addition to dry season camps at permanent water, sago camps, canoe building camps, etc. Camp dwellings consist of temporary lean-tos. A family commonly spends several days or a few weeks at each of their various gardens, especially during planting and harvest time. The same family may also spend a week or two each year at a sago camp and a fishing camp, and a few months at a permanent water site during the late dry season often are also required. In addition, dances, feasts, hunting and simple visiting are also causes for fluid residence patterns.

The marked seasonality of the area also governed the timing of other activities, such as feasting and ceremonies (Williams 1936:25).

The canoe (*ngarnta*) is a critically important artefact for the Wartha, affording substantial movement during the wet season, when much of the land becomes inundated (cf. Burton 1995:8-9). This gives people considerable flexibility in terms of settlement-subsistence; indeed, it is the key to wet season survival, as it permits travel to remote gardens and hunting areas, which is especially important during *saber*, the hungry time. New technologies have also expanded options for movement

and production across the land- and waterscape. There are a number of aluminium dinghies in the area, and several outboard motors; I never saw outboards affixed to dugouts.¹² Several four-wheel drive vehicles are also owned by local men, and these have expanded the range and carrying capacity of hunting parties.¹³ The expense and limited availability of fuel and spare parts in this remote area is a key limitation on the use of vehicles and powered boats.

Changes in Material Culture

The technologies employed in hunting, gardening and fishing have changed. Steel axes, bush knives and shovels have replaced stone axes and spatulate gardening sticks, although the traditional wooden dibble stick and woven yam baskets continue to be used. The introduction of such tools expanded food production and probably hastened the abandonment of *montj* gardens; the environmental changes which led to the cessation of this agronomic system also resulted in forest expansion throughout the area, which could now be more efficiently transformed into yam gardens.¹⁴ More recently, wire fencing, obtained from abandoned deer farming pens (see Chapter 7), have been used by some families to enclose yam and riverbank gardens.

Battery-operated torches are popular for night hunting of pigs and deer. Shotguns are desired, but rare in the district. Williams (1936:421) noted that Morehead people had no effective way of obtaining fish in the rivers, although the *tafir* (pronged fishing spear) and *parei* (string hoop-nets) were used by the Wartha to obtain fish and other aquatic animals among the riverbank grasses. Nonetheless, there can be little doubt that metal hooks, nylon lines and nets have greatly increased the efficacy of fishing. In the past, insignificant amounts of fish were caught in the wet season, but nets strung across flooded swamp embayments can now deliver a good catch.

¹² A number of these dinghies are originally from Torres Strait, having been blown over to the south New Guinea coast by strong winds during the southeasterly season.

¹³ Vehicles are called *mbintu ngarnta* ('land canoes') and aircraft are called *warumbu ngarnta* (up-above canoes').

¹⁴ From the 1920s, the Mbavir and eastern Morehead groups began producing large root crop surpluses, which they then exchanged with Boigu Islanders for various trade goods; the introduction of steel tools (from both Merauke and Torres Strait) undoubtedly played a role in this process of intensification.

A monograph could be written on the ingenious uses of material culture associated with production and other activities. For example, metal blades for arrows (*pakus*) are made by beating large nails flat, while the larger, pig-killing type is made from old bush knives, or plumbing pipes. The latter are split open, hammered flat, and sharpened with files. Afternoons in villages often resound to the percussive ringing of metal on metal.

Consumption Proscriptions, Old and New, and Dietary Changes

In the past, there existed a range of traditional food taboos, based on age, gender, and certain stages of life, such as the birth of the first child and mourning (e.g. Williams 1936:174-175). For example, Wartha believed that if young people consumed certain ‘old people foods’, they would age prematurely: their hair would turn grey, and their eyesight would decline. Stewart and Eng (1981:6-7) list a number of food taboos associated with pre- and post-natal periods, as well as several associated with mourning the loss of a husband. In addition, there were proscriptions on touching or killing the totemic species of sections and clans (Williams 1936:89,254); local people stated that doing so would result in a skin disease ‘like scabies’.¹⁵ However, these taboos are gradually breaking down with the influence of Christianity, in particular more recent evangelical forms which identify such customs as demonic.

There are a few Seventh Day Adventists among the Wartha and other Torassi communities. Adhering to the food laws of the Old Testament (Leviticus 11:1-3 and Deutronomy 14:3-6), members of this Christian sect are forbidden ‘unclean’ foods such as crustaceans, mussels, scaleless fish (e.g. tandans and fork-tailed catfish), and pigs. Interestingly, macropods are classified as cloven-hoofed animals on account of their hind feet, and are therefore also prohibited (see also Dwyer and Minnegal 1992:375). In consequence, these people are restricted to eating deer and fish with scales, which results in a significantly lower protein intake. This inability to eat certain foods also precludes their participation in sharing, and may be contributing to what is locally viewed as a decline in communal behaviour and group solidarity.

¹⁵ Numerous cultural transgressions are said to result in skin complaints like ‘boils’ or ‘scabies’.

Social Relations of Subsistence

Gender in Production

As elsewhere in Melanesian, there is a sexual division of labour, but production tasks may overlap, as in the case of work associated with gardening (see Williams 1936:148-149 for an overview). An interesting finding, not previously reported in the literature, is that some women actively engage in hunting. In some instances men and women have their own technologies associated with production, which they own separately; some of these cannot be touched by members of the opposite sex.¹⁶

Women's status in Morehead society has been cast as quite low (Knauff 1993:103-105,109-110; Williams 1936:147-149); they have no political power, men control marriage, and they are emphatically barred from ritual. This inequality had its basis in patrilineal land ownership, and a cosmology that emphasised

localized interiorization of male fertility and mythical knowledge...reflected in ancestral totemic affiliations tied closely to local places, in emphasis on anal homosexual intercourse between senior and junior males, and in rigid exclusion of women from myth and rite...[and] politically localized authoritarianism/submission...evident...internally in emphasis on restrictive patri-clan affiliations, assiduous male control of female labor, male age seniority, and an ethos of conformity and conservatism (Knauff 1993:188, original emphasis).

These gender relations are evident across production and distribution. In the past, it was most obvious in competitive root crop exchanges, where women's production was appropriated and deployed by men in the pursuit of prestige; indeed, men's control of marriage and polygyny was central to the intensification of food production. Many aspects of this traditional system have ceased to exist, and some women are achieving more power and respect through their prominent role in local churches, and education and work. For example, a number of women work at the BWL, and are able to provide store foods, such as rice, sugar and flour, to their kin

¹⁶ As previously noted, men cannot touch women's circular fishnets (*parei*), and women cannot touch the bow (*kanint*). Note, however the use of male clothing and weapons by women during ceremonies associated with the end-of-mourning feasts (Ayres 1984).

back in the village. Several other women have gone on to public service careers in Porty Moresby and elsewhere in the country.¹⁷

Cooperation and Labour Management

Social relations structure access to the means of production, and the organisation of labour committed to production. As mentioned earlier, the household is the smallest economic unit, and is largely self-sufficient, but it joins with other households in the local group to hunt, make sago, and construct gardens. The members of dialect groups may also come together to make large yam gardens, where distance between settlements does not make this unfeasible. Men of different dialect groups may also hunt together on occasion; and hunting by groups of affines is common.

Increases in productivity and production could occur in the past through labour management, involving the expression of power relations and more complex forms of cooperation for the duration of such activities. This was the case with gardening associated with competitive yam feasts, and *manga* pig-wrestling competitions. Today, communal wet season hunts (*tatan*) involving men and women can result in the capture of large numbers of wallaby and deer.

The Cultural Logic of Sharing, Cooperation and Reciprocity

Cooperation, sharing, reciprocity and equivalence (based on systematic reckoning) pervade Wartha social life. This ‘moral economy’ structures the production, distribution and consumption of the products of social labour, weaving people into networks of reciprocal social relations. These relations are, of course, highly adaptive, enhancing food security, providing marriage partners, and, in the pre-pacification era, cementing alliances.

Informal sharing of food within a local section group, and more formal, ceremonial food exchanges between groups, evinces the establishment and maintenance of these social relations. As Martin (2001:329) notes, they ‘are symbolic representations of

¹⁷ It is important to note that the purchase of store foods using remittances from men or women working elsewhere in PNG is rare, on account of the lack of banking facilities in this remote area.

the establishment and maintenance of social unity, since all members of the community are involved' (Martin 2001:329).

Within local and dialect groups, people assist one another in the food quest. Informal sharing and reciprocity is seen where a family loses their yam crop through early wet season flooding or dry season drought, receiving gifts of food from both cognatic and affinal kin. Similarly, men who are unsuccessful in the hunt will be always be provisioned by their more fortunate fellows. Sharing in these contexts embodies the expectation of future reciprocity:

As far as consumption is concerned then, we have a communal system, for the wallaby meat is shared among all and the slayer receives no payment: he is content with knowing that when another man kills a beast he will not be forgotten (Williams 1936:223).

The actual distribution of game after a hunt is extraordinarily fast and fair, with roughly similar piles of deer, pig or wallaby meat allocated to each member of a hunting party, irrespective of individual hunting success.

A number of feasts were, and in some instances still are, practiced by Wartha people, including yam harvest and mortuary feasts, and pig-killing ceremonies. These feasts can also serve multiple purposes, as Williams (1936:230) noted:

...there is more than one motive behind his methods. As like as not he is under some obligation to repay services or previous gifts from some of the recipients, but the distribution goes further than this, and if strangers are present they will...be included. Aside from the settlement of debts, I conclude that the donors of the tom, as of other food, give it away partly as a matter of sheer hospitality; partly, no doubt, as a means of ingratiating themselves with others; and partly as a means of showing their own powers as food-producers.

These feasts were held in the dry season, after the yam harvest (Martin 2001:329). Williams (1936:234) noted that yam exchanges stimulated food production, and brought groups closer together. A conspicuous feature of such feasts was the careful calculation of the number and sizes of tubers, as both tallies of reciprocity and records of achievement, to show their powers as food-producers (Williams 1936:231-232). In return, guests would attempt to match the generosity of their hosts at a later date.

From what Williams (1936) has written of yam exchanges, and my own discussions with Torassi informants, it appears that Wartha feasts were very similar to those described by Serpenti (1965:232-234) on Kolepom. A man who issues a challenge to another to engage in *ndambu* (mortuary feast food exchanges) attempts to give so much food that his opponent is unable to match it, gaining prestige if successful. A close tally is kept of how much he produces, but his opponent does not attempt to surpass this amount, for in meeting it and reaching a balance, he closes the contest. Failure to do so results in shame and public ridicule. For both Kolepom and Morehead people, reciprocity embodied a competitive element, and could intensify food production.

The influence of evangelical Christianity has led to the decline of such feasts, which are considered pagan and demonic by adherents to these sects. However, feasting and food sharing have been incorporated into the new belief system, for example, through the hosting of intervillage religious meetings, which continue to service social relations. Nonetheless, the cessation of most customary exchanges, and Christian rejection of traditional marriage and emphasis on the individual, has begun to erode and confuse kinship relations. This is not to suggest that selfishness is rampant. On the contrary, one cannot help but be struck by the generosity and care shown by local people to one another, and to visitors. But these developments, combined with those wrought by entanglement with capitalism, are causing problems. These include a heightened sense of separateness between groups, a change toward more exclusive forms of land tenure, and increased disputation. Many Wartha are clearly distressed by these challenges to sociality, and the moral economy that underwrites their way of life.

Disputes and Food Production

Food production activities can themselves lead to disputes, and can also be impacted by them. Williams (1936:235), in his consideration of the important role of food in Morehead social life, noted 'the fact that so many offences and disputes arise over the question of food'. Ayres (1983:164) has documented how a long-running dispute between patrilineal groups at Rouku (original cause not mentioned), led to the cessation of cooperative gardening between them.

Villages in the Morehead area generally make communal yam gardens. At Wando in 1997, the major garden was constructed on Maiawa land. A Maiawa patriline, involved in an old quarrel with a Sangara clan, later demanded that this group remove their established crops from this land, or else they would destroy them. The Sangara clan complied, and relocated to Pikunjur village to be closer to their own lands. This event was linked to a boundary dispute, which was itself the outcome of commoditisation of land and resources in the area. The Maiawa action was considered an inexcusable breach of custom by many local people, and cited as clear evidence of a decline in cooperation and sharing.

Hunting may also lead to disputes. Local poaching of pig, cassowary and deer by non-landowners is said to be more common today. In one instance, X, a Bangu man, told his biological brother, Y, about a concentration of cassowaries on his land. Although Y was adopted out to a Sangara family as an infant, the brothers are close, and sometimes cooperate in production activities. Subsequently, Y informed his family about the cassowaries, and some of his brothers went to the area and caught several birds, resulting in a fight between them and X. Here, the potential for disputes arising from the ambiguous identity of many adoptees is clear; telling a family member about the existence of such resources is normally expected and tantamount to an invitation to partake, but ultimately led to what X described as theft: non-landowners taking resources without proper, i.e. his, permission.

Summary

The area's remoteness, lack of economic resources, and low levels of cash income means that the economy is largely subsistence oriented. The Wartha food procurement system is finely tuned to the marked seasonal variation of this wet-dry savanna environment, and has adapted to a diverse range of historical circumstances. Although seasonal variations and episodic droughts can impact on food security, I believe that the Wartha have been better able to cope with these issues than some other Morehead peoples (e.g. the Keraakie, see Martin 2001), as their territory straddles two major land units—the uplands of the Oriomo Plateau, and the Coastal Plain. This affords them access to a wider and richer range of resource options than their neighbours. Indeed, colonial administration reports often describe the area around Wando as one of the most resource-rich in the district.

Social, political and ecological processes have led to some major changes in the food production system. Perhaps the most striking of these is the shift from construction of mounded taro beds in grassland, to a forest-fallow system based on yams. The introduction of deer has also increased the availability of protein, as have new technologies which have vastly improved productivity, of fishing in particular. Wartha say that smaller animals, such as rats, pythons, and echidnas were eaten more regularly in the past; when asked why this is not the case today, the common response is that ‘we have plenty of meat now’. New crop introductions, brought into the area by locals and outsiders, have also reduced the people’s reliance on wild foods during the wet season hungry time; cassava, in particular, is identified as having ameliorated its privations. Together, these developments on the Torassi borderland have seen a marked increase in food security, and a corresponding decrease in the use of wild bush foods, especially those identified as famine foods.

Analysis of Wartha food production, distribution and exchange reinforces the importance of the local ethos of sharing, cooperation, reciprocity, and equivalence, discussed in Chapter 3. This is most evident in the local section group, although it is also manifest where members of the dialect group, or several dialect groups, gather to feast; nowadays expressed in the context of Christian celebrations.

Although food production activities have certainly been transformed by environmental and social changes on the Torassi borderland, the moral economy continues to underpin and inform the social relations of production and reproduction. The prestige and pride associated with the production of yams—‘real’ food—which satisfy in ways store foods never can, contributes to the validation and continuance of a dynamic system of subsistence production.

**PART III: HISTORY AND POLITICAL ECOLOGY OF THE TORASSI
BORDERLAND**



Plate 7: Wartha people at Terwaiam; the men wear clothes obtained from Dutch New Guinea. Photograph: J. van Baal, September 1937. Original caption: Women from Munni, English territory, in South New Guinea. KITLV Nr: 14207.

CHAPTER 6 - BORDER LIFE UP TO 1975

Introduction

Despite its identification as a remote ‘periphery’, the Torassi has a rich and interesting history, though one that is largely silent in the burgeoning literature on New Guinea. Indeed, the history of the South Fly from 1893 up to 1950 ‘is sketchy at best’ (Knauft 1993:29). In this chapter I discuss the political ecology of the Torassi borderland, from before the 1893 discovery of the river by Europeans, up to the creation of the Independent State of Papua New Guinea in 1975.¹

Early Colonial Hegemony in Central-Southern New Guinea

The original colonial border divided the island of New Guinea along the 141st meridian of East Longitude. In 1828 the Dutch had claimed the southwest coast of New Guinea, up to this meridian, and in 1848 extended this to encompass the entire western half of the island (Cribb 2000:120; van der Veur 1966:10). Although New Guinea did not appear to be endowed with economic resources, the Dutch did not wish another colonial power to occupy the eastern approaches to the Netherlands East Indies (Cribb 2000:120). Subsequent German and British claims in the eastern half of New Guinea accepted this border (van der Veur 1966b:61). The Dutch gave little attention to the swampy southern coast, and established no settlements there.

In 1884 the British proclaimed a protectorate over the southeastern half of New Guinea, with the 141st meridian as the western boundary. This territory was annexed outright in 1888 (van der Veur 1966:17,61). At the time of annexation, BNG was divided into two administrative regions, eastern and western. In 1890 the Western District headquarters was established next to the granitic hill of Mabuduan, on the central South Fly coast (ARBNG:1889-1890:15,68). In April 1893 the station was moved to the island of Daru (ARBNG 1892-1893:41), which remains the capital of the Western Province.

¹ A timeline of historical developments of relevance to Torassi political ecology, up to 2004, is presented at Appendix 1.

Discovery of the Torassi and a New New Guinea Border

Up until the early years of the twentieth century, the south New Guinea coast and inland areas remained ‘untraversed territory’ (Robinson 1904). Indeed, this part of the island was the last to be adequately surveyed; charts and maps of the 1880s represent the coastline between Kolopom (formerly Prince Frederik-Hendrik Island) and the Wassi Kussa as a dashed line (e.g. Schumacher 1954:Fig 6).

The Morehead River was not discovered until 1890, by the Administrator (later Lieutenant Governor) of BNG, Sir William MacGregor (ARBNG 1889-90:13).² This was followed by the discovery of the Torassi on 27 February 1893.³ Both rivers were encountered in the course of BNG attempts to halt Marind headhunting raids on coastal and inland areas of the South Fly, and the northwest islands of Torres Strait. Every year, hundreds of these warriors—popularly referred to as the Tugeri in this period—set off from their home villages in the calm northwest or monsoon season. Travelling overland by foot, or in war canoes along the coast and up the rivers, they would attack settlements with overwhelming force, returning home before the onset of the southeast trade winds (see Beaver 1920:107,117; Van Baal 1966; Wirz 1933).⁴

From the outset, these raids were one of the most vexing issues facing the BNG government. Attempts were made to stop them through pre-emptive coastal patrols, aimed at repulsing Marind fleets, and diplomatic pressure, with the British demanding that the Netherlands government exercise its sovereignty and pacify their subjects. In reply, the Dutch claimed that the raiders could well be British subjects, inhabiting the poorly known country east of the border. The Dutch did establish a police post on the Marind coast at Sarira in 1892, but this was abandoned within

² In 1884 and 1885, Captain John Strachan explored the South Fly coast, and his chart shows a watercourse he calls the ‘Heynes River’, situated west of the Wassi Kussa (Strachan 1888:Map 3). There is no other mention of it in his book (see also ARBNG 1889-1890:74).

³ The Torassi may well have been the last of New Guinea’s coastal rivers to have been discovered by Europeans.

⁴ We can only speculate as to how long the Marind-Anim had been raiding the South Fly region; the first European encounter with a Marind fleet occurred in 1884 (Strachan 1888:45-48). Ernst (1979:52) suggests, on the basis of a systems analysis of Marind raiding, ritual, and local and foreign demography, that ‘the Marind-anim may have been far-ranging and feared headhunters for a relatively short (but spectacular) period only’, and that the decimation of the South Fly population is indicative of the fact that it could not have continued for much longer than it did.

weeks in the face of almost constant Marind attack. Nonetheless, the Netherlands government continued to question the domicile of the Tugeri for another decade (van der Veur 1966b:62-64; van Baal 1966:697).

The 1893 expedition was a key part of the British strategy with respect to Marind raids. MacGregor had successfully petitioned the Dutch to accompany him to the border area in an attempt to delimit a new boundary. Specifically, his aims were to ‘look for some natural workable boundary between the two territories, which could be substituted for the 141st degree of east longitude’ (ARBNG 1892-1893:xvi). An unknown river was serendipitously discovered just east of the border, and in a less than subtle display of diplomatic flattery, MacGregor named it the Bensbach, after the Resident of Ternate in the Netherlands East Indies, the expedition’s Dutch representative. He then set about persuading both powers that the mouth of the newly discovered watercourse would serve as a suitable natural border between their possessions, the rationale being that:

On the coast there would be a well-defined boundary that could not be lost or mistaken. It is a very suitable place for either British or Dutch boats to be posted in, to intercept marauders, as it would provide shelter, concealment, and water. It will be easier to teach natives on either side that they are not to pass that river. It would thus greatly assist the Dutch in getting the so-called Tugeri tribes under control (ARBNG 1892-1893:21).

In 1895, the two empires signed a treaty that slightly realigned the previous border: henceforth, the mouth of the Torassi, located at about 140° 1’ 47.9” East, would demarcate the island’s longitudinal boundary, south of the Fly River (van der Veur 1966a:108-109; 1966b:67).

Subsequent investigations ascertained that the Tugeri did indeed reside in Dutch territory. Finally, in 1902, the Dutch established a permanent armed post at Merauke, near the mouth of the Maro River, some 100 kilometres to the northwest of the Torassi rivermouth, and 70 kilometres due west of the border. Over the next couple of decades the Marind were pacified and missionised by the Dutch (Hellwig 1993 [1906]:85; Knauff 1994:33; van der Veur 1966b:72,126; van Baal 1966:24).

The people living along the Torassi would not experience direct contact with Europeans until 1903. Nonetheless, the Anglo-Dutch colonial project in south New Guinea—annexation, exploration, border-marking, and pacification—had already

begun to draw them into the orbit of the world system. European engagement with an indigenous regional system of warfare and territoriality had marked the Torassi as south New Guinea's 'border river'.

The 'Toro'

The existence of the Wartha first came to the attention of Europeans in 1900, when a Morehead man informed the Lieutenant-Governor of BNG, Sir George Le Hunte, about their existence on the upper Torassi. Rumoured to be 'semi-Tugeri', the British hoped to make contact with them in their endeavours to pacify the Marind:

Bage had recently informed me that the Toro people were acquainted with the Tugere themselves and could speak their language, and also that he occasionally paid them visits—they, as far as I can ascertain, are a medium of communication between the Baberi natives and the Tugere tribes, and I should imagine treacherous to a degree (Le Hunte 1900).⁵

The belief that the 'Toro' (i.e. Thoro) people were Tugeri or semi-Tugeri continued for a number of years subsequently (e.g. Beaver 1920:128), and guided the patrol that established first contact with them in 1903.

First Contact

First contact for the Wartha occurred in 1903. In that year Resident Magistrate (RM) Jiear visited the Toro and other groups along the Bensbach River, to learn more of them, and pacify them if required (Jiear 1903; ARBNG 1903-1904:42). Jiear had previously visited Merauke, shortly after its founding in February 1902, and had arranged for a joint patrol up the Torassi with his Dutch counterpart. The Dutch, however, did not keep their appointment to rendezvous at the rivermouth at a designated time; a telegram was later sent to Daru, informing Jiear that a heavy workload had prevented their attendance. This flimsy excuse for the cancellation of an international patrol was met with incredulity (1903:16); it may be indicative of strained Anglo-Dutch relations at this time, on account of the Boer War.

⁵ Bage or Bagi was a Morehead man, said to be the last survivor of his 'tribe'. He was apparently taken to Daru as a small boy, and was for many years the only interpreter for the district (Beaver 1920:39). 'Baberi' refers to the Mbavir people.

Although first contact with a European initially caused the Wartha much consternation, the people soon overcame their fear. It is probable that they had heard of them from their Mbavir neighbours, who had met Europeans on a number of occasions since 1890 (see Appendix 1).

Jiear (1903) also visited the Kurkari people at Bau and Konduka villages, situated on or very close to the border. He reported that although they were friendly with the Wartha, they and their Kondo-Marind allies considered Morehead people ‘lawful prey’.

The Torassi as Indigenous Border

For the Marind-anim, the Torassi was their eastern border, marking the beginning of their headhunting grounds (*kui-miráv*), occupied by sub-human others (*ikom-anim*), from whom they might obtain heads and child captives in a systemic cycle of social and biological reproduction (van Baal 1966:Ch 12; Ernst 1979; Swadling 1996:Figure 39).⁶ As van Baal observed, it was a remarkable historical accident that the new ‘international boundary happened to coincide with the eastern limit of the territory occupied by the Marind-anim and by such of their neighbours [Kanom peoples] as the eastern Marind lived in peace with’ (van Baal 1966:696). Van Baal himself was able to directly witness the significance of the Torassi for Marind-anim, years after the cessation of raiding:

When, in 1937, together with a party of coastal Marind I visited the banks of the Torassi river, I had the opportunity to observe how much even this younger generation was emotionally attached to the past. Beholding the Torassi, their Rubicon in a way, they burst into lyric exclamations (van Baal 1966:677).

Marind-Wartha Relations: Headfights and Pax Torassi

The Wartha cast the history of Marind attacks in the idiom of reciprocal kinship relations. Headhunting is said to originate in the killing of a Marind man by his Wartha friend, as a result of the former’s failure to reciprocate sexual access to his

⁶ In recent years there has been increased trading and poaching across the international border and along the coast into PNG by Marind peoples. It would be interesting to discover if these are at all justified or grounded with reference to the earlier travels and raids of their ancestors.

wife—a common form of hospitality between men in both societies (see van Baal 1966:164,814; Williams 1936:159). The past state of amity between the two peoples is ruptured by this homicide, and a devastating retribution follows.

The ‘headfight time’ was a highly stressful, fearful period. The people would do as much as possible to avoid disclosing the position of their encampments to Marind scouts: if a family had a crying infant, the other people in camp would move away; and at night, only embers glowed in their fires. One story recounts how some Wartha, observing an approaching party of Marind, hid underwater among riverbank grasses, breathing air through long, hollow reeds. Several of the earliest reports of Torassi and Morehead people noted how fear of Marind attack had forced groups to split up and scatter, hiding in marshes and swamps (e.g. ARBNG 1898-1899:11; Seligman and Strong 1906:227).

Several major raids are remembered. One is said to have killed the majority of the original Warthas, at a place called Betibeti; one or two survivors escaped and sought refuge with Thoro people. In another case, a settlement at Wando was attacked from two different directions in a pincer movement; some were killed, but others managed to escape by fleeing into the nearby bush. This is said to have been the last raid suffered by Wartha.

Nonetheless, the Marind did not always win.⁷ Local tradition holds that the headfight time ended after a local victory over a *Parma* force from Kondo. The Wartha version states that they and their Mbavir and Korombo allies ambushed their enemies as they stopped to collect rushes from swamps along the river. Some Marind drowned attempting to escape across the river, and others were speared. A few survivors were allowed to return to their camp on the coast, to report the defeat to their womenfolk. The combatants later attended a parley at which bamboo beheading knives (*kata*) were hidden under mats (*mbako*). When the Marind sat on the mats, these broke with

⁷ Beaver (1920:119) notes that a Marind attack on the Morehead River was repulsed by the tribes themselves; this is probably the ‘Gambadi’ victory referred to by Williams (1936:277; see also van Baal 1966:698). As Martin (2001) notes, although victories were exceptional, they are recounted more often than defeats.

a loud ‘pop’, signifying the end of hostilities. Thereafter, the Wartha and Marind are said to have been at peace with one other.

Because South Fly settlements were small and vulnerable to head-hunting attacks by very large groups of warriors, in which dozens of people might become victims, it has been suggested that ‘foreign predation could well have extinguished major groups in the area within a decade or two had not European pacification intervened’ (Knauft 1993:184). The peace with Wartha suggests that some South-Fly groups could offer resistance (contra Knauft 1993:188).⁸ Alternatively, the amity between the Kurkari (a Kanum people), Kondo-Marind and Wartha observed at first contact may reflect the trend documented by van Baal (1966:700-701; see also Knauft 1993:157-161), whereby Marind groups on the periphery of the Marind culture-language region would make peace with their immediate neighbours. This was the case with the Marind living east of the Maro River, who were allied with the Kanumanim. This, however, did not guarantee safety from victimisation by other Marind communities further afield, which may account for Seligmann’s 1904 observation of Wartha hiding from the Marind (Seligmann and Strong 1906:227). At any rate, Marind cross-border raiding finally ended several years after the founding of Merauke.

Old Enemies Become Friends (Again)

The establishment of peace—*Pax Neerlandica* and *Pax Torassi*—allowed for an efflorescence of cross-cultural contact between Wartha and Marind, which was impossible during the age of headhunting. In 1904, Jiear received a report that the Marind had visited Thoro the previous year, and given the people there two canoes (ARBNG 1904-5:40), and in 1916 a Marind visitor was seen at Pati, a Wartha garden village (Woodward 1916:3). Wartha also began to visit the villages of their former enemies. Given the circumstances of the pre-pacification era, and the traditional Morehead fear of travelling beyond one’s home territory, these movements were a

⁸ Local people say the peace treaty was made prior to the arrival of Europeans. I would suggest it occurred in the very late nineteenth century, or very early twentieth.

remarkable development, and probably made with some trepidation.⁹ During a 1912 visit to Merauke, American anthropologist A.B. Lewis noted that ‘the natives sometimes come as far as the English area to visit the villages here, on occasion of special ceremonies, but immediately return, as they fear any longer stay’ (Welsch 1998:522). This ‘fear’ may have been more economic and climatic, as discussed below.

Any residual apprehension appears to have disappeared by the 1930s. At this time, trading, ceremonial and marriage links between Wartha and Marind had been the norm for two or three decades, with ‘a particularly close friendship’ existing with the Kondo Marind-anim (Nevermann 1939:48), a relationship that continues to this day.

In 1933 the German anthropologist Hans Nevermann met a group of Wartha people who were visiting the villages of Buti and Jobarik (Yobarik), near Merauke. He noted that a Kondo man was married to a Muni women, and that a Muni man had a Kondo wife—quite likely a sister exchange marriage between the two communities. The Muni told Nevermann that they made an annual journey, on foot, to the Merauke area, via Kondo and other Marind and Kanum villages, to trade *mbako* (mats) and *yero* (carry bags), made from finely woven rushes, for foreign goods:

And for a long time through links with Buti and Jobarik, they have obtained European and East Asian goods such as knives, axes and glass beads, of which large blue ones are particularly favoured, as well as ear rings and arm rings made of black or red hard rubber, and items of clothing. In this way I saw eight Mani-kor members in Jobarik, who had come to Buti at the end of September 1933, wearing long and short pants and fabrics of the kind called *kain djerman* by the Malays (Nevermann 1939:46,48).¹⁰

⁹ Ayres (1983:174) explains that such movements, at least without local guides, expose one to the dangers of sorcery, spirit attack, and accidentally violation of foreign storyplaces, which results in sickness and deformation. This may account for the fatal effects of ‘Morehead nostalgia’, the ‘tendency to wilt in strange surroundings’ reported by Williams (1936:vi), which led to the district being closed to recruiting until around the Second World War.

¹⁰ Nevermann (1939:46) states that the people needed to commence the journey home by early October at the latest to avoid the travails of travel during the wet season. The need to return in order to prepare and plant new yam gardens would have been just as important. Seasonality of weather and production also determined the timing of feasts, which took place between the yam harvest and the beginning of the wet season (Martin 2001; see also Williams 1936:25).

During this ‘wandering period’, only two or three people would remain in the village (Nevermann 1939:46). Williams (1936:47), recounting a visit to the middle Torassi in October 1930, found no trace of any people at Wando and other villages, and was told by their neighbours that the whole population had journeyed to Merauke to join ‘certain festivals’. Wartha informants told me that they also traded live pigs and crocodile skins during these visits to Armasu (their name for Merauke).

During his Merauke visit, Lewis found it very difficult to purchase artefacts from the Marind with trade goods, on account of the large amount they already possessed:

Owing to the great numbers of Malays and Chinese (about 1,000) in and around Merauke, who trade for cocoanuts, the natives have all the European things they wish, and will not sell their things, so it is very difficult to get anything near Merauke, or indeed anywhere where it is safe to go (Welsch 1998:522).¹¹

Through these contacts, new items of material culture filtered east, to other parts of the Morehead District, and descriptions of these goods are a regular feature in Daru patrol reports (e.g. Beaver 1912:10; Lambden 1926:13; Woodward 1915:5; Zimmer 1928; see also Beaver 1920:128; Williams 1936:409).

Borderland Patrols

Up until the Second World War, the Torassi borderland was sporadically patrolled by both administrations. Through these visits, Wartha learned of the existence of a new type of border, and of two different kinds of Europeans.

British and Australian Patrols

There appear to have been no British patrols to the Torassi area in the period 1893-1903¹². Following Jear’s first contact visit in 1903, there was an eleven-year lacuna in Daru patrols to the Torassi.

¹¹ Many of the Malays referred to were probably convicts; Swadling (1996:178) states that in 1910 there were only about a dozen European and Chinese traders in the Merauke area. Hellwig (1907:216) also comments on the abundance of trade goods in villages between the border and Merauke.

¹² In 1901 a private lugger ventured up the Torassi to the Bula Plains area, but no local people were seen (Pim 1901). Lack of a suitable vessel was a key limiting factor in government patrols to the district in the late nineteenth and early twentieth centuries (Beaver 1912:7).

In December 1913 the administration established a police post at Tonda, on the Morehead River, garrisoned by members of the Armed Native Constabulary (Lyons 1914; Williams 1936:vii). This post was supplied during brief visits to the area by European officials based in Daru, who sometimes took the opportunity to commence patrols from Tonda throughout the Morehead District; often, though, they left the work of patrolling to the constabulary. The first patrol by the Tonda police to the Wartha occurred in 1915; a second was made in 1916 to Toro after reports were received that three men had been murdered there, which later proved incorrect (Woodward 1916). The police clearly had an important role in the lives of local people, but the colonial record of their activity is largely silent (e.g. see Williams 1936:vii,160; cf. Brown 2001:23-24).

Subsequent Australian patrolling in the Torassi area was, up until after the Second World War, sporadic at best. For example, in 1929 ARM Zimmer (1929:3) sailed up the river, but found it difficult to induce the locals to board his vessel:

Met a party of 10 men at 8.30 A.M. who stated that they were from WANDO village...all very shy but persuaded one of [sic] to come one board, hardly to be wondered at as this is about the third Govt. visit since 1916.¹³

Writing of the period up to the early 1930s, Williams (1936:vi,125,399) found that the only real European influence in the district was pacification and surveillance through patrols, and that Torassi people had been least affected by Government contact.

Dutch Patrols

Following the establishment of Merauke, the Dutch civil authorities began exploring hinterland areas. This was followed by a program of systematic exploration of DNG by the military, between 1907 and 1915, to improve topographical and other knowledge of the country (Overweel 1998:456-462; Lamme and Smidt 1999:138; Militaire Exploratie 1920). In this period, one civilian and three military patrols were

¹³ After Robinson and Seligmann's visit in 1904, there were no other patrols until the Native Constabulary visit of 1915. This was followed by patrols in 1916 and 1926 (Flint 1917; Lambden 1926).

made to the Torassi from Merauke (Hellwig 1907, 1909; Militaire Exploratie 1920; Oppermann 1913; van Weel 1906). The Dutch had no compunction about exploring the area between the border and the Torassi, and on two occasions steamed up what they called the ‘Grensrivier’ (border river), in 1906 and 1908.¹⁴

In September 1906, a trip was made overland from Merauke to the banks of the lower Torassi by Assistant-Resident Hellwig (1907), but it encountered no local people. The same year, a small flotilla went some distance up the Bensbach, but again saw no inhabitants (van Weel 1906).

In December 1908 a Dutch vessel again visited the Torassi. A very short summary of this expedition is provided by the Hellwig (1908).¹⁵ Examination of the chart made after the visit reveals that Wartha settlements at Wontermai, Kondor, Therkat (shown as Sarkad) and Drango were visited, as well as the villages of other groups further upstream (Weber 1909; see also Militaire Exploratie 1920:36). Good relations were reportedly established with the people, and numerous ethnographic articles were collected; these are in the Rijksmuseum voor Volkenkunde in Leiden (Dirk Smidt, pers. comm. 2001).¹⁶ A final military patrol was made by Oppermann (1917) to the upper Torassi area, including Weam, overland from the Maro River.

Dutch visits were not restricted to the period of Military Exploration. In September 1929 ARM Zimmer, travelling up the Torassi, ‘passed what appeared to be a Dutch Patrol camp...in a clump of bamboos the frames of the beds etc. still standing’ (1929:4), and, later during this same patrol, narrowly missed a visiting Dutch launch (see below). At Merauke in 1933, Nevermann (1939:48) was told by the commandant of the police that Muni had 27 occupants, indicating an earlier visit; and

¹⁴ I have not been able to locate any official documentation suggesting that the Australians sanctioned, or were even aware of these patrols.

¹⁵ This was later reproduced in *Tijdschrift van het Koninklijk Nederlandsch Aardrijkskundig Genootschap* (Anon 1909:460). Unfortunately, the original expedition report is missing from its file in the Dutch State Archives in The Hague. Hellwig’s summary promised full publication of the results of exploration in the border area, but this does not appear to have occurred.

¹⁶ Two photographs of upper Torassi people, probably taken on the 1908 patrol, are reproduced in the official history of Dutch military exploration in New Guinea (Verslag 1920:209,225; they are also reproduced in Gooszen 1920-1921, II:115,124).

in 1937 van Baal was of the opinion that the Dutch had previously issued the uniform of a mandur (village sub-chief) to a Muni man (van Baal 1986:262).

A Fuzzy Border

Transboundary movements by local people and government patrols, and the reaction to these by both groups, are an interesting aspect of the colonial project in south New Guinea. It is clear that different administrations, and even individual officers, had different views about the boundary before the Second World War, reflecting perhaps the lack of development of, or the need for, a definitive border policy. For some it was porous and hazy, while for others it was sacrosanct.

The Dutch did not hesitate to cross the New Guinea boundary during exploratory and administrative patrols, and even visited Wartha settlements on the eastern side of the river. In contrast, Sir William MacGregor was particularly fastidious about borders, immediately leaving the DNG coast when he strayed several kilometres west of the boundary in 1890 (ARBNG 1889-1890:72). Similarly, when he broke up a Marind raiding party at the mouth of the Wassi Kussa in 1896, he allowed a wounded Marind warrior, captured on the small muddy island of Matakawa, in Queensland territory, to be released, stating that he had no jurisdiction there (ARBNG 1895-1896:53).¹⁷

When Sergeant Paradeba, the commander of the Native Police post at Tonda, visited Merauke in 1917, the Lieutenant-Governor of Papua, Sir Hubert Murray, celebrated his initiative (ARP 1917-1918:8).¹⁸ The Dutch on this occasion were apparently less impressed, interrogating the policeman, and subsequently setting a strict night watch (van der Veur 1966b:93).

British and Australian patrol officers reported on local people's cross-border movements, east and west, matter-of-factly, and apparently did nothing to discourage the practice; there was also not too much concern if a patrol inadvertently found

¹⁷ MacGregor's circumspect behaviour was criticized by Queensland (see van der Veur 1966b:71).

¹⁸ This journey was to return Paul Wirz's Marind guide back to his home (see also Lyons 1917b, 1917c).

itself somewhat inside 'foreign' territory (e.g. Jear 1903; Lambden 1926; van Baal 1996). As van der Veur (1996b:93) notes:

The Irian boundary has meant little in the past. Most of the area near the frontier was not under administrative control and, if it was, the occasional visit of a patrol from one side or the other hardly affected the daily lives of the people. Movements of peoples across the frontier continued and caused little concern unless headhunting raids were on such a scale as to cause indignation in distant District offices.

Nonetheless, Australian patrol officers found that Torassi people could be circumspect about their own cross-border movements. For instance, Lambden (1926:35) reported that:

for some unknown reason they appear to think that it is a serious offence against our laws for them to go over the border and accordingly are very reticent in giving any information concerning Dutch New Guinea.

Similarly, Williams (1936:47) noted that 'it is plain that there is free coming and going between the Territories at this point [the Torassi River] (though informants are always at pains to deny that they ever set foot across the border)'

Overlapping patrols, and contradictory directives to villagers, were undoubtedly a source of confusion for local people. ARM Zimmer's visit to Wando in 1928 is a case in point:

it is very evident that the Dutch New Guinea Government patrol well over on to our side, as during the afternoon I saw several women's hoods, very similar to those seen at Everill Junction, hanging up in some of the houses, I tried to get one of the women to put one on so that I could take a photo, but the boys told me that they did not wear them now, and on asking the reason they said the Dutch Government had told them they were not to. I naturally got my photo, and explained very carefully that they were a long way on our side of the line, and that they were to take their instructions from the British Government.

On the upper Torassi during the same patrol, Zimmer discovered that a Dutch launch had called at Wando shortly after he had left the village, and that this information had been kept from him for several days:

It would seem that the...natives were afraid that I would be angry because the Dutch people came over to our side of the line, and that I would want to fight them, and that consequently they would be drawn into the fight as well. From what I can gather this is not the first time a Dutch launch has been to WANDO...they shoot a few pigs and wallaby and swamp birds, and buy a few arrows (Zimmer 1928).

I would venture to suggest several reasons for this reticence. First, Europeans visited the area only occasionally, and villagers were still very much afraid and uncertain about them at this time, despite a quarter-century of intermittent contact; witness Zimmer's difficulty in persuading Wando people to approach his launch in 1929.

Obviously, local people were aware of the existence of two quite different groups of Europeans, both mutually suspicious, and curious about the activities of the other. They were also physically separated, though their furthest movements overlapped on the Torassi borderland. The nature of this colonial activity—the questions, hesitation, and careful navigation in this milieu—did not go unobserved by local people, and probably accounts for their reluctance to report cross-border movements by themselves and outside others. Proximity and convenience, links with the Marind, and occasional Dutch patrolling, dictated that they would look west, to Merauke, for trade goods and succour in times of distress. Yet they were also instructed to obey Papuan laws and regulations during similarly rare visits by the British and Australians. Obviously, contrary orders from the two European peoples (e.g. Zimmer's cowling incident) would only have heightened their sense of unease and confusion, and the situation was compounded by the fact the people were almost certainly unclear about where and what the border was, as later events would demonstrate.

The denial of cross-border movements to the Australians is understandable in this context; they did not want to reveal the extent of their engagement with the Dutch, and their Marind and Kanum friends. The behaviour of the Europeans may well have suggested the possibility of enmity to Torassi people, and in consequence they feared becoming embroiled in any fighting between *Markai* (Australians) and *Balanda* (the Dutch), as a perceived alliance with one group might be cause for retaliation by the other.¹⁹ Torassi people thus found themselves a border people, claimed by two groups of others.

¹⁹ I would also suggest that this behaviour has parallels in the traditional patterns of raiding in the district, where groups would seek to befriend and ingratiate themselves with their neighbours, but might well find themselves attacked by their neighbour's enemies on account of this alliance (see below).

Mati

The establishment of Merauke, and transboundary visiting in the wake of pacification, would have tragic consequences for Torassi people, with the arrival, in 1919, of Spanish Influenza in southeast DNG. According to van Baal (1966:24), it killed 18.5% of the coastal Marind-anim population within a fortnight. The fact that Wartha call the epidemic mati, the Bahasa Indonesia word for ‘die’ or ‘be dead’, clearly indicates its cross-border, western origin.

Williams (1936:48) notes that the epidemic resulted in ‘a terribly severe blow to the Morehead population’, ‘especially on the western side’. This assessment was based on the first post-epidemic census, conducted by Patrol Officer Lambden in 1926; he recorded several hundred deaths, and found that mortality was highest on the Torassi (Lambden 1926:34). Comparison of census figures before and after this event (e.g. Jiear 1903; see Appendix 5) suggest that it may have caused the deaths of up to 50% of the Wartha and neighbouring groups.

According to Wartha, the toll on life was very heavy indeed. The numerous deaths resulted in settlement instability; in keeping with custom, when a person died at a village or camp, the rest of the residents moved away. As many died in quick succession, the people scattered; there was no time to bury the dead, and the sky around deserted settlements was filled with *njikaka* (whistling kites, Haliastur sphenurus), waiting to feast on the bodies.²⁰ Some Wartha sought refuge with their Marind neighbours, at a place called Wongatmeet.²¹

Mati resulted in a much-reduced population, and almost certainly caused the attenuation of some cultural knowledge (Ayres 1983:23-24). The tradition of forgetting the dead, which results in shallow genealogical knowledge (Ayres 1983, 1984), may have masked the full extent of the tragedy. It is likely that entire patriline became extinct and their existence subsequently forgotten. As discussed in

²⁰ At Tonda in 1926, Williams (1926-1932:M. 25 p. 23) was told that the sickness came from the Dutch side; his notes read as follows: ‘deaths numerous...no proper bury...some of the bodies were eaten by SIKAKA hawks’.

²¹ According to Michele Bowe (WWF, pers. comm., 2000) this is the Marind place, Ongatmeet; *ongat* means coconut in Marind.

Chapter 3, the impacts of headhunting and *mati* may well account for the fact that such large territories are today held by only a small number of patriline; it also placed stress on the system of sister exchange, which delayed demographic recovery.

An International Incident

Patrols to the Torassi area prior to the Second World War were irregular and largely unremarkable affairs. One incident, however, reveals something of the nature of Dutch, Australian, and Wartha thinking about the border in the 1930s.

In 1937 van Baal, the Controleur of Merauke, was visited by a deputation of Wartha men from the village of Muni, who informed him that their settlement had been attacked by raiders, who assaulted the people and stole their trade goods.²² Although he suspected that they lived on the Australian side of the boundary, he could not be sure, and the fact that one of the men wore the coat of a Dutch-appointed mandur compelled him to visit the scene (van Baal 1986:262). Upon his arrival at their temporary camp at Terwaiam, to where the Wartha had fled, he realised that they were British subjects after all.

Still fearful of another raid, the Wartha suggested moving to Kondo (temporarily, no doubt), but van Baal was concerned about the implications of an armed Dutch patrol taking British subjects into DNG. Instead, he tried to make them understand that they should look to Daru to solve their problems:

With my stick I drew a little map on the ground. Here flowed the Torassi, over there is the coast, there Kondo....Then I drew the boundary about which the Dutchmen and their brothers the orang Ingggris (Englishmen) had agreed. *They showed in their way that a straight line could not be put on hills, swamps and rivers.* Because of the border, they were now subject to the orang Ingggris in Daru. It is now wrong for us Dutchmen to tie them with these ties and to nominate a kepala [village head] and a mandur [sub-chief]. The ties must now be broken and as a sign of this I gave both office bearers each a knife, so they could cut through the ties²³ (van Baal 1986:270, my emphasis).

²² van Baal published an account of this patrol in three articles in the Amsterdam daily newspaper, *De Telegraaf*, (van Baal 1938a, 1938b, 1938c); the fourth and final instalment was not published and is the manuscript is lost (van Baal 1986:261).

²³ The gift of knives is remembered by Souri Mikai of Wando village, son of the Dutch-appointed mandur, who was a boy at the time.

He then wrote a letter—his first in English—addressed to the RM at Daru, explaining his visit. Following receipt of this missive in Daru, PO Faithorn visited Muni to investigate the alleged raid (Faithorn 1938). He found that Indorodoro, Mengete and Kandarisa people were involved in the attack, and concluded that it was ‘quite mild and nothing like so serious as earlier reports might have led one to suppose’ (Faithorn 1938:15).

Faithorn then began the task, begun by van Baal, of directing the people’s allegiance to Papua:

Assembling all the MUNNI natives I addressed them and told them that as they lived very close to the Dutch boundary we considered it necessary to appoint a village policeman to look after their interests and warned them against making trouble with natives living in Dutch territory. I suggested that during the night they discuss amongst themselves the merits of men suitable for village policeman and let me know in the morning the man they wanted for V.C. (Faithorn 1938:5).

The following day, the (now ex-) mandur, Mikai, and another man, Iambo, were nominated for VC by the people, and the majority voted for the latter—the first experience of democratic elections:

I strongly recommend that as MUNNI is very close to the Dutch border the appointment of native IAMBO of Munnii to be a village constable be approved. With a V.C. in the district and the realization that they are under Papuan Administration the Munnii natives might not feel inclined to complain of grievances, real or imaginary, to Dutch officials. I am sure His Excellency does not want Papuan natives worrying Dutch officials with complaints over which they have no jurisdiction. The appointment of a Papuan V.C. on the border should tend to discourage the practice (Faithorn 1938:15).

According to the Wartha, the raid was instigated by Sont, a man from Indorodoro. He had previously visited Torassi communities, seeking to trade with them for the new goods they obtained during their travels to Merauke. However, still fearful of raiders, the appearance of this unknown *mbintu wongan* (‘upland man’) frightened the people, and he was beaten and sent on his way. Angry and humiliated, he plotted his revenge. In time he led a party of raiders south, stopping first to fight with the Wartha’s allies, the Kormbo. Mengete people stopped him doing this, on account of their marriage links to this group. Sont then travelled to Muni, where he and his followers beat the people, and made off with their shovels, axes and other goods.

Faithorn later engineered reconciliation between the people, and they were thereafter on friendly terms.

Pre-War Economy

In the mid-1930s there were no Europeans living in the South Fly area, save at Madiri, a plantation on the lower Fly River, and at Daru, from where patrolling took place (Knauft 1993:28; Williams 1936:vi).

In contrast, the profits to be made from the exploitation of copra and bird of paradise skins drew many people—European, Chinese, Japanese and Malay—to Merauke in the years following its establishment (Sheldon 1938; Swadling 1996:Ch 10). Linked by steamer to the rest of the Netherlands East Indies, Merauke was the eastern-most part of a major empire, linked to the global economy. The proximity of Merauke to the border exercised a strong ‘pull’ factor for the Wartha and other Torassi peoples (see van der Veur 1996b:97), and as a result of their visits and trade there, goods filtered east into the rest of the Morehead District.

Plumes and Copra

Merauke was a key centre for bird of paradise hunting in DNG, from around 1908 to the mid-1920s (Overweel 1993:16,23; Swadling 1996:Ch 10). There was no hunting on the lower and middle Torassi, however, due to the lack of suitable habitat. Nevermann (1939:46) reports receiving some information about the ‘Moni’ (i.e. the Wartha, who were at that time living in Muni village) from a Maccasan plume hunter who had crossed the border. No Wartha today recall any visits by bird of paradise hunters. It is more likely that they visited the upper Torassi, where there is dense forest. Sheldon (1938) mentions that an early trader and hunter in Merauke, Dick Roche, was the European most familiar with the country around the headwaters of several south New Guinea rivers, including the Torassi.

Many of these hunters were also involved in the copra trade, which was more economically important (Swadling 1996:Figure 40). The coastal Marind had traditionally cultivated extensive plantations around their villages, which were soon exploited by outsiders. Chinese and Indonesian merchants, some of whom had married Marind women, were dominant in this trade, purchasing nuts from the

Marind with trade goods (Overweel 1993:16; van Baal 1986:263; Swadling 1996:178).

The Wartha did not mind working casually at copra plantations across the border in DNG, where this work did not conflict with the subsistence round. Faithorn (1933:5) was told that a Eurasian man visited their villages on occasion, to recruit young men for work at a plantation at Sendar, near Kondo, and that they brought home 'European pattern saucepans, kettles and enamel plates'.²⁴ Zimmer, too, reported on this work:

It is also evident that quite a number of the Toro natives go over the line to work, and they admitted that they go to a plantation near the boundary on the Dutch side and work at copra making, for which they get articles of clothing, it would seem that they only go as casuals and stop for two or three weeks (Zimmer 1928).

Wando people also report that Dutch, Chinese and Indonesian men used to come to Wartha and Kormbo villages before and after the war, to collect copra and shoot crocodiles, in exchange for trade goods such as spades, axes, knives, and *kain* (clothing). This trade ceased after the war (see below).

In Papua, an 1894 Native Ordinance made it law to plant coconuts for copra production, although this was really only enforced from 1912 until the copra slump of the 1930s (Mair 1970:118). It is clear from patrol reports that establishing copra plantations in Western District villages was a major objective of the colonial administration in the early twentieth century (see also Beaver 1920:298-299); Lyons (1918:1) notes landing 1,000 coconuts at the Tonda police post in February 1918. However, it seems that this was also done to improve the food supply of local people (Lyons 1917:2). This cash crop never became an important part of the local economy of western Papua (see Mair 1970:124).

²⁴ The Dutch Military Exploration map shows a village 'Sendaar' located on Sendaar Creek, near Kondo (Militaire Exploratie 1920).

Labour Recruitment

Prior to the Second World War, the Morehead was closed to recruiting, after it was found that local men often died in strange surrounds (Williams 1936:vi). Beaver (1920:108) also describes how only four out of fifteen Buji recruits for work in other parts of the Territory survived, the others succumbing to various diseases.²⁵ In 1926 Lambden tried to recruit a Wartha ‘for 6 months employment at Daru so that he could learn a smattering of Motuan but none would recruit’ (Lambden 1926:14). The only other work opportunities in this period were carrying for patrols, and the position of VC, which attracted very small payments of trade goods.

World War Two

During the war a single military administration, the Australian New Guinea Administrative Unit (ANGAU), was formed to control those areas of Papua and New Guinea that were not controlled by the Japanese. ANGAU was responsible for the recruitment and supervision of labour employed by the allies, and also undertook local patrolling duties (Downs 1980:6). The Merauke area and adjacent Casuarina Coast was the only part of DNG that was not invaded by the Japanese, and a major Australian base was established there (Ball 1996; Cribb 2000:152). Several small base camps were also established in the Morehead District, to facilitate the rescue of downed airmen (Wren 1968:4). While many Kiwai and some Suki were employed during the war (van Nieuwenhuijsen and van Nieuwenhuijsen 1965:375), it seems that no Torassi men were recruited for this work.

The Second World War appears to have had little or no impact on Torassi communities. The Mbavir people, however, helped rescue the pilot of an American P-38 Lightning aircraft, which crash-landed at Ngram on the Bula Plains, seven and a half kilometres southeast of Bondobol village. Another Lightning crashed at Trakote, near Arufe, in 1944 (Martin 2001:78).

²⁵ Buji, opposite Boigu Island, was established in 1897 as a police post to guard against Marind raids, and to afford shelter to the survivors of numerous tribes in the western Morehead region (ARBNG 1897-1898:79).

The Post-War Period

On 17 August 1945 the Indonesians declared their independence from the Dutch. This was not recognised by their former colonial masters, nor by the allies; it was seen 'at best, the action of a small intellectual elite and they suspected that it had been engineered by the Japanese in an effort to hamper the restoration of colonial rule' (Cribb 2000:154).

After a short struggle, the Dutch finally recognised the Republic of Indonesia, but did not include DNG in the transfer. Instead, they hoped to bring the territory to a separate independence, and to this end they had begun to give it a separate legal status from (Cribb 2000:156,162,167).

The Indonesians steadfastly argued for the incorporation of all of the former Netherlands East Indies into their new state, under the slogan 'from Sabang [in northern Sumatra] to Merauke' (Souter 1963:217-220). From the 1940s until 1962, this dispute over DNG significantly influenced policy and public opinion in Australia relating to the Territory of Papua and New Guinea, and had implications for the border, and border people (Downs 1980:220; van der Veur 1966b:Ch 5).

Immediately after the war, the Australian administration began developing explicit border policies. However, these were often made on a case-by-case, regional basis, as local circumstances arose. For example, there was cooperation between Australia and the Netherlands with respect to several Dutch-administered communities which were, in fact, situated east of the boundary (Blaskett 1989:42-43,47-48; van der Veur 1966b:97-111).

As van der Veur (1966b:111) notes, examination of border events in the period 1949-1963 is difficult on account of a paucity of published materials. My own analysis of patrol reports relating to the Morehead District in this period demonstrates that a distinct policy for the southern border area began to emerge after events in 1946, and was formulated to take into account post-war developments in Merauke, which were linked to wider political unrest in the Indonesian archipelago. Further, there was an almost immediate attempt to curtail any movement across the border by non-Melanesians, such as political asylum seekers and crocodile hunters. As a result, there was a general trend towards a more rigorous sense of boundary. This may be

seen in the push to develop a sense of ‘Papuan-ness’, of loyalty to Australia and Britain; to discourage (but not deny) cross-border movements by local people; and to stop the ‘nomadic’ ways of local people, through the establishment of sedentary villages.²⁶ The attention to the border appears to have stemmed from a desire not to become entangled in the problems on the other side, and the ‘simple’ solution was to instil and inculcate concepts of fixed residence and solid boundary.

In 1946, PO Marsh returned several Indonesians to the border area; these men had spent the war years in Australia. In a repeat of Jiear’s 1903 experience, the Dutch failed to keep their promise to meet on the border, although they probably had their reasons. During this patrol, Marsh also encountered other Indonesians who were fleeing eastward, across the border, probably on account of Dutch reprisals against a revolt there that year, associated with the struggle for independence (see Verrier 1986:28). These men sought asylum in Australia. Although he expressed sympathy for their predicament, they were returned across the border as prohibited immigrants.

On the upper Torassi, Marsh also learned something of local understandings about the border, as well as the magnetic power of Merauke on the Kanum people, some of whom formerly resided in Australian territory:

All natives in this area are under the impression, given them by DUTCH N.G. natives, that all land west of BENSBAACH and TORASSI is DUTCH territory. Further, in the last six years, all villages west of the BENSBAACH in PAPUAN territory have moved to the DUTCH side of the border. This, it appears, is due to MERAUKE being an army base during the war and considerable quantities of clothing and equipment are to be had for the taking. A great lure for any native (Marsh 1946:2-3).

The next patrol to the Torassi was by PO Clancy (1948). He appears to have taken a very firm stand on the border: he demanded the abolition of the settlement of Muni, and then sacked VC Iambo of Wando for hiding its existence from him, and for assisting parties of DNG crocodile hunters operating on the Torassi. Subsequently, patrol officers ordered local people to report any cross-border movements by Dutch, Indonesians, or ‘DNG natives’; for example, PO Woodhill (1951:9) gave instructions

²⁶ The administration no doubt realized that a total ban on cross-border movements was unfeasible given the poor record of patrolling in the district.

to VCs in the Torassi area 'to report any border movements and encourage their people to look to Papua'.

The Government Comes to the People

In late 1950 a government station was established at Rouku on the Morehead River, in keeping with the post-war policy of extending administration control and development to what were formerly peripheral regions.²⁷

The London Missionary Society also established a mission station and school there in the same year. In 1959 the patrol post was moved to the present site of Morehead, where an airstrip was opened in June 1960. A government school was also opened in the early 1960s (Ayres 1983:14; Humphreys 1989:8; Robson and Tudor 1964:246; Tapari 1988:11).

Henceforth, patrols were regularly conducted throughout the district. The establishment of the station also provided work opportunities for a few individuals, and crops were purchased from local people for the staff, which usually comprised a lone officer.²⁸ Through the 1960s and 1970s, government services, such as aid posts and schools, were increased throughout the district, and the Morehead Local Level government was promulgated on 9 October 1969 (ARP 1969-1970:80; Ayres 1983:16).

Notable developments at Wando were the establishment of a LMS school in 1955, with a Motu pastor acting as teacher and aid post orderly, and a small rural police post in the 1960s, apparently as a result of the temporary resettlement of Marind and Kanum refugees in the village; it was operating in 1968 (Wren 1968:33). One of the constables, from Oro Province, married a Wando woman and lives there today with his family.

²⁷ I have not been able to locate any government material to suggest that the border played a role in the establishment of this station, but it is possible in light of the patrols by Marsh (1946) and Clancy (1948).

²⁸ Humphreys (1989:8) provides details of pay and food rations issued to Morehead station labourers in the early 1960s.

Post-War Economy

Immediately following the war, the Australian administration voiced its intent to make up for past neglect in Papua and New Guinea, through a conscientious program of development focusing on the identification and development of natural resources (Griffin et al. 1979:Chs 8,10; Souter 1963:244-245). However, following a 1964 World Bank report recommending that efforts and expenditure be directed to those parts of the country where economic development was likely to be most successful, such as the Highlands, Papua languished (Griffin et al. 1979:160):

Agricultural economic development expanded rapidly among all Papua-New Guineans in the fortunate areas where copra, cocoa, palm oil, coffee and other cash crops could be grown and marketed. In other places where cash crops could not be grown or where isolation made production and marketing impossible, the only alternative for the people was to seek work in districts where large-scale European ventures offered employment. Vast areas of Papua were in this depressed category, but labour response was not high (Downs 1980:443).

The Morehead District fell into this category, although agricultural officers sought to introduce and encourage new tropical crops and gardening methods (see Downs 1980:445; Tapari 1988:14; Wren 1968:30,45).

Copra

In the 1950s, the administration again attempted to encourage copra production in the Morehead District, despite pre-war failures. Village plantations, each of 100 trees, were established, and several men were trained as copra extension officers (Frew 1957b:5; Tapari 1988:26; Wren 1968:19,37,42). By the 1960s, it was again evident that this scheme would be uneconomic, on account of lack of markets and poor transport infrastructure, among other problems (see Tapari 1988:26-27). Tapari (1988:26-27) notes that ‘nothing from these efforts was achieved except the brewing of palm-wine (tuba), a kind of beverage drink originally introduced from Irian Jaya in the 1950’s’. In 1963 copra was only produced by one resident at Bondobol, generating a few pounds income (Douglas 1963). A 1968 Area Study of the Morehead District found that in addition to Bondobol, only Bula had ever produced copra, and noted that ‘endeavours to promote copra production in the past have been frustrated by inadequate transport infrastructure’ (Wren 1968:45). Although the administration was still prepared to assist local people with copra production where

this was economic, it obviously appreciated the hopelessness of the task, as summed up by one District Commissioner's view: 'frankly, I cannot blame them for preferring the greater rewards of tuba' (Bensted 1969).²⁹

Crocodile Skins

After the war, Merauke was a major crocodile hunting centre, and copra continued to be important:

Economic activities with close links to traditional activities had a good chance of success. The export-economy of South New-Guinea in the fifties floated on two corks: the production of copra and the sale of crocodile skins. Both trades were in the hands of ethnic Chinese, with the Papuans in the (self-chosen) role of suppliers of the raw material (Overweel 1993:36).³⁰

This activity spilled over into the Torassi, and local people sought some control over the expropriation of the resource. On a crocodile hunting expedition down the river in 1997, I was told that on several occasions, Wartha men had confronted Merauke shooters to demand payment for skins. When this did not occur, the men threatened them with their bows and arrows. In this way, they obtained recognition of their ownership of the resource, and reinforced their expectation of compensation for its exploitation.

Local men remember one Merauke shooter in particular, known as Ali Baba.³¹ Some men worked for him in Merauke, and they also served as local guides when he came to hunt crocodiles on the Torassi; people would also provide him with the skins they had collected and processed themselves, in exchange for trade goods.

In the mid-1950s, hunting by Chinese and Malays operating out of Merauke came to an end (at least on the middle Torassi), after the administration intercepted and

²⁹ Patrol reports from this period contain numerous references to the problems associated with widespread use of tuba in the Morehead District; these included high incidences of assault, and several serious injuries and deaths resulting from inebriated people falling from palms. According to Wartha, these problems persisted until the 1980s, when many people joined evangelical churches, and gave up the practice. Wartha state that the manufacture of tuba was learned from Indonesians; Willey (1965:243) says that Kiwai people learned how to produce it during past visits to Thursday Island.

³⁰ See also Garnault and Manning (1974:14).

³¹ Ali Baba was said to be an old man, still living in Merauke during my time in the field.

repatriated several groups, and banned local people from working for them. Some surreptitious visits by Thursday Island-based shooters were also reported at this time (Bottrill 1955b:5).

In the 1950s and 1960s the sale of crocodile skins formed the economic base for Western Province communities; Daru was even described as the only town in the world that lived 'on the crocodiles back' (Willey 1965:34). However, local people did not really benefit from their resource until the enactment of crocodile protection legislation in the mid-1960s, which restricted expatriate involvement in the industry, and the establishment of the Morehead Cooperative Ltd, an indigenous-owned buyers cooperative that was established by the administration in 1963 (Ayres 1983:16; Wren 1968:39,49). Villagers could purchase shares in the venture, which sold trade goods and purchased locally produced crocodile skins. The cooperative later became defunct, but villagers in the area could later sell their skins through Balamuk Wildlife Station (Ayres 1983:16; Tapari 1988:46). Commoditisation of crocodiles is discussed in greater detail in the next chapter.

Labour Recruitment

It appears that the ban on labour recruitment in the Morehead District was lifted during or shortly after the Second World War. Despite this, local participation remained very low. In contrast, large numbers of Suki men worked for mining projects in Western and Gulf Districts, and on copra and rubber plantations in Gulf and Central Districts (van Nieuwenhuijsen and van Nieuwenhuijsen 1965:375).

As previously mentioned, local attachment to place and the perceived dangers of travel from homeland militated against recruitment. Low levels of recruitment were also related to the value placed on male subsistence production. This was finally noted by one astute officer during a patrol to the eastern part of the district:

Taitu [yam] cultivation is the greatest enemy of full recruitment of labour from the area. For a married man to enter an agreement he has to brave considerable criticism in the village especially on his return. He has no Taitu stored and no seed taitu for the next planting and he is therefore obliged to depend for them on friends and relatives often over a long period (Bottrill 1955a:7)

At this time, then, anything other than a passing involvement in the monetary economy was incompatible with the existing kinship social relations of production

and its associated values. These stressed the importance and prestige of male-directed subsistence production, especially yams (the culturally preferred, 'real' food) to support his family. Further, there were no trade stores in the district until the 1960s, which might have been able to make up for food shortages resulting from the absences of married men. A few Wartha worked at a plantation at Koitaki in 1950 for a short period, and appear to have been young, unmarried men (see Griffin 1951).

For Wartha, casual work at coconut plantations in the Merauke area appears to have been short-term and not inconsistent with the seasonal round of food production, and may have occurred in association with the late dry season trading visits to this region reported by Nevermann (1939:48). The issue of low, post-*mati* population densities must also be taken into account—only one third of the adult workforce was allowed to be recruited, and in most Torassi villages this would have comprised only a few individuals. As late as 1968, recruitment remained negligible:

The outward flow of labour from the Morehead Sub-District is extremely light and absenteeism from villages is very low. Primary reasons for this are two fold. Population [sic] density is low and therefore no labour is recruited and most young men have to this stage received only elementary primary schooling, if any, and job openings outside, in the Public Service or Private Enterprise are these days virtually non-existent for the lower standards of education (Wren 1968:8).

APC Exploration

From the 1930s, there was a flurry of oil and gas exploration in Papua up until the outbreak of the Second World War. This activity recommenced in the early post-war period (Downs 1980:441-442). In the mid-1950s the Australian Petroleum Company (APC) conducted seismic surveys in the Morehead area, as part of major geological mapping and petroleum exploration in western Papua (APC 1961; Wren 1968:4). A camp was established at Sibrasi, downstream from the present Morehead Station. Several hundred Morehead and Suki men were employed as labourers by the company, and for the first time a major influx of trade goods entered the area (Ayres 1983:14; van Nieuwenhuijsen and van Nieuwenhuijsen 1965:375). Few Wartha participated in this work.

The results of testing were poor. A bore (Morehead No.1) drilled to a depth of some 2,500 m depth, revealed only slight shows of dissolved gas (APC 1961:12-13,116),

and the company left the area in 1957 (Wren 1968:5). APC exploration, while unsuccessful, did have flow-on benefits. It sold its buildings to the administration, which used them to build a new, larger patrol post at Morehead (Humphreys 1989:6; Wren 1968:5). Many of the existing roads in the District were originally part of the APC exploration network (Ayres 1983:14,16; Department of Information and Extension Services 1972:119). Numerous bore holes are also scattered around the area (Ayres 1983:16). Some of these proved useful to local people as sources of water. Bondabool people proudly note that their chief supply, a large, circular waterhole on the outskirts of their settlement, was created by a company engineer using dynamite, at the request of a villager.

Indonesian Takeover and Subsequent Border Issues

From its independence in 1949, the Indonesian Republic kept up an unrelenting campaign to incorporate DNG into their state. From 1960, President Sukarno began to threaten military action against the Dutch, followed in 1962 by a small-scale infiltration into the territory.³² Under American pressure, the Dutch transferred the territory to a temporary United Nations administration, which in turn handed it to the Indonesian Republic in May 1963 (Cribb 2000:167).

The Indonesian takeover forced Australia to take an active interest in the border area, as it faced the reality of an adjacent Asian state, possibly communist at some point in the future. Subsequent Australian-Indonesian tensions were to influence administration border policies for many years (Blaskett 1989:53).

One of the first responses by Australia was the creation of several border stations in the 1960s, including Weam, on the upper Torassi, in early 1963. Almost instantly, the Torassi and other borderland areas were transformed, not only by the construction of these posts, but associated services and infrastructure including schools, aid posts, airstrips and roads, in what had formerly been some of the most

³² According to Robin Calcutt (pers. comm., 1998), one of the Indonesian paratroops involved in this action was blown off-course near Merauke, and eventually turned up at Morehead in a half-starved condition.

remote and inaccessible parts of the country (Downs 1980:230; Robson and Tudor 1964:247).

There was also increased attention to cross-border movements, which were now discouraged on account of security concerns: in 1962 the border was completely sealed, and this was also the case in the two years leading up to Indonesia's 'Act of Free Choice' in 1969. Later, in 1969, a pass system was introduced in the southern border area for transboundary movements by local people (Blaskett 1989:51).

Following the establishment of Indonesian rule in New Guinea, several hundred Papuan refugees streamed across the border in 1963 at Weam (Cooper 1963; van der Veur 1966:74). For a short time, many of these people were accommodated around Wando village (Donatus Mahuze, pers. comm. 1998). This placed stress on local food supplies, and the administration was forced to supply rations. Later, some of the refugees were allowed to settle near the mouth of the Morehead River (van der Veur 1966:74).³³ Most of these people eventually moved to Daru, where they established Kondo-Marind Corner, on land donated by the Catholic Church.³⁴

A shared boundary with 'Asia' (or, more correctly, Asians) was unsettling for Australia, but part of the new geopolitical reality. Attention now turned to demarcation of the New Guinea border.

Mapping the Border

Van der Veur (1966b) and Cook et al. (1968) present an overview of Australian-Dutch and Australian-Indonesian cooperation on New Guinea border surveys up to 1967. In the mid-late 1950s the Australians and the Dutch participated in some work on boundary demarcation in New Guinea. In 1961 representatives of both governments met in Port Moresby to discuss their findings, at which point the position of the mouth of the Torassi was placed at longitude 141° 01' 07" East; latitude 9° 7' 42' South (Cook et al. 1968:10; van der Veur 1966b:116). This new

³³ Singe (1989:214) has noted the irony of the fact 'that the present day Tugeri, in this time of unrest...sought sanctuary amongst their traditional enemies in the east'.

³⁴ A large number of these people returned to Merauke in 2003.

position was some 1330 metres to the west of that defined in the Anglo-Dutch Convention of 1895, 141° 1' 47.9" (van der Veur 1966:133).

When the Indonesians took over DNG, this process of demarcation had to start again (Cook et al. 1968:7; Prescott 1987:284-285). The Australian government remained concerned about the unsatisfactory condition of the border with its new neighbour, given the territorial friction then occurring between Indonesia and Malaysia, and also wished to avoid any 'border incidents' that might arise from uncertainty over its actual position (Prescott 1987:172; Verrier 1986:35).

Two Torassi-specific factors appear to have contributed to the decision by Australia and Indonesia to pursue a comprehensive joint border survey in the 1960s. First, in November 1963, an Australian patrol placing temporary markers along the boundary was intercepted by Indonesian troops, escorted to the Torassi at gunpoint, and told that the river was the boundary (Ryan 1970:92; van der Veur 1966:119)³⁵. Second, Indonesia was apparently concerned about discrepancies between earlier determinations of the Torassi rivermouth position:

Before the Indonesian takeover, the Dutch Government decided to make some display of interest. An International Commission was established, consisting of Dutch surveyor Roggeveen and myself. Our actual joint effort consisted of Roggeveen and Ossie Dent making an astrofix at the Bensbach, and indicating that the mouth of the Bensbach probably had coordinates a little different than thought. While this did not alter the position of the boundary, it showed it to be a little further west than the previously accepted coordinates showed—alarming the Indonesian authorities (Matheson 1999:8).

These developments led to talks between Australia and Indonesia in Djakarta in 1964, culminating in a northern border survey in 1966, and a southern survey the following year. The southern portion of the border would be the meridian (to be redetermined) through the mouth of the Torassi (Cooke et al. 1968:11).

This program involved the erection of 14 aluminium and concrete markers bearing inscriptions, which were later listed in the Border Treaty. A base was established at Weam Patrol Post to establish stations 12 to 14 (Cook et al. 1968:17). The position of

³⁵ It is interesting to note this ongoing association of the river with the border.

the middle of the Torassi rivermouth was determined, and this time it was found to be located at 141° 01' 10", a difference of around 100 metres from the 1960 position. A boundary marker was placed where that meridian intersected the west bank of the river, and another was placed on the road between Wereave and Sota, a short distance east of the latter settlement (Cook et al. 1968:17). During the time the Indonesian surveying party was at Weam, the local patrol officer reportedly hid a large number of refugees in nearby bush (Ryan 1970:214).

This work culminated in Australia and Indonesia signing a treaty in 1974 respecting their shared New Guinea border (Department of Foreign Affairs and Trade 1974). This was subject to a 1973 agreement on the administration of the border, which includes provisions for cross-border movements within a defined Border Area. The Border Agreement was subsequently renegotiated in 1979 and 1984 (May 2001:288; Wolfers 1988:Appendix II.a-c). The practical operation of these arrangements is discussed in the next chapter.

Balamuk Station: 'Brown Pennies and Spear'

From the late 1950s, there was increased government attention to the possibilities of economic development in the region. For example, a Territory-wide study of the pastoral industry included attention to the potential of the Torassi floodplains (Frew 1957b:1,3-4; Robson 1958:69), and the fisheries department conducted tests in the river, netting barramundi. There was also a CSIRO study of the land resources of the Morehead and Kiunga region in 1967, which identified limited economic possibilities (Paijmans et al. 1971).

In 1968 ground and aerial surveys by the administration highlighted the unique nature of the Bula Plains. In light of earlier disappointments, focus turned to the possibilities of exploiting the abundant wildlife of the area, in particular, the huge herds of exotic Rusa deer. In 1970, a government Wildlife Station was established at Balamuk, south of Wando village, from where these investigations took place (see Downes 1972:241; Herington 1978). The land for the station was purchased from local people; today, some are angry that the government was able to alienate the land for 'brown pennies and Spear [a brand of tobacco]'.

Balamuk soon became a focus for development in the Torassi area. Discussions began with villagers regarding the declaration of some form of protected reserve, with rules regarding the harvesting of deer and other resources; and meetings were also convened to consider a private proposal to establish a tourist resort, based on game hunting and fishing. Agricultural extension work and biological survey were also undertaken from the station.

Christianity

In the pre-Independence period, Christianity had a minimal impact on Wartha and other Morehead peoples. Williams (1936:vii,298) notes the infiltration of Christian ideas into the eastern part of the district as a result of contacts with Torres Strait Islanders. Later, European missionaries began operating in the district, with missions established in Suki in 1941 and Arufe in 1952 (Martin 2001:7). These stations were remote from the Torassi, and exerted no influence on Wartha people. An LMS mission school operated by Papuan and Polynesian teachers was established at Rouku in 1951, shortly after the patrol post's creation (Griffin 1951:2,6; Teauariki 1982).

During the 1950s some of the people living at Wereave, on the upper Torassi, moved across to Sota in order to be close to a mission school that had been established there. In this decade, a number of these schools were established in the southeast part of DNG, as part of a Dutch program of 'guided acculturation' (Donohue 1996:9; Overweel 1995:23,33-34). The Australian administration frowned upon these cross-border movements, and patrol officers were instructed to support LMS pastors in the district, whose work was seen as vital in 'binding the people to the Papuan side of the Border' (Baker 1953:6).

Around 1954, a Motu LMS pastor named Paku established himself at Weam. The following year he moved to Wando, where he built a school, church and clinic. By the 1960s, many Wartha were at least nominal Christians. The LMS (later the Uniting Church) discouraged what it deemed to be the 'excesses' of local custom, such as polygamy, ritual homosexuality and men's houses, and wife-lending at feasts. However, it appears that there was no attempt to ban other aspects of traditional custom, such as yam exchanges, pig-killing ceremonies, and dances.

The opening of schools at Rouku and Morehead provided education opportunities for a number of Torassi children, and in the ensuing years a number went on to higher education in Daru and Port Moresby, followed by public service careers in far-flung parts of the country. Many of these people have since returned to the Torassi, temporarily or permanently, to play key roles in local land and resource disputes.

Siberia: Unpacking Morehead Imaginaries

In the study of the political ecology of the Torassi borderland, it is useful to consider the framing of this part of south New Guinea in colonial discourse, as reflected in patrol reports, as well as popular and anthropological publications. These constitute a ‘regional discursive formation’ (Peet and Watts 1996:16), a social imaginary of the Morehead District that ascribed largely negative values to people and place, attitudes which articulated with the identification of the Western District as ‘Siberia’, a remote ‘punishment post’ within colonial administration culture (Willey 1965:33; Ken Humphreys pers. comm. 1998). I would argue that this pessimistic montage, and later counternarratives, are a fundamental component of articulation on the Torassi borderland, as they have shaped the nature of interactions between outsiders and locals, particularly with respect to lands and resources.

A key component of the Morehead imaginary was the identification of local people in negative, evolutionary terms. On account of their perceived nomadism, lack of material culture, and social fragmentation as a result of Marind raiding, early descriptions of these ‘bushmen’ (Beaver 1920; Haddon 1920) often refer to them in terms of ‘poverty-stricken and broken-down people’ (Haddon 1920:21), and note the ‘extreme lowness of their culture’ (Seligmann 1904b). Some accounts compared them to Australian Aborigines: ‘with the exception of garden making [they] seemed no whit more cultured than a North Queensland blackfellow’ (Seligman 1904b; see also Pim 1901). Haddon (1936:xxiii), in his preface to *Papuans of the Trans-Fly*, believed that the environment of the area was a key constraint on the development of the people:

The environment is not of such a nature as to encourage the cultural advance of its inhabitants.

These notions persisted into the late colonial period and beyond; for example, in a 1968 study, Wren (1968:14) described the area as ‘primitive’, and found ‘the whole sub district and its leaders...rather conservative and anti-progress’ (1968:14). The more negative and racist ascriptions are, of course, less explicit in the literature, but I have heard numerous European businessmen and ex-colonial officers refer to Morehead people in highly derogatory terms; one even suggested that they were the ‘most stupid people in the Territory [of Papua]’. Patrol reports also contain many such allusions to the supposed apathy and slow-witted nature of the people, as well as the lack of development in the region, which was often ascribed to the absence of an ethic of personal leadership (e.g. Wren 1968:10,13-14). For example, following the construction of Weam airstrip in 1963, the local patrol officer congratulated himself on his role in advancing Torassi people:

Previously saturated in apathetic limbo, attitudes and mien of these people have taken a turn towards something more positive. Prior to WEAMS establishment everyone existed as an introverted miasma stirred ever so slightly by a once yearly patrol (Cooper 1963).

There has always been a tendency to describe the territory from the vantage point of somewhere else, reflecting the colonial identification of the area as peripheral. Geocentric labels for the region include the ‘Far West’, ‘Extreme West’, and, of course, ‘Trans-Fly’ (Beaver 1920:Chs 8-9; Haddon 1935:247; Ayres 1983:1,3; Williams 1936:1). Numerous observers have also noted the similarity between the Morehead landscape and remote parts of northern Australia (e.g. Beaver 1920:127; Williams 1936:5). As seen in Chapter 4, this is a real relationship with a foundation in regional biogeography. However, representations of the district as ‘the extreme of monotony’ (Williams 1936:1) have continued to resonate among outsiders. This is despite the findings of the CSIRO land survey, which identified a diverse range of habitats in the district (Paijmans et al. 1971). There was a popular and widespread belief in PNG and Australia that the Morehead District, and other parts of the south New Guinea lowlands, comprise one vast swamp, affording few or no possibilities for development (Löffler 1971:591, 1982:58; Paijmans et al. 1971:122); I would argue that this remains the case today.

The following quotes are a representative sample of colonial perspectives of Morehead place and people, made by both colonial officers and anthropologists alike:

A hot and godless place to be in, in the dry season. It is absolutely without water except perhaps for some slimy mud in a swamp here and there, wherein wild pigs wallow (Lyons 1913 cited in Williams 1936:1).

There is nothing to induce settlement, nor would I ever advise anyone to go there (Beaver cited in Murray 1912:64).

Just as the country is parched up in the dry, so it is one vast swamp in the wet season (Beaver 1920:127).

Papuans in the western provinces do not live in a challenging environment and those few Europeans who have gone to live in that area have succumbed to the heat, humidity, and malarial climate of the great mangrove deltas and leached grasslands. An air of activity is essential to stimulate economic interest. When the oil rigs withdrew, Western Papua seemed to sink back into somnolent lethargy (Downs 1980:444).

This flat marshy delta consists of parched ground for half the year, intersected by broad muddy streams wherever water flows through the plains of dust. The other half of the year the delta is inundated... The indigenous people inhabiting this unpromising zone are poorer than the marsh Arabs at the mouth of the Euphrates. The natural resources of the area consist chiefly of mosquitoes (Linebarger 1965:13 cited in Blaskett 1989:41).

nature has endowed the area with a penurious environment which offers little or no potential for economic development (Cooper 1963).

from the European's point of view its economic prospects would seem to be practically nil (Williams 1936:1).

Mr Williams is to be congratulated on having carried through a remarkable and most difficult piece of work requiring an indifference to physical discomfort approaching heroism, for the Moreland [sic] District of (British) Papua, formerly British New Guinea, extending from the Fly River to the Anglo-Dutch boundary, is one of the most unpleasant areas of the habitable globe. Mr Williams humorously, to one who has visited it, calls it a country "of few attractions". A vast swamp in the wet season and for the most part parched waterless land in the dry... (Seligman 1936:736).

I do not mean to suggest that this Morehead imaginery guided or shaped the nature of colonial agency in a simple, deterministic way. Nor do I want to downplay the lack of economic resources, and seasonal alternation between dessication and inundation, which obviously have great implications for economic development in the area. Similarly, the issue of leadership has been shown to impact on the nature of Wartha

articulation with capitalism. However, it should be kept in mind that the exercise of colonial authority in this area was very much undertaken by individuals, stationed for several years at lonely patrol posts. It seems reasonable to argue, then, that the prevalence of these widely-held, negative views of people and environment, in a ‘punishment post’ atmosphere, might result in interactions with local people different to those occurring in supposedly more ‘developed’ areas of Papua, and that these relations—always assymetrical—might, in turn, influence villager’s own understandings of the nature and exercise of European power and leadership.

Perceptions of the landscape began to change, however, in the late 1960s, with a focus on the unique, savanna wetlands environment, the huge herds of introduced *Rusa* deer, and the prolific nature of local wildlife. As one officer said of the Bula Plains, ‘the deer, magani [wallabies], pig and bird life on the Bensbach, below Wando, has to be seen to be believed’ (Randolf 1968:5). This shift in perspective was followed by new policies for the district, which saw the establishment of Balamuk Wildlife Station, a precursor to the promulgation of the Tonda Wildlife Management Area in 1975 (Chapter 9); it also contributed to the establishment of the Bensbach Wildlife Lodge in late 1974 (Chapter 8). These developments would lead to new forms of interaction between Wartha, the state, and capitalism on the Torassi borderland.

Summary

Knauft (1993:25) has noted that ‘as a region, the nonAustronesian south coast of New Guinea appears to have remained effectively outside the purview of state political economies for longer than any other major non-arctic coastal population’. This was certainly the case for the Torassi borderland, where first contact was comparatively late by lowland New Guinea standards, and interactions with outsiders thereafter sporadic up until the 1950s.

Nonetheless, Anglo-Dutch colonial activity, in response to Marind raiding into BNG, set in train a series of important local events: the discovery of the Torassi in 1893, the realignment of the south New Guinea border in 1895, and the founding of Merauke in 1902. Pacification of the Marind led to trading and intermarriage with their former foes, and plantation work around Kondo; together, these enabled Wartha

to obtain European and Asian trade goods. Southeast DNG exercised a strong 'pull factor' to the west, and, like other border peoples, they had oriented themselves towards the Dutch administration on account of the proximity of their border stations (Blaskett 1989:48; van der Veur 1966b:97). As a result, compared to other Morehead peoples, the Wartha and their neighbours had a longer and more varied history of dealings with outsiders, both Europeans and Asians.

Following the Second World War, the Australian colonial administration increased its presence in the region through the establishment of government posts, and developed something of a local border policy; trends which intensified following the Indonesian takeover of DNG. There was greater attention to the economic and political development of the people, and the nature of the Torassi environment was the subject of research, in particular, the great herds of introduced Rusa deer. On the eve of Independence, there was a more visible government presence on the borderland, new regulations for cross-border movements, and considerable interest by outsiders in the economic potential of the people's wildlife resources.

CHAPTER 7: BORDER LIFE AFTER 1975

Introduction

In this chapter I present an overview of the political ecology of the Torassi borderland after PNG's Independence in 1975. Topics considered include the nature of government services and infrastructure in the area, Wartha political capital at the Provincial and National Government level, and the rise of evangelical Christianity. This is followed by an overview of the social, political, and economic situation in neighbouring Merauke Regency, Papua Province. Since the 1960s, this region has been transformed by an influx of thousands of Indonesian transmigrants. A boom-and-bust periphery of the Indonesian state, its articulation with the Torassi borderland has both positive and negative outcomes for Wartha.

Special attention is given to the practical operation of the border control regime in this period, especially transboundary movements under the 1973 Border Treaty between Indonesia and PNG, and successive border administration compacts (Border Agreements). I then turn to an examination of the dynamic, but small-scale borderland economy allowed under this convention, with a specific focus on the recent emergence of a cross-border trade in aquarium fish. The chapter concludes with an overview of the people's experience of three other forms of wildlife commoditisation on the Torassi borderland: Rusa deer; crocodiles; and botanical products, namely, tree seeds and leaf oil. I suggest that many of the disputes and other problems associated with these activities occur in the context of multiple, overlapping property-rights regimes, characterised by competing perspectives of land and resource ownership, and competing perspectives of people and place.

Regional Developments in Southwest PNG

Historically, the coastal areas of Western and Gulf Provinces have experienced very little in the way of development. During the colonial period this was due to a number of reasons: the lack of exploitable resources, the area's remoteness and difficulty of access, its unsuitability for European settlement, and the fearsome reputation of the inhabitants. Together, these ensured that it remained the most undeveloped region of south coast New Guinea: a 'coastal backwater of what was itself one of the world's

most economically undeveloped colonial territories' (Knauft 1993:27). Within this area, the Morehead District has been identified as having the least amount of economic development (Knauft 1993:28-29). Little has changed today; like other border areas of PNG, the Morehead District is among the most underdeveloped in the country (Blaskett 1989:Ch 3; Tapari 1995).

A number of external factors form formidable obstacles to infrastructural and economic development in the region. These include the lack of efficient and cost effective transport and associated infrastructure in the Morehead District; minimal government expenditure and weak administrative structures; and the absence of local investment capital and local markets (Tapari 1988:15-24). In fact, Tapari states that Morehead District has experienced a decline in rural prosperity, as the 'delivery of development, especially in the form of new infrastructure and the creation of genuine opportunities for venturing into the cash economy, is simply not occurring' (1995:16).¹

The underdevelopment of the Torassi area is a key concern of the Wartha and neighbouring communities, who bemoan the difficulties inherent in attempts to raise living standards and gain entry into the cash economy to obtain money for basic items such as school fees, council taxes, and market goods.

Transport Infrastructure

A road system, the Woroi-Morehead Road, links the Torassi with the wider Morehead District, and extends east to Wipim in the Oriomo-Bituri District. Segments of this road have long lacked regular maintenance. During my time in the field, road work, in the form of the construction and maintenance of drainage ditches and log bridges, was the only form of government work available to most local men. Employment of this kind was very short-term, limited to the dry season, and often halted by long delays in the arrival of workers' wages from Daru.

¹ For an in-depth overview and analysis of the development history of the Morehead District, the reader is directed to the extensive work of Tapari on the subject (Ranck and Tapari 1984; Tapari 1988, 1990, 1995).

Tapari (1995:3-4,7) suggests that if properly maintained, the road system has the potential to induce and facilitate economic development in the area, by creating opportunities for the establishment of small-scale business enterprises such as urban PMV operators and by expanding markets for trade-store operators and other sellers of local products. However, the very few vehicles in the area, difficulty in obtaining parts, and lack of regular fuel supplies, argue against this, as does the general lack of cash incomes among the populace—hire costs of existing vehicles are very high, and beyond the reach of most locals.² The increasingly poor condition of the road (potholes, washouts, fallen trees) has led to longer travel times, and has made wet season usage especially unattractive, if not impossible along some stretches.

The road from the Torassi area to Sota border station is frequently used by local people, who travel there by foot, bicycle, and horseback to sell wildlife products, and purchase Indonesian market goods, which are often cheaper than those obtainable in local trade stores, such as the ones operated by the BWL at Bensbach and Morehead (Tapari 1995:4,7; see below). For the occasional vehicle which makes the trip, this requires an improvised ferry crossing over the Torassi near Wereave, where the river is broad, which is effected by lashing several shallow-draught aluminium punts (known locally as ‘river trucks’) together.

At the time of fieldwork, air services to Bensbach airstrip from Daru were thrice-weekly (Mondays, Wednesdays and Fridays), although a long-running land dispute between local clans and the BWL had resulted in frequent closures to the airstrip (discussed in the next chapter). Subsequently, air services declined to once a week, and in June 2003 all flights to Bensbach and Morehead were terminated due to lack of passenger demand, reflecting decreasing amounts of cash income in the area, and the loss of a number of public servants from the Morehead District. The price of tickets has also increased markedly in recent years, and it appears that the airstrip at Weam is one of several landing grounds in the South Fly that have now been decommissioned (see O’Shea et al. 2004:226).

² During my visit to the Torassi area in 2000, I was told that there were only half a dozen operating vehicles in the entire Morehead District.

Barge services operate between Daru and Morehead, and most heavy equipment and trade store goods brought into the district arrive this way. Barges have also operated between Daru and the Torassi in the past, bringing supplies to the government station at Balamuk and the BWL, but this has not occurred for some years.³

Border Development Funds

In the past, the PNG National Government has allocated funds towards the development of its border areas, for basic infrastructure, such as schools, aid posts, and minor roads; May (2001:297) notes that most of this has occurred in the context of confrontations with Indonesian over the OPM issue (see below). Boyce (1992:157-166), writing of the program in Sandaun Province, found that it had failed to meet expectations to deliver major infrastructure, and was beset with problems of poor coordination with the activities of other national agencies and the provincial government (see Boyce 1992:157-166). In the Western Province, grants have been intermittent, and in the 1990s were rarely paid (Burton 1998:161). In 1997-1998 I was informed that such expenditure in the Torassi borderland had been suspended as a result of local support for the OPM, members of which operate out of the Wereave area on the upper Torassi.

The vast bulk of Border Development funding is soaked up by Sandaun Province, on account of the proximity of the Provincial capitals of Vanimo and Jayapura, and the opening in recent years of a staffed PNG border station at Wutung. In the five years up to 1997, Sandaun and Western Provinces received approximately K300,000 border development funding between them, however, most of this was spent in the Vanimo area (Togarewa 1997:16). In 1997, K275,000 was released by the PNG National Government; most of this money was spent on a Joint Border Survey and facilities at Wutung in Sandaun Province (Anonymous 1997a)⁴.

³ The difficulties of navigating these rivers and the intervening coast were outlined in Chapter 4.

⁴ I met members of this border survey in 1997, which resulted in the construction of new obelisks at the rivermouth and at Sota (Plates 1, 11)

The Flow and Ebb of Government Services

In the early 1980s, the PNG National Government alienated a block of land adjacent to the BWL. This purchase encompassed at least two places belonging to a Maiawa clan, Dembantjepeth and Yentri. An aid post and patrol post were built at the former tract (officially known as Wando Patrol Post), while the Torassi Community School (TCS) was constructed at Yentri (see Figure 5, next Chapter). In 1995 the school had five teachers and approximately 100 students in five grades.⁵ Prior to this, children from the area attended community school at Weam. Both the aid and patrol post have only ever been intermittently staffed. The local Maiawa landowners have demanded compensation for this land, claiming that the original payment was inadequate.

Since the early 1990s the Morehead District has experienced a decline in the provision of useful government services to villages in the area. For example, although a new aid post building and medical staff residence was constructed at Wando Patrol Post in 1994, there was no orderly stationed there throughout my time in the field, nor at the health centre at Bula to the south (see Tapari 1995:7-8). The dissatisfaction with the availability and quality of medical services in the area is such that the Wartha and their neighbours sometimes take seriously ill people over the border to Merauke, or by boat to the medical centre on Boigu Island in Torres Strait, Australia, rather than the clinic at Morehead Station or the hospital at Daru (Tapari 1995:15).⁶

Local people also complain of the failure or great decline of government extension work since the 1980s in areas such as small-scale crocodile farming, new crop projects, and health extension services (e.g. hygiene, nutrition and family planning education) (Tapari 1995:8). Other pressing concerns, such as the establishment of a high school for local children at Morehead, and the provision of basic water services

⁵ The original payment is said to have been K1,600. There was a lack of government housing at TCS in 1997, and several teachers (mostly outsiders) lived in bush material houses, constructed by the Maiawa clan. The Maiawa clan expected them to pay rent, but the teachers refused, stating that they were sub-standard, which led to an ongoing dispute. There was also a long-running argument in the wider community concerning participation in school working bees, to maintain the TCS grounds and children's dormitories; some local people believed that all in the community should participate, while some without children at the school refused.

to drought affected villages have also not been addressed.⁷ As a result, in 1995 Tapari (1995:8) argued that the Morehead District is not any better off than it was a decade ago, and the same applies today.

The government station at Balamuk has also seen a reduction in staffing levels in recent years; during 1995 there was only one Department of Primary Industries (DPI) officer working there, concerned largely with quarantine duties. In 1997-1998, the station was unmanned. A lack of funds to maintain the station buildings has resulted in many falling into disrepair and being overgrown by vegetation (Tapari 1995:8). Many associated installations, such as septic and water tanks, lie derelict and/or damaged. Local people would like to see the Wildlife Station rebuilt and staffed with appropriate government officers, such as DEC officers or rangers, to enforce the rules of the TWMA (see Chapter 9). In addition to the DPI officer at Balamuk, there was also a PO based at Wando Patrol Post in 1995, but this position was also vacant during 1997-1998; neither post has been filled since that time. This government installation also suffers from inadequate funding. For example, although a large antenna stands next to the station office, it lacks a working radio.

In 2000 the Australian Agency for International Development (AusAID) provided funding for a telecommunications project in the South Fly, which resulted in the installation of several radio repeater towers. The system was designed to improve communications in the area, but it was clearly funded and built as part of Australia's security and migration agendas, to provide intelligence on illegal fishing, immigration and other activities in the PNG-Torres Strait and PNG-Indonesia border areas. One tower is located next to the TCS. However, a subsequent lightning strike at the tower situated in Mari, on the coast, has rendered the system inoperable since

⁶ There appeared to be a general perception among Torassi people that anyone who was admitted to Daru Hospital never returned alive.

⁷ The only high school (junior level only) in the South Fly is located at Daru. In 2002 water tanks were supplied to Bula village by the Australian government (Salisbury 2003), as part of a project to develop water supplies in PNG villages with cross-border rights under the Torres Strait Treaty, as well as Morehead Station (Australia, DFAT 1985). The Morehead coastal communities of Bula, Mari, Jarai and Tais are 'signatory villages', with rights to travel to Torres Strait Islands (usually Boigu), ostensibly for traditional purposes. The reality is that most visits are for economic and health reasons.

2001. The Fly River Provincial Government (FRPG) was awarded the contract to maintain this system, but has proved incapable of doing so. During its short operational life, local people found it very useful to be able to contact neighbouring villages and Morehead Station.

In the 1970s, government services and presence in the area were at their height, with Weam, Balamuk and Morehead all staffed by a number of public servants. Like other areas of the country, from the early 1980s these officials and services ebbed away. Today, there is hardly any government presence on the Torassi borderland, apart from a few school teachers at TCS, and a solitary policeman at Weam. There are also a few public servants at Morehead, working at the station headquarters, clinic and school, but their numbers are down compared to earlier years.

Modern Political Structures: Lack of Political Capital

Morehead peoples generally lack political capital in the modern system of Local, Provincial and National Government. As a result of their small numbers, they are demographically unable to influence the election of their national member of parliament (South Fly Open). Kiwai members are usually elected, on account of the numerical superiority of this linguistic-cultural group. Parliamentarians are notoriously partisan. I was told by Torassi people that a former South Fly member, who had also become the Minister for Environment and Conservation, had on one occasion written to Torassi people, vowing never to do anything to support the area, as a result of his poor performance in the Bensbach Census Division. It was said that DEC gave no real support to the TWMA during his ministership, as evidenced by the fact that none of the new rules drawn up by the TWMA Committee were subsequently gazetted (see Chapter 9).

At the time of fieldwork, the Morehead Local Level Government (LLG) was divided into thirteen wards. Each ward comprised several villages, and was represented by an elected Councillor. In the wake of the reforms to the provincial system begun in 1995, Councillors are now referred to as Members. Upon election, they gather to elect one of their own as the President of the LLG. In the past, the President has often been elected from the Suki or Morehead Station area. In 1997 the new Member for the local ward (comprising Wando, Torwaia and Pikunjur villages) was elected to

this position, but subsequently lost it at the next election, although he did retain his ward seat. LLG Presidents also sit on the Provincial Assembly, where they can have some input on Provincial matters affecting their district (Turner 2001:102).

The great distances between villages and the centres of political power—Morehead, Daru and Port Moresby—also means that elected members spend considerable amounts of time at these places. In the case of the Wando member who became the Morehead LLG President, he moved to a house in Morehead, and was also absent in Daru for weeks at a time. Such absences typically lead to accusations that these representatives are ‘ignoring’ their area.

Evangelical Christianity

The 1980s has seen a number of evangelical churches begin operating in the Morehead District, such as the Pentecostals and Seventh Day Adventists. Unlike the Uniting Church (the LMS successor organisation), these groups have eschewed traditional activities such as dancing, yam exchanges and pig killing ceremonies, and marriage practices such as section exogamy and sister exchange. This has led to conflict within and between communities over tradition, religious authority and marriage exchanges. It has also led to disputes between the often poorly educated adherents of the fundamentalist churches, and better-educated and well-travelled community members, who are distressed by the destruction of their culture. Of particular concern to this group is the potential loss of the wisdom and experience of Wartha elders, who are often ignored and marginalised by young, self-proclaimed church leaders (Chatterton et al. 1997:29).

Regional Developments in Southeast Papua Province

Following the Indonesian takeover of the former Netherlands New Guinea in 1962, the Merauke area of southeast Papua Province was transformed by an influx of thousands of transmigrants from other parts of the archipelago (O’Farrell 2001:28; Overweel 1993:39). This has led to great changes to the nature of borderland life, on both sides of the international boundary.

From its early beginnings as a garrison town, Merauke had a very large population. In addition to several European administrators, it included hundreds of Indonesian

police, soldiers and convicts, who were followed by European and Chinese traders during the boom years of copra and bird plume production. A large community of farmers from Java was also established in the colonial period by the Dutch (Garnaut and Manning 1974:85)

Since taking over DNG in 1963, the Javan-controlled Indonesian state has attempted to exploit the province's resources, and Javanize its indigenous Melanesian peoples (Colchester 1986; Nietschmann and Eley 1987). In Merauke Regency, this is evident in the establishment of a *cordon sanitaire* along the border. This is effected by the construction of the Trans-Irian Highway, which seeks to link Merauke and Jayapura overland, and the establishment of transmigration camps along this road, the Maro River, and at border stations such as Sota. Forced relocations of Marind and Kanum peoples have also occurred to 'translocal' camps away from the border area, or they have been resettled as a significant minority within new transmigrant camps (Arndt 1986; Donohue 1996). Much of the vegetation along the border in the vicinity of Sota has reportedly been cleared, in order to provide a clear view of border crossers, and presumably to deny any potential OPM attackers the cover of forest (see below).

These developments have impacted on both the Merauke and Torassi borderlands. For the Marind and Kanum, it has led to widespread dispossession and loss of culture. Many young people no longer speak their own languages, but instead communicate in Bahasa (Donohue 1996). The Trans-Irian Highway means that Sota is only about two hours away from Merauke, making it a conduit for the extraction of resources from both the Merauke and Torassi borderlands, as well as transboundary areas further to the north.

Wildlife Poaching

The people of the Torassi borderland currently face high levels of poaching by Indonesian transmigrants and indigenous peoples operating out of Merauke Regency. The presence of several confiscated Indonesian fishing vessels at Wando and Balamuk bear witness to these incursions; the boats were caught fishing in PNG waters near the mouth of the Torassi around 1994 (Plate 2). Most of these incursions are associated shark fin fishing; with sees the final product end up as shark fin soup in Chinese restaurants across Asia. In August 1997, Bula villagers told me that these

boats are particularly active during *rarapu* (early wet season), when sharks are said to come close in to shore. Around 1992, one of these vessels became grounded at low tide some distance off the mouth of the Morehead River, and the Indonesian crew were killed by Papuan refugees living at or near Bula; these men were subsequently given lengthy jail terms in Port Moresby. More recently, in 2002, a Bula dinghy that went out to confront a fishing vessel was involved in a *melée* in which several men on both sides were wounded. Poaching is also conducted by Marind and Kanum people, who use banana boats to travel along the coast and set nets for barramundi. As one travels between the Torassi and Morehead Rivers, numerous bamboo stakes used for securing such nets are evident close inshore. These men also engage in crocodile poaching, and sometimes sell Indonesian store goods to the Morehead coastal villages of Bula, Mari, Jarai and Tais.

Eaton (1991:72) claims that this exploitation could have serious effects on local fish stocks, especially Barramundi, which migrate into Torres Strait to breed⁸. A lack of fuel and engine parts following the closures of the BWL in the mid- and late 1990s prevented landowners from travelling more regularly to the lower reaches of the river, where such poaching takes place; Wartha state that these visits, as well as those by BWL tourist boats, used to discourage their presence.

Poaching of crocodiles is a long-standing problem. The animals are now rare in adjacent Wasur National Park, and poachers have smuggled the (often oversized) skins back into Papua Province (Eaton 1985:13, 1991:72; Scott 1989:1099; Silvius 1989:1099). At Wando I also observed an Indonesian dugout canoe, taken after a Wartha man surprised a party of crocodile poachers on the Bensbach River; they fled on foot back towards the border. Also in 1997, a crocodile caught by local men bore the wounds of a machete on its lower back, which was said to be the work of a poacher. The BWL manager also fondly recounted 'raiding' several well-appointed camps of Chinese crocodile hunters along the lower Torassi some years ago; shots were fired over their camp, and they ran off to the west, leaving their shoes behind in their haste.

⁸ The sea off Sigabaduru village, opposite Saibai Island, has been identified as a major Barramundi spawning ground (Moore 1982).

In addition, poachers cross the border to take deer, which are also heavily exploited across the border (Stewart 1988). In recent years poachers are reported to have become bolder, using motorcycles to hunt deer on grassy plains west of the Torassi. Visits by local people to the western parts of their territories have been less common since the abandonment of settlements like Muni in the 1950s, following the colonial administration's directive that all Wartha reside permanently at Wando on the middle Torassi.

It is probable that poaching will grow worse in the future as more transmigrants enter the Merauke district in Papua Province, stocks of deer and crocodile in that area decline, and opportunities to obtain cash become increasingly difficult. This is particularly the case for indigenous people; it is possible that some Kanum and Marind poachers participate in this activity as a result of the hardships associated with removal from their original lands and resources into so-called 'translocale' villages (i.e. new settlements within the same general region). In some instances it appears that they are working for Chinese or Indonesian merchants, who are hesitant to cross the border on account of the presence of the OPM. There is recognition that some Kanum people have customary rights to lands and resources in the south Torassi area, and at least one family at Kondo also has rights on account of kinship relations with Wartha people; this is restricted to only one family group, and it is generally understood that these people always ask the permission of local landowners before hunting and fishing on Wartha land. But other Kanum and Marind people, alone or in company with transmigrants, have increasingly been active in poaching on the Torassi.

Wasur National Park, a protected area of some 308,000 hectares, was established in Papua Province in 1978. Various authors have reported that the landscape is being seriously degraded as Indonesian transmigrants and ranchers open up the region to land and resource exploitation (e.g. Petocz and Raspado 1989:61; Wells et al. 1999:106-108). According to the *Directory of Asian Wetlands*, the area

is under great pressure from many sources, and it is estimated that within the next three years, a considerable portion of the reserve will have been destroyed. There are two major road systems in the reserve; a south coastal road from Merauke to the Papua New Guinea border, and the Trans-Irian highway which bisects the reserve into two almost equal parts. In addition, there are many smaller dirt roads and trails. This accessibility has resulted in a considerable amount of illegal hunting, logging, cutting and burning...Some coastal savanna woodland and grasslands...are illegally used by recent settlers for grazing cattle (Silvius 1989:1098).

The increased accessibility of this region and degradation of Wasur has in turn made the homelands of the Wartha and their neighbours more susceptible to the above threats. Unfortunately, there are presently next to no local or external resources available to combat it. Local people would like the PNG government to provide the necessary funding and personnel to ensure effective surveillance of the land and sea border, complemented by rangers to enforce the rules of the TWMA. However, this seems unlikely. In August 2004, the PNG government dispatched a platoon of soldiers to the Weam area on account of OPM activities (see below), but local complaints of wildlife poaching were also cited as a reason for this deployment. In the event, the troops were only there for several weeks (Anonymous 2004).

While the border is fixed, the frontier of Indonesian exploitation is not. Increasingly, the land and resources of the Wartha are being coveted by the inhabitants of the Merauke borderland, as that environment becomes degraded in the context of an exploitative, neo-colonialist Asian frontier.

Health Issues

In recent years it has become apparent that Papua Province has a serious HIV-AIDS problem, with an alarming percentage of prostitutes in Merauke being infected with the virus (Wiebel and Safika 2001:7). Some young Torassi men told me that they sometimes had sex with prostitutes during cross-border visits to Sota and Merauke. While there are no statistics available regarding local infection rates, local people are of the opinion that a number of men have died of the disease in recent years. Here, it should be noted that the capital of the Western Province, Daru, is also recognised as having a major problem with sexually transmitted diseases, including HIV-AIDS (Hammar 1992, 1996a, 1996b, 1996c).

OPM Activity

Since 1962, the peoples of West Papua have resisted incorporation by the Javan state, and the loss of their lands, resources and cultures. Throughout the conflict, the permeable and undemarcated nature of the international border has played a pivotal role in the continuation of operations by the political and guerrilla movement known as the Organisasi Papua Merdeka (OPM, 'Free Papua Movement'). Groups of OPM use the border to evade Indonesian patrols, seeking refuge and support among their PNG neighbours and kin (May 2001:293). OPM fighters on the upper Torassi are said to operate out of the bush around Wereave. When I asked local people if the Indonesians ever managed to apprehend them, I was told that they were unable to do so on account of the OPM being 'clever men', i.e. they used 'black magic' to make themselves invisible to the Indonesian soldiers (cf. Kirsch 1991).

For many years there has been an OPM presence in the Torassi borderland. In 1992 members of the OPM broke into the BWL and stole thirteen high-powered rifles. These weapons were used in a subsequent raid on the Indonesian border settlement of Sota, which apparently resulted in the death of one OPM member, and the wounding of two Indonesian police; after this attack the station was closed for many months (Brian Brumley, pers. comm., 2003). Several of the rifles were subsequently discovered by police at Pikunjur village, where they had been hidden. Several young men for this village were OPM sympathisers; they participated in the break-in, but not the border station raid. Sota was also closed during my first stay in Wando in mid-1995, again due to OPM activity.

Following the theft of the rifles, the BWL manager contacted the police in Port Moresby, which resulted in the arrival of a squad of Force Ten police, a counter-insurgency unit of the Royal PNG Constabulary. Wartha described them as 'not ordinary police, they will beat and whip you, put a gun to your head', and this is exactly what they did to the young men in the area, as well as the local Councillor, for their perceived support of OPM activities.

In the lead up to the 1997 PNG national election, the government sent a mixed contingent of Force 10 and Daru-based regular constabulary to the area, in an attempt to capture the local OPM group, following complaints by PNG citizens on the upper Torassi that they had been harassed and intimidated. Subsequently, its leader and

several other members were captured at Balamuk, severely beaten, and sent to prison for immigration and firearms offences. Most recently, the PNG government dispatched a platoon of soldiers to Weam after reports that a PNG villager had been shot by the OPM near Wereave, and that they had also been levying a toll on people crossing the border. However, the group eluded capture on this occasion (Anonymous 2004).

Borderland Discursive Formations

In the neo- or post-colonial period, colonial, European perceptions of borderland places and people have been replaced by those of PNG and Indonesian officials. From my discussions with members of the former group, it would appear that many (though not all) public servants were not happy with their posting to the Morehead District, as they considered it too remote, and the people poor and lacking in culture and sophistication; some also feared its proximity to the border, and worried about the Indonesians, the OPM, or both. One only has to examine the content of letters and editorials in PNG daily newspapers, such as the *Post-Courier*, to realise that discriminatory labels (e.g. ‘bush kanaka’ or ‘native’) are frequently employed by public servants and members of the PNG middle-class, and that this then incurs the wrath of those so labelled. I cannot say to what extent specifically South Fly perceptions have been internalized by such people in the post-Independence period. However, I do believe that negative views of the region, in particular the border, continue to play a role in local people’s experience of articulation. This is evidenced by the dispute over the quality of teachers’ housing at TCS, and the fact that many public servants posted to remote areas in the South Fly are often absent from their posts, or abandon them altogether. Certainly, this part of PNG continues to be regarded as a hardship post, and it is often the unhappiness of the officer’s family that finally forces the public servant to leave (Brian Brumely, pers. comm., 2003). These problems are not unique to the Morehead District, of course, but it does appear that the remoteness, environment, perceived dangers, and small community sizes are unappealing to many government workers from other parts of PNG. In the next chapter, I suggest that these perceptions of people and place have also played a role in the outcome of disputes between local landowners and the BWL, where public

servants from Daru and Port Moresby have often taken a leading role in attempts to address or assess their grievances.

On the other side of the border, in Merauke Regency, it is apparent that local people, culture and land ownership have been held in contempt by many transmigrants and public officials. The scenario is what one might expect on the frontier of a populous Asian state, where members of a dislocated soldiery and civil service, not to mention transmigrants, perceive the lands and resources of a borderland as open to all, and are often involved in a variety of corrupt, illegal and exploitative money-making ventures, either to support their meagre incomes, or amass wealth (see below). Most of these activities involve the expropriation of local wildlife resources, on both sides of the border. Wartha people experience this directly and indirectly; in the poaching that takes place on their lands, which is often unknown and/or uncontrollable, and in the common experience of being swindled during commercial transactions on the other side of the border.

The Border Treaty, Crossings and Trade

With PNG independence in 1975, all treaties relating to PNG remained in force (Wolfers 1988a:126). The Border Treaty between Indonesia and PNG defined the actual location of the boundary, and was complemented by a 1973 Border Agreement, outlining administrative arrangements with respect to the border. This agreement has been renegotiated, in 1979 and 1986 (see Wolfers 1988:Appendices II.a-c). Border issues are discussed between the two states at annual meetings of the Joint Border Committee, which have taken place since 1981 (May 2001:297).

Most importantly for Torassi people, the Border Agreement allows cross-border travel for traditional and customary purposes by the indigenous inhabitants living within a specified 'Border Area' on each side of the international boundary (see Wolfers 1988:Appendix II.c). As mentioned earlier, the Border Area in PNG comprises those Census Divisions that abut the boundary; in the Morehead District these are the Bensbach and Saru Census Divisions.

Crossings

Border dwellers on either side of the boundary must obtain passes to cross to the other side. Indeed, a pass system had been in place in the PNG southern border area since the early 1960s; on applying for it, the traveller must state the reason for the journey, and the intended duration of their stay (Blaskett 1989:50). The Wartha and other Torassi people must travel to Morehead to obtain passes, which is very inconvenient, given that the border is closer to their villages than this station. When Weam was fully staffed, it was possible to obtain passes there, but this is no longer possible. This aspect of PNG's decline in services in the borderland is seen as particularly annoying, as it creates a long detour in what would otherwise be a direct trip to Sota via Weam. The Wartha, like most Torassi people, generally cross the border at Sota and register with the Indonesian authorities there, although they can apparently also cross the border at other points, such as the Tarl River, or overland at the coast, and register at their destination. For example, Wartha travelling to Kanum and Marind settlements on the southern coast, and Merauke, may cross the border and register at Kondo.

Crossing the border is of great importance to groups such as the Wartha for two main reasons: to visit friends and relatives, and to obtain market goods, such as petrol, cigarettes and vehicle spare parts, which are generally much cheaper (although often inferior) than similar products sold in local trade stores (Tapari 1995:4). While the Wartha do not have the extensive cross-border kin relations that exist between Sota and the people of Wereave and Weam, on the upper Torassi, the Wartha do have family links with Kondo; a Wartha man married a Kondo woman and resides with his family there, and the two communities have long-standing exchange and marriage links.

From Wando to Weam, it is a vehicle journey of some one-and-a-half to two hours in the dry season, but it can take two or three times as long in the wet, due to flooding and bogging. Impediments to travel are not restricted to the wet season however, as in the dry season, regular bushfires burn out log bridges, and fell trees across the road; small trees may be removed by hand or cut with axes, while larger ones may require the creation of a short detour around the blockage. From Wereave it is a short drive or walk along the road (three to four hours on foot), in a northwesterly

direction, to the MM13 border monument (Plate 11); Sota is a short distance west of this marker. Local people show considerable determination in engaging in commercial activity of this sort. As discussed earlier, travel to Sota by vehicle is challenging, as there is no natural river crossing.

Trading

Increasingly, the majority of cross-border travel is undertaken for economic reasons, namely to generate cash income, mostly through the sale of animal, fish and forest products, and then to purchase trade goods for private and family consumption, as well as for later sale back in the Morehead District. Wartha report selling the following products to Indonesian merchants at Sota: candlenuts (*Aleurites moluccana*), chillies, deer antlers, deer and wallaby meat (including locally produced deer jerky), fins from sharks (*Carcharhinus* spp.) and sawfish (*Pristis microdon*), barramundi guts, and Saratoga fingerlings (see also Tapari 1995:7).

A number of people in the Torassi area hold trade store licences, and are able to make some money selling Indonesian market goods such as soap, tobacco and petrol on the PNG side of the border. During the study period the most sought-after goods for later resale were Lampion, a brand of sweet-smelling tobacco, and Wings, a laundry soap. These could be bought cheaply, and sold at considerable profit in PNG, for less than what the BWL stores were charging. For example, in 1997 a box of twenty packets of Lampion, purchased at Sota, cost the equivalent of K18.00; the packets were then sold in villages for between K2.50-5.00. More adventurous travellers sometimes visit Merauke to purchase other goods, although this entails much higher costs in terms of travel and accommodation, although people often stay with kin living in Papua Province, or local officials whom they have befriended, or with whom they have previously established trading relationships.

Those trade store operators in the area who rely on purchases in Papua Province face major difficulties keeping up stock, a situation attributable to transportation problems (particularly poor roads, high fuel costs and lack of a purpose-built barge for the river crossing), limited capital for continued operation, lack of business acumen, and problems of credit caused by relatives not repaying their debts on time (Tapari 1995:13). Another impediment is the fact that Indonesian custom regulations restrict

the purchases of any one PNG individual to approximately 300K worth of goods. In past years the OPM have threatened to shut down this cross-border trade, but in 2004 the PNG media reported that the local commander was illegally imposing a K50.00 toll on people wishing to travel across the border (Anonymous 2004).

Local people will go to great lengths to participate in this trade, as it can be lucrative. It can also involve substantial risk. In 1997 a number of Torassi men decided to travel to Merauke in the wet season by river truck. They entered Papua Province via the Tarl River, which debouches on the coast near Kondo, and from there travelled along the coast to Merauke, taking advantage of the calm waters of the northwest season. After purchasing their goods, they returned back along the coast, but were struck by one of the short, violent storms that are typical of the early wet season. The river truck was capsized by waves, and the crew managed to swim ashore near the coastal Kanum settlement of Tomerau. Although the boat was eventually salvaged, the only trade good to survive was a solitary frying pan.⁹

Cross-Border Trade in Saratoga Fingerlings

The collection and sale of Saratoga (*Scleropages jardinii*) fingerlings by local Torassi people is a key part of the contemporary cross-border economy. Since the early 1990s villagers have engaged in this practice as a result of an increasing demand for this species by the international aquarium industry. The fingerlings are sold to Indonesian merchants operating out of Merauke, where this trade is based, or to their local Papuan agents in the Sota area. The fish are then exported to wildlife trading houses in Asia, where they commanded considerable prices up until the late 1990s.

Distribution, Status and Ecology of Saratoga

Saratoga (Figure 4) is found in central-southern New Guinea and northern Australia. In southwest PNG it has been recorded in streams and lakes in the Western Province, including the Torassi, Morehead, and Fly Rivers, and Lake Murray (Allen 1989:28, 1991:37; Busse 1991a:445; Kailola 1975:32). The fish prefers to inhabit relatively

⁹ River trucks, with their very low freeboard and shallow draught, were never designed for coastal travel, and in this case the boat was also seriously overloaded with trade goods, including fuel drums.

still and slow-flowing sections of streams, swamps and billabongs (ox-bow lakes). Saratoga is a primary fish, having evolved entirely in freshwater rather than from marine ancestors; in consequence it is strictly intolerant of sea water and does not live where any tidal influence is felt.¹⁰ The fish is frequently seen near the surface or close to shore among aquatic vegetation, where it opportunistically feeds on terrestrial insects as well as frogs, some plants, small fish and crustaceans (Allen 1989:28; Herbert and Peeters 1995:19; Larson and Martin 1990:3). In Australia, Saratoga is a popular angling fish, prized for its fighting qualities rather than its mediocre table qualities. Since the 1970s it has been pond bred to stock recreational impoundments in Australia (Herbert and Peeters 1995:19-20; Merrick and Green 1982:172; Merrick et al. 1983:195; Rodgers 1998). After the Barramundi, it is the most sought-after fish by anglers visiting the BWL.

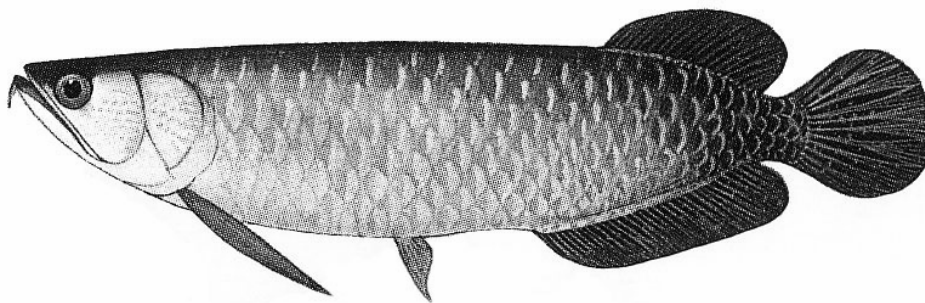


Figure 4: Saratoga, Scleropages jardinii (Allen 1991:Plate XII, No. 2).

Saratoga begin to reproduce at approximately 45 cm in length, when they are about four or five years old (Allen 1989:28; Larson and Martin 1990:3,6). Spawning generally occurs prior to the wet season, in September to early November. Fecundity is low and generally ranges from 30-130 eggs, depending on the size of the fish (Allen 1989:28; see also Larson and Martin 1990:5-6). It is a mouthbrooder or buccal incubator, with the female carrying the eggs. The eggs hatch after one-two weeks.

¹⁰ Numbers of this fish were killed during the 1998 El Niño event, when salt water penetrated the Torassi up to the junction with the Tarl River.

They are kept in or close to the mouth for another four or five weeks, and during this time the mother carefully guards her offspring, recalling them to her mouth when necessary. They eventually become independent of the female parent at a length of about 3.5-4 cm, and they are approximately 10 cm long at three months of age (Allen 1989:29). Due to their slow breeding capabilities and the limited number of eggs that can be incubated in the mouth of the parent female, Saratoga populations cannot withstand high fishing pressures (Herbert and Peeters 1995:20; Rodgers 1988:139).

Background to the Trade

Saratoga became popular as an ornamental fish in the wake of the demand for Asian Arowana (*S. formosus*), which, from the 1970s, became much sought-after as a 'good luck' fish in parts of Eastern Asia, commanding 'incredible prices' (Ng and Tan 1997). In China and Japan, Arowanas are also known as 'Dragonfish', and are considered to have descended from these mythical beasts, on account of their barbels and brightly coloured scales. Dragons, and the red and gold colour of some Arowanas, are considered propitious in these cultures, and the fish is also said to ward off evil (Anonymous 1998; Joseph et al. 1986:73; Luxmoore 1990; Ng and Tang 1997:85). The popularity of Arowanas led to a demand for the other species of bonytongues, apparently fuelled by the following factors: (1) the association with good fortune; (2) increased scarcity of *S. formosus*; (3) interest in the antediluvian appearance of bonytongues among aquarium enthusiasts; and (4) the fact that the other species are generally less expensive than Arowanas. There have been a number of surveys and reports on the international trade in the various species of wild and captive-bred bonytongues (e.g. Anonymous 1998; Joseph et al. 1986; Luxmoore 1990; Matsumura and Milliken 1984; Ng and Tan 1997; Stronach and Bowe 1995).

Relevant Legislation and Regulations

Saratoga is a protected species in Indonesia under decree *Surat Keputusan Menteri Pertanian No.: 716/Kpts/Um/10/1980*; however, laws protecting designated species in Papua Province are almost totally disregarded (Allen 1991:37; Petocz and Raspado 1989,152,160). A thriving illicit trade in the Saratoga has existed in Papua Province for a number of years, which has depleted populations of the species in Wasur National Park (e.g. Stronach and Bowe 1995).

While the treaty between PNG and Indonesia allows ‘customary cross-border trade’, it is stipulated that traded goods are limited to those not prohibited by either country. The traffic in Saratoga fingerlings could therefore be interpreted as violating these provisions of the treaty—the trade could not be argued to fall within the definition of ‘traditional’, and the fish is a totally protected species in Indonesia. Further, the treaty also states that both governments will endeavour to cooperate to protect indigenous species that are or may become threatened with extinction in the Border Area. To date, such inter-state cooperation has been lacking.

Saratoga is not a protected species in PNG. The current TWMA rules cover the exploitation of deer and fish caught by tourists visiting the BWL, i.e., harvesting by outsiders (see Chapter 9). Although many villagers have expressed fears about the impacts of the trade on the river’s Saratoga population, the need for cash in this underdeveloped part of one of PNG’s poorest provinces has outweighed concerns about the sustainability of this practice (see below).

Among Wartha and other peoples of the Torassi, Saratoga is an important food fish. Since the early 1990s, it has also been a key source of income for local villagers, who collect fingerlings for sale across the international border (Chatterton et al., 1997:45). Mouthbrooding Saratogas are targeted in the early wet season, around November to January. At this time of year, the river levels begin to rise with the onset of the rains, and adjacent creeks and swamps that were dry, begin to in-fill.

The three most common methods employed by villagers to catch *keware* are: (1) blocking of small streams and drainage channels with nets where they intersect with the main river channel, followed by the driving of fish in the creeks downstream to the nets by beating the water; (2) setting nets at night, and waiting on the riverbank to check these when splashing is heard, indicating that a Saratoga may have been caught; and (3) spearing them from a canoe using bow and arrow. When a mouthbrooding female is captured, it is often the case that most of the fingerlings are still inside the buccal cavity; fingerlings that escape or fall from the mouth are sometimes retrieved with the aid of small, fine-mesh handnets. Plate 8 demonstrates the method of expelling fingerlings from a female: the mouth is held open, and the fish is shaken with the mouth directed into a plastic bucket or other receptacle.

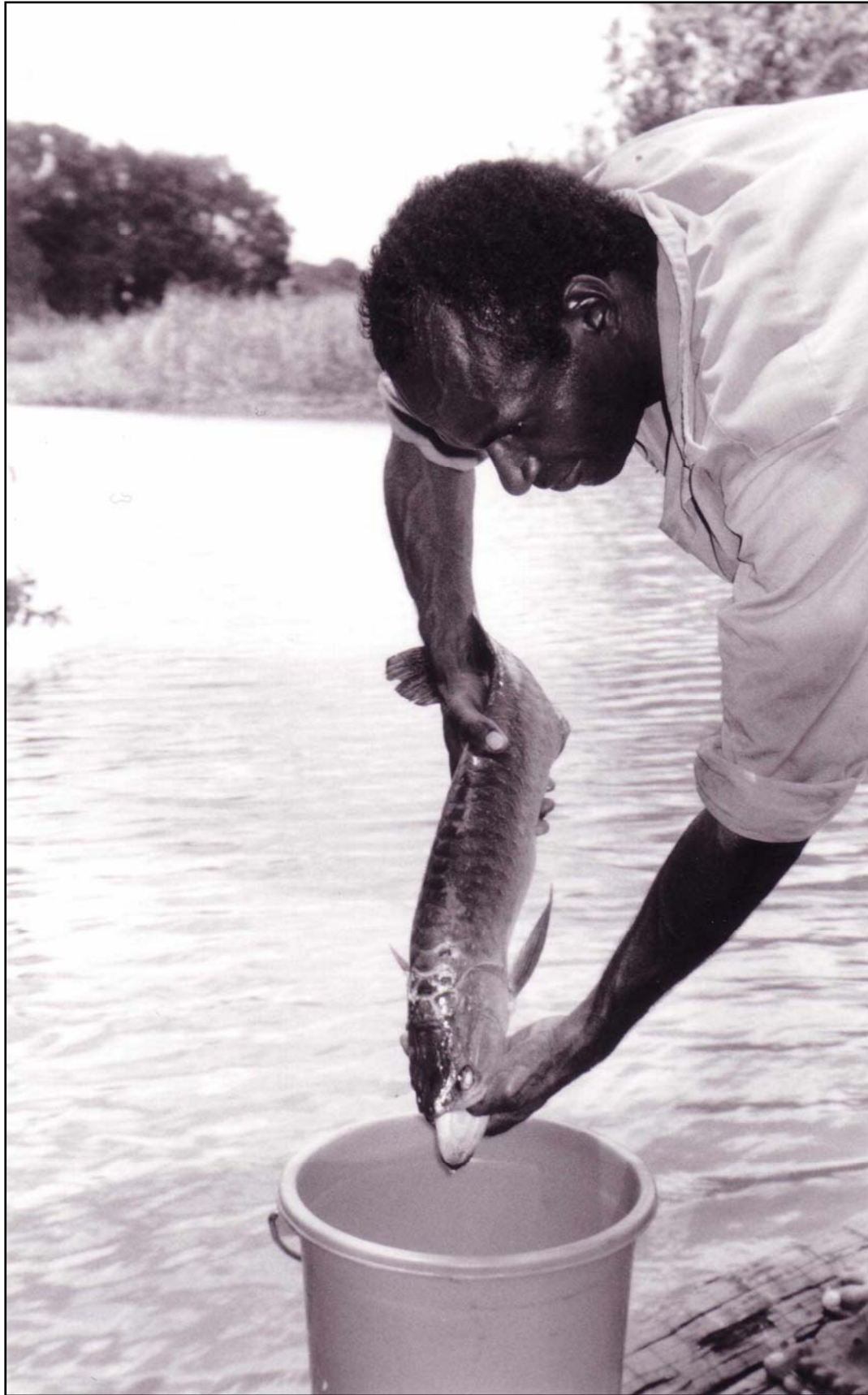


Plate 8: Budai Gusai, of Pikunjur village, demonstrating the method of expelling Saratoga fingerlings from the buccal cavity of the female parent. 24 January 1998.

Captured adult females are generally eaten by the villagers, although those that survive netting are sometimes released (i.e. those that are retrieved quickly, before they drown). The fingerlings are generally kept in buckets, while very large numbers of fingerlings may be stored in canoes half-filled with water, moored among riverbank grasses at the edge of the riverbank, and covered with sheets of Melaleuca (tea-tree) bark or plastic to protect them from predators such as waterfowl.

Local people recognise that they are being exploited by Indonesian merchants in the course of this trade. Some have attempted to negotiate for higher prices, but such moves are generally not successful, as the Indonesian traders are commercially sophisticated, and there are always others willing to sell at any price to obtain a little cash. Torassi people are woefully underpaid for their efforts (and sometimes not at all), and also encouraged to spend the money purchasing products from their own stores at Sota. In particular, the traders capitalise on local people's ignorance of exchange rates, and a local perception that 1 Kina is equivalent to Rp 1,000 (when in fact in January 1998 the Kina peaked at over Rp 8,500). Local people sell the fingerlings for K1.00 at Sota, which are then said to fetch the equivalent of K5.00 on the black market in Merauke; they sell for far more than that to buyers further up the chain.

The cross-border traffic in fingerlings is one of only a few ways that local people can quickly obtain money to pay for such things as school fees, and store-bought foods, fuel, and other household items. One or two villagers, working together, can quite easily obtain upwards of a thousand fingerlings in the course of a day; one pair of Torassi men stated that they had sold a total of 1,087 fingerlings between them in the 1997 collecting season. While I was unable to obtain accurate estimations of the numbers caught annually by local people, on account of the dispersed nature of local settlements, there can be no doubt that it runs into the tens of thousands at least. A PNG border official estimated that over ten thousand fingerlings had been taken from the Torassi river in 1994 (Chatterton et al. 1997). The amount traded was certainly much higher in 1997, for reasons discussed below.

Impacts of the Trade on the Australian and World Market

The cross-border trade in Torassi Saratoga fingerlings has had negative impacts on the local fishery, but its impacts have also been felt beyond the river. Breeders of this fish in Australia have gone so far as to blame the Torassi trade as being responsible for a decline in world prices for this aquarium species, and consequent collapse of a formerly lucrative Australian trade in Saratoga exports (Bruce Sambell, pers. comm., 2004; Gordon Stables, pers. comm., 2000). It appears, though, that the Torassi trade is part of a much larger export in the species, right along the southern New Guinea border (see below).

Matsumura and Milliken (1984:43) state that in the early 1980s Japanese importation of Saratoga had only recently begun and was at that time in very small numbers, with the first two specimens being imported in 1980. Their 1982-83 survey of ornamental fish shops identified only six specimens of *S. jardinii* and seven *S. leichardti* (a similar species, restricted to Australia) with prices equivalent to between US\$640 and US\$1,280.

Several native fish breeders I interviewed in Australia reported that in the late 1980s, fingerlings exported for sale in Japan were worth approximately wholesale USD100, and retailed for up to treble that amount. This probably reflects a stabilisation of the market following the higher prices paid for the species when it first entered the country. According to the Australians, the huge influx of Saratoga fingerlings from the Torassi flooded the market and led to a collapse in prices. They blamed Chinese merchants involved in the Indonesian trade in Saratoga in Papua Province, as being responsible for depressing the market; one dealer stated that it had depressed the market for all other species of bonytongue. They also reported that many exotic wildlife dealers in Hong Kong and Tokyo are no longer trading in Saratoga, as they are no longer considered rare, and accordingly do not attract high prices.

At present, Australian fingerlings for export are said to be worth around 8 US dollars wholesale, and as such are the least expensive of the bonytongues. Few Australian traders now export the species on account of these low prices; one commercial fish breeder stated that where breeding and sale of the species was once a 'goldmine', it is now hardly worth the effort.

Impacts on the Torassi Saratoga Fishery

It seems likely that the overexploitation of the fish in Indonesia's Papua Province resulted in the demand for Torassi River fingerlings. The trade is based in Merauke, which is linked by the Trans-Irian Highway to Sota. It is to this settlement that Torassi people travel to sell their fish to waiting buyers. The proximity of the Torassi to the Indonesian border, and Merauke, makes the trade feasible, cost-effective, and lucrative for the Indonesians.

Local people have expressed concern at the potential of this trade to impact deleteriously on local populations of Saratoga (Chatterton et al. 1997:45). During my time in the Torassi River area, three events coincided to put especially severe pressure on the local Saratoga population during the spawning season of 1997. First, the collapse of the Indonesian economy from mid-1997 in the wake of the Asian financial crisis, and its subsequent impacts—a significant decline in the international value of the Rupiah, and rising inflation and unemployment (Sharma 2003)—saw a substantial increase in demand for fingerlings from Indonesians, including many who had not participated in the trade before. I was informed by Torassi villagers that numerous police officers, military personnel and other government functionaries in the Merauke region had also begun to take an active part in the purchase of fish, in order to supplement their now meagre incomes.

Second, this year was also marked by the 1997 El Niño drought event, the most serious drought of the past century in the Western Pacific, which significantly affected PNG agricultural production (Allen and Bourke 2001). Although the Torassi area was not as affected as other parts of the country, the unusually low rainfall (858 mm recorded for the year at Wando village on the middle Torassi, i.e. 50% of the normal annual amount) resulted in poor crop harvests. As a result, the inhabitants of a number of villages in the area, including those located some distance from the river, camped en masse along the Torassi, to collect and sell Saratoga fingerlings in order to purchase additional food (rice in particular) from local and Indonesian trade stores. Combined with an existing local economic downturn created by the temporary closure of the BWL, this further spurred fingerling collection. I would conservatively estimate that tens of thousands of Saratoga fingerlings were taken from the river that year for sale to Indonesians.

Third, the drought led to what was claimed to be the most northerly intrusion of salt water up the river, at least in living memory, to around the confluence of the Torassi with the Tarl River, over 100 km upstream. This resulted in the deaths of many freshwater fish and turtles in the affected lower and middle reaches of the river.

Local people report that seasonal harvesting of fingerlings over the last decade or so has resulted in a marked decline in stocks of Saratoga in the Torassi River. This is not surprising given the slow sexual maturity and low fecundity of the species, the high numbers of fish (fingerlings and parent females) caught in recent years, and the fact that the species is also a food fish for local people. The recent introduction of several exotic fish into the Torassi, discussed in Chapter 4, may also threaten the species further; one of these fish, the Striped Snake-head, *Channa striata*, is a particularly voracious predator of native fishes (Allen 1989; Hitchcock 2002). All indications point to the fact that the cross-border trade in fingerlings is unsustainable in the long term (Chatterton et al. 1997:45), although accurate data on wild population numbers and fingerling harvests, with which to make informed inferences about the future of the Torassi fishery, is currently lacking. Increased local awareness of the breeding ecology of this fish, and small-scale business skills including knowledge of foreign currency conversion rates, could perhaps encourage a more sustainable cross-border trade. Although Saratoga now commands low international prices as a result of over-harvesting, there is no sign that this has lessened the demand for species by Indonesian traders, who are actively sourcing the fish from other borderland waterways such as those near Suki, via the Indonesian border post of Erambo which is also located on the Trans-Irian Highway (Grahame Martin, pers. comm., 2004). Export of Saratoga fingerlings from the middle Fly area to Singapore, by air from Port Moresby, also began in 2004 (Jacob Wani, PNG National Fisheries Authority, pers. comm., 2004). This suggests that the world market remains lucrative, where large numbers are able to be procured cheaply from PNG's borderlands, from local village people who have few other sources of cash income.

Pond breeding of the species in Australia does not appear to have made the trade in New Guinea fingerlings any less lucrative either, as the costs associated with such breeding mean that wild-caught fish will always be cheaper and easier to procure. While there remains a demand for such fish in Asia, the trade in cheap, wild-caught

fingerlings from the Torassi and other places, procured in an exploitative and unregulated frontier context, will in all probability continue.

Sustained harvesting could well extirpate the Saratoga population in the Torassi. Here it is important to note that the upper reaches of the Torassi, which do not appear to be regularly visited by local people, may serve as a refuge for local stocks. Nonetheless, even these areas could be targeted in the future. There is also the possibility that the trade could spread to the nearby Morehead River, the next stream to the east. Saratoga is also present in this waterway, and a road links it to the PNG-Indonesia border.

Although the trade, which takes place in two protected areas, is of concern to many local people, and the international NGO WWF, nothing concrete appears to have been done which might reduce harvesting of the fish to sustainable levels. Given the atrophy of PNG government services in rural areas, it is unlikely that any DEC support can be given to Torassi people to help them control or manage the trade, or assist them to obtain higher prices for their product, perhaps through other markets. Nor is it likely that any restrictions would be welcomed or observed by local resource owners. PNG law and the TWMA rules recognise indigenous land and resource ownership, including their right to commercially exploit wildlife species. To date, the TWMA rules have focussed on controlling the exploitation of fauna by outsiders, rather than Morehead District people. In the unlikely event that controls were introduced to manage local exploitation of Saratoga stocks, it is very difficult to imagine that these could ever be effectively enforced (see Chapter 9 for discussion). WWF has been active in Wasur National Park since 1991 and TWMA since 1996. Although they have conducted research on Saratoga exploitation in the former area, there is no evidence to suggest that they have been able to do anything to encourage a sustainable trade, nor is it likely they would be able to, given that the trade is corrupt and actively engaged in by military personnel and staff of Indonesian government agencies.

Attempts to regulate or stop this trade by locals, government, or NGOs are therefore unlikely to succeed, given the absence of state assistance, almost certain local opposition, and the lack of alternative sources of cash income in this poor frontier region. Any such moves will need to balance concerns over stock sustainability with

local resource ownership and poverty, and the people's desire to alleviate their situation through the sale of their wildlife. Environmental management is ultimately about managing people and their behaviours. In this context, it seems that time and market forces will ultimately determine if the supposed fortuitousness of the species will result in its extinction on the borderland.

Commoditisation of Wildlife Resources

The environmental and infrastructural factors that characterise the Torassi borderland have imposed limitations on the opportunities for villagers to embark on cash generating economic ventures (Tapari 1995:9). Nonetheless, local people have made efforts to improve their economic well-being by utilising their natural resources. This has not been without problems, as disputes over territorial boundaries and resources have increased in recent years, as villagers have come to realise the value of these as commodities in the cash economy. The fact that only a few families control many of the key resources, by virtue of the nature of their extensive land ownership, and the localised distribution of some resources in the landscape, is central to the unequal distribution of cash incomes, and subsequent disputes in the area.

There have been numerous accounts of the experience of large-scale development projects in Papua New Guinea societies, such as forestry, oil and gas, and minerals. However, there has been comparatively little written on smaller-scale business ventures involving the development of wildlife resources. In this section I present a brief overview of three examples of resource commoditisation of wildlife in the post-statehood period: (1) culling and farming of *Rusa* deer; (2) crocodile shooting and farming; and (3) botanical bioprospecting by Australia's Commonwealth Scientific and Industrial Research Organization (CSIRO). These are among the most salient forms of capitalist activity in the Torassi borderland, and have been the subject of previous research and analysis (Dundon and Wilde 2000; Tapari 1988, 1990, 1995; Ranck and Tapari 1984). In the following discussion of the commoditisation of these resources, I suggest that social and cultural factors have been largely ignored in accounts of their successes and failures, and associated social disruption.

Rusa Country

In an area that is generally regarded as a backwater in the least developed Province in the country, the coming of the deer has been a catalyst for local people's engagement with the capitalist market. Indeed, the presence of the species goes beyond the landscape; it is now considered emblematic of the Torassi, and a part of local people's identity, so much so that locals and outsiders alike often refer to the southern borderland as 'Rusa Country'.¹¹

Distribution and Ecology of Cervus timorensis

Rusa deer are a subgenus of four species of three-pronged, Old World deer. Javanese or Timor deer (Cervus [Rusa] timorensis) are a small to medium bodied, gregarious species adapted to tropical environments, comprising several subspecies. They are native to Java, Timor, Maluku and other islands in western Indonesia. In the Indo-Malay archipelago, Rusa has a long history of importation into other islands previously uninhabited by the species. In modern times, it has also been successfully introduced to Australia, New Zealand, Mauritius and Madagascar (van Bemmell 1949; de Garine-Wichatitsky et al. 2003; Geist 1998:73,78; Laurie and Hill 1954:90; Veevers-Carter 1979:55).

Rusa deer are highly adapted to the marked seasonality of tropical grasslands and savannas. They require little water, and can apparently thrive in environments where it is absent (Geist 1998:77; Hoogerwerf 1970:Ch 39; Veevers-Carter 1979:55). They feed on a wide variety of vegetation, including grasses, trees and shrubs, and aquatic vegetation (Bentley and Downes 1968-1969:4; de Garine-Wichatitsky et al. 2003; Hofmann 1985; Hoogerwerf 1970:Ch 39). Typically, Rusa live in herds, which can comprise more than a thousand animals (Hoogerwerf 1970:276). The species used to be very common throughout its natural and extended range, especially in Java, but this is no longer the case as a result of reduction in their habitat associated with

¹¹ The Wartha and their neighbours take great pride and delight in showing off this resource to outsiders, in particular, other PNG citizens, who often cannot believe their eyes when they gaze upon the thousands of animals roaming the Bula Plains.

deforestation and human population growth (Hoogerwerf 1970:276-278; Veevers-Carter 1979:55).

Introduction of Rusa to New Guinea

Rusa deer were introduced into DNG in the early years of the last century, and from there spread into PNG. Today they are found over a large part of the island, from the Bird's Head to Gulf Province in PNG, as well as the Jayapura region (Petocz and Raspado 1989:70). Different dates have been given for the introduction of the species to the Merauke area, but it seems that it was in the 1920s.¹² In 1960s, the folk explanation among Dutch expatriates in Merauke was that they were introduced because the indigenous Papuans were deficient in protein, and also because deer meat might stop 'cannibalism' (Tayag 1962:13,48). However, it is more likely that deer were introduced as a meat source for the Dutch colonialists and their Indonesian garrison and convicts. It is not clear whether the deer later spread through deliberate release into the wild, or escape from captivity. Torassi people believe that it was the latter.

Deer of the Bula Plains

Some time in the 1940s, the first wild descendants of these animals began appearing in the Torassi borderland. Prior to this, some Torassi people had seen the animals while in Merauke on trading visits, and had reported the existence of a new, wondrous animal, to other villagers. For those who had never before encountered Rusa, the experience of 'first contact' could be terrifying. A well known Wartha story recounts how one man fled up a tree upon seeing a 'giant pig' with strange horns, and became trapped there for hours as the animal lazily grazed, then slept underneath the branch in which he was perched.

¹² Downes (1969:98) and Lindgren (1972:6) state 1920, while Stronach gives 1928. Van Bommel (1949) notes that deer were introduced into Geelvinck Bay and Hollandia in 1913 from the Halmaheras, and to the Onin Peninsula from Ceram in 1913. Bentley (1998:183) contends that the deer introduced to Merauke are the smaller subspecies, Moluccan rusa (*C.t.moluccensis*).

Downes (1968-1969:97-99) provides information on the history of Rusa in the South Fly. He notes that the first records of deer in administration patrol reports date from the mid- to late 1950s. As some people in the Morehead District only encountered their first deer as late as 1956 and even 1960, he concludes that 'a considerable upsurge in numbers seems to have occurred in the late 1950's and early 1960's' (Downes 1968-1969:99). Stewart (1981:1,Map), interviewing older men throughout the TWMA in 1981, estimated that they first arrived in the Torassi area in the 1940s.

Once established on the Bula Plains, Rusa increased dramatically, and today they number in the tens of thousands (Dickens 1978:9.1; Downes 1968-1969:98-99; Osborne 1989:1140; Stewart 1981:36).¹³ This population explosion is attributable to the highly suitable environment, with its vast grassy plains, and dense mats of swamps grasses and other herbaceous swamp vegetation. Bentley (1998:182) states that the Bula Plains population is 'without a doubt, the biggest herd of deer in the Australasian region (excluding New Zealand)'. The deer have since spread along the south coast of PNG and have even swum across Torres Strait to Saibai Island (Singe 1979:187,205).

In addition to humans, the only predators the deer have are crocodiles, and packs of wild dogs that roam the plains. Hunting and natural predators have little effect on herd mortality, however, compared to that which occurs every dry season, as a result of absence of water (the Torassi in the Bula Plains area becomes brackish to salt in the dry season), loss of pasturage due to overgrazing and drought, combined with the poor condition of rutting males at this time (Ranck and Tapari 1984:165; Stewart 1981:32,36). Large numbers of deer also become trapped in muddy pools. Too weak to extricate themselves, they are attacked by wild dogs, or die of thirst (Stewart 1981:33). Thousands of deer may die during the extended droughts associated with El Niño events (Brian Brumley, pers. comm., 1997; see also Ranck and Tapari 1984:165).

¹³ There have been a number of estimates of deer numbers on the plains, some based on aerial counting, ranging from 5,000-60,000 (e.g. Downes 1969:99; Lindgren 1972:8; Paijmans et al. 1971:16; Stewart 1981:36).

At first, deer were not hunted by local people (Bentley 1998:182). Today, however, they are a significant part of the diet, although pig remains the preferred game animal, largely on account of its high fat content and the prestige associated with killing these fierce animals. Rusa deer are a fairly compact and small-bodied animal, and the meat is very lean.

Commoditising Rusa

From the 1960s, the colonial administration and private business became interested in the potential to exploit this plentiful new resource. The Department of Agriculture, Stock and Fisheries began investigating the potential of Rusa deer in the late 1960s (Bleeker 1971:121; Downes 1972:241). As Lindgren (1972:4) notes, increased government attention was focussed on a meat-producing industry based on sustained yield harvesting, and/or the establishment of a small-scale tourist industry based upon safari-style tours. There was also concern about threats to other sectors of the economy, in particular cattle production, in terms of the possible role of deer as a vector for introduced diseases and parasites from across the border. In addition, controlled harvesting was seen to be beneficial to the local environment, as research was beginning to highlight the negative impact of this cervid on the vegetation of the Coastal Plain (e.g. Anonymous 1980; Henty 1982; Paijmans et al. 1971; Wren 1968:49). Consequently, ecological investigations were begun to determine the density, distribution and spread of the population, the significance of parasites and disease, and the potential value of the herds as a source of meat (Downes 1972:241; Lindgren 1972; Wren 1968:49), and a wildlife research station was constructed at Balamuk around 1970 for this purpose (Herington 1978:7).

The first attempt to commoditise Rusa occurred from 1965 to December 1967. An Australian firm, Northern Frozen Foods Pty Ltd, employed commercial shooters in the south Torassi area. Based on a vessel, these men shot animals at night within a few miles of the river. Approximately 15,000 deer were killed over this period, and the meat was frozen and flown to Port Moresby for shipment overseas (Downes

1968-1969:99; Stronach 1995:9).¹⁴ One of these shooters, remembered by local people as ‘Bert’, was active on the Bula Plains, erecting a base camp at Garmari. Remains of this camp, including rusty metal equipment, are still evident there today. ‘Bert’ may be the deer shooter ‘B. Johnson’ referred to in the CSIRO land survey of the area (Paijmans et al. 1971:121). According to the Wartha, this man also set nets for barramundi. Wren (1968:33) notes that the M.V. *Lakatoi*, a privately owned vessel, was engaged in the fishing and deer shooting industry on the Torassi at this time. A number of local people were employed by the shooters to assist with this extraction of this resource.

In 1967 the company experienced financial difficulties and quit the area. As the company did not export whole carcasses, the partial remains of thousands of dead animals were left rotting on the plains. This large-scale killing and perceived wastage angered local people, and encouraged them to work with the government to establish the TWMA (Chapter 9), to prevent the uncontrolled exploitation of this and other resources by outsiders and tourists in the future (Dickens 1978:9.1; Downes 1968-1969:99; Eaton 1985:10).

Government Attempts at Deer Farming

In 1978 the Department of Primary Industries entered the area to initiate a deer farm project, with the aims of assessing the viability of a local deer industry, providing business and cash earning opportunities for landowners, and training in animal husbandry techniques. Due to poor funding and staffing, serious drought (in 1978) and equipment falling into disrepair, the initial idea of a cash-earning venture was dropped in favour of an experimental farm. In 1982, after 30 months of operation, the Balamuk deer farming project was abandoned (Stewart 1985:384).

Towards the end of this project a United Nations Development Project (UNDP) volunteer was in charge of the deer farming project (Anonymous 1979; Ranck and

¹⁴ The carcasses, including only the hind and forequarters and the saddle, were frozen and shipped by air to Port Moresby for overseas export. Tapari (1990:32) notes that an expatriate businessman started a small operation in the 1960s based on obtaining hides and collecting antlers for trophies, which may refer to the same operation.

Tapari 1984:168). His investigations led him to conclude that deer farming was not viable due to the high costs of freezing and transporting carcasses to sufficiently lucrative overseas markets (Stewart 1981:36). Instead, he argued for the establishment of a small, rural development project based on dried deer meat (jerky) (Stewart 1981:36-37, 1985:385). Drying sheds were subsequently built at Wando and Bondobol, but the project failed. According to local people, this was due to marketing problems. This is only partly the case, as it appears that the departure of the UNDP volunteer, and the questionable economics and practicality of the proposal, were also to blame (see Ranck and Tapari 1984:170).

According to Stewart (1985), the following problems led to realisation that the project would be unprofitable, and its subsequent abandonment:

high freight costs occurred in bringing materials and supplies to the site, the difficulty and cost of preparing a farm site in an area which is annual inundated in the wet season and yet devoid of all surface fresh water in the dry season, and a drop in the world price of velvet.¹⁵

Ranck and Tapari (1984), while noting these problems, focus on the social issues associated with the project. They found that many of the promises made by the government were never honoured, resulting in anger and frustration in the local community. Other grievances included the limited employment opportunities, and long delays in wage payments from Daru (Ranck and Tapari 1984:166). Although some 200,000K was spent on the farm, no rents were ever paid to local landowners by the government. A Lands Department survey was required before rents could be paid, but this never occurred, which exacerbated villagers' bitterness and disillusionment (Ranck and Tapari 1984:172; Tapari 1990:32,35).

Ranck and Tapari's insightful assessment of the project identified a lack of effective participation by Wartha, and a lack of understanding about their culture, economy, and ideas, as among its worst faults, and believed that these contributed to its ultimate failure. These are problems which beset many development projects:

¹⁵ According to Stewart (1985:385), the project was dropped from the 1982 government budget as a result; Tapari (1990:35), perhaps following Eaton (1985:9), says it was abandoned due to cuts in public expenditure in the 1981 budget.

no allowance seems to have been made for the fact that at least two totally different cultures are coming into contact in these programs. What seems eminently reasonable to one side is totally unacceptable to the other, and vice versa. This project takes place in a number of different worlds, with nothing built in for mediation and understanding (Ranck and Tapari 1984:171).

Nowhere is it even considered how long it may take to understand local attitudes and feelings, much less train villagers to positions of responsibility. It seems to be taken for granted that they will grasp the intellectual essentials, ethics and attitudes necessary in no time at all. When they do not, they tend to be written off as recalcitrant, ungrateful, and resistant to change (Ranck and Tapari 1984:172).

These difficulties are exacerbated by structural issues and the capitalist financial ideology associated with development programs, including hurriedly-constructed projects, the demand for short-term results, and annual acquittals of funding (Ranck and Tapari 1984:171).

NAMI (Northern Australian Meat Industries)

From 1985, an Australian company, Northern Australia Meat Industries (NAMI) began negotiating with the PNG national and provincial governments, and the local people, with a view to establishing a small-scale deer farm in the area, operating out several vacant buildings at Balamuk Wildlife Station (Tapari 1990:36). In 1988 a company representative presented NAMI's terms of reference to local people (Gleeson 1988). This document outlined the company's proposals and the expected flow-on benefits to the local community, which included employment, land rents, and improved roads. The original project had two aims: the production of processed deer meat, and the creation of a domesticated herd for subsequent live export (Tapari 1990:36). The first aim was subsequently abandoned when processing game meat locally (i.e. establishment of an export-quality abattoir) was found to be uneconomical (Brian Brumley, pers. comm., 1995). Attention then turned to the capture of large numbers of *Rusa* for live export to the Asian market, in particular Malaysia.

Tapari (1990) has written of the early period of NAMI operations, but there has been no subsequent account of the project's disappointing trajectory. Even at that time, though, problems were beginning to emerge. These included considerable concern and confusion among local people about NAMI's proposals, particularly the lack of a formal written agreement between the company and villagers (Clough 1988:1). There

was also anxiety over payments for the deer, as most people knew that NAMI would ‘attempt to maximize profits by buying cheap and selling at the maximum price that the market will bear’ (Tapari 1990:37). One of the key disputes between Wartha and the company stemmed from the fact that while the BWL paid K15.00 per head of deer, as a trophy price, NAMI only offered K7.00 head, as a culling price, and they simply could not understand the difference (Tapari 1990:37). I believe this again highlights the Wartha emphasis on calculations of equivalence, which now conflicted with the idea that deer could have different exchange-values in different contexts. Nonetheless, NAMI could well have afforded to pay K15.00, as a former NAMI employee reported that the expected sale price of export Rusa hinds from the area was AUD\$1,000 (Col Morgan, pers. comm., 1998).

Around 1991, NAMI began to suffer a number of problems relating to the vagaries of the international game meat market. The company lost a lot of money when its biggest market for Australian wild pigs, Germany, claimed that they were exporting domestic animals. Although this was not true, by the time this had been demonstrated to the Germans, the company had lost a million dollars in sales, and many regular buyers. In addition, the price of export deer fell by two thirds, to around AUD\$300, as the Australian Rusa farming industry began to develop and compete in the world market (Col Morgan, pers. comm., 1998).

From NAMI records I observed at Balamuk village, it appears that their PNG operation was the most peripheral, and when the company began experiencing these difficulties, there was an almost complete breakdown in communication between its Brisbane headquarters and Balamuk, and a freeze on funding for wages and equipment. The end came when NAMI could not recover from its large financial losses, and was eventually wound up (Brian Brumley, personal communication, 1995). Local people were never paid for the deer that had been captured so far, as the director of the company had made a verbal agreement to only pay landowners once the deer were actually shipped.

According to the BWL Manager, at the time of its collapse NAMI had 350 deer ready to be exported, which were held in a large enclosure at Balamuk. At this point, the last of the company staff had left the area, and the export vessel never arrived as planned. Local people had been employed to bring these animals food and water, but

they had ceased doing this after the the NAMI workforce departed and their wages stopped being paid. Finding the deer in a distressed condition, the BWL manager broke the chains on the fences, and released them back into the wild.

Local people remain very upset about this experience, as NAMI failed to keep its promises, and never paid them for their deer; as far as they are concerned, when the company captured and penned them, they had bought the deer. Demands for compensation are still being made (see next chapter), despite the fact that the company no longer exists—reflecting local people’s poor understanding of business operations, and the cultural emphasis on the careful calculation of loss or shortfall, and the expectation of restitution.

Deer Today

Today, local people kill a small number of animals for market sale. For example, deer are killed and sold at Morehead Station; in 1997 a whole animal fetched between K25.00 and K30.00. Only a few animals are sold, however, as Morehead has few public servants, and opportunities to transport meat there are limited. Villagers also make jerky to sell across the border at Sota. The deer meat is cut up into thin slices, salted and sun-dried. Antlers are also collected and sold to traders there; these are later made into rings and carved knife handles.

It seems unlikely that there will be any future development of the *Rusa* resource beyond this current low-level of harvesting. This is despite a long fascination by outsiders with the deer as a potentially inexhaustible source of meat and profits. Today, a profitable deer farming industry has been established in Australia, such as that based in the Brisbane Valley in Queensland. These operations utilise internationally accredited abattoirs, and have established firm overseas markets. A key part of the industry’s success is its ability to sell different parts of the animal to specialised markets, such as velvet and internal organs to Chinese companies specialising in traditional medicines (ABC 2000).

During the past thirty years, all attempts by government and private investors to establish a viable industry on the Torassi borderland have failed, due to the many problems associated with the region’s remoteness, climate, environment, lack of transport infrastructure and efficient governance, and fluctuations in world game

meat markets. Local dissatisfaction with the ability of these operations to provide meaningful participation, and adequate compensation for the exploitation of their resource, has also impacted on these ventures. Such is the bitterness of feeling that some Wartha have determined never to allow any outsider culling or farming of Rusa in their lifetimes.

Crocodiles: Hunting and 'Farming'

Hunting of crocodiles for their skins is a key source of quick income for local people; many Wartha state that is the best means to obtain school fees for their children. The trade has been discussed in some detail by Tapari (1988, 1995).

If possible, rifles or shotguns will be used, either in the daytime, or at night using a spotlight or torch. In recent years the government has restricted the sale of rifles and ammunition to people living in border areas, and so most men harpoon the reptiles at night, from dugout canoes using torches. The skins are then sold to buyers at Daru and Port Moresby; the best prices are obtained in the national capital. I accompanied two Wando men on a crocodile hunt in July 1997, which resulted in the capture of five crocodiles (one freshwater, and four saltwater). The skins fetched K486.80 from a buyer in Port Moresby. As travel to Daru and Port Moresby is expensive, it is often the case that they are entrusted for sale to relatives or public servants when they travel to these places; there are many stories of skins lost, stolen, or undervalued.

Crocodile hunting is regulated by the *Crocodile (Trade and Protection) Act 1974*, which restricts sales to licensed traders and sets limits on crocodile skin sizes (Hollands 1987:77; Tapari 1988:44). This act replaced earlier crocodile protection statutes, dating back to 1966, which were introduced following concerns that the reptiles were being overharvested, and that most of the profits were accruing to expatriate shooters, who only paid local people in cheap trade goods for skins. Among other things, this new legislation largely restricted crocodile hunting to landowners, and introduced a maximum size limit (Hollands 1987:76; see Willey 1967 for an account of the twilight years of expatriate crocodile shooting in the Western Province and neighbouring areas of Papua Province, Indonesia).

Torassi people used to be able to sell their skins to the Morehead Buyers Society in the 1960s, and later to the Balamuk Wildlife Station under the Crocodile Skin

Marketing Service. Established in 1976 by the Department of Wildlife, this project aimed to develop the industry at the local village level and improve international marketing, and encouraged skin purchases from local people by agricultural and wildlife extension officers on government stations (Hollands 1987:77-78; and see Tapari 1988:46). In 1982 the government considered that the Crocodile Skin Marketing Service had met its objectives and discontinued the scheme to promote private sector involvement in the industry (Hollands 1987:78).

While the bulk of the crocodile skin industry is based on the hunting of wild animals for their skins, from the 1960s the PNG government encouraged the establishment of small village crocodile-rearing ventures (Hollands 1987:79; Tapari 1988:44). Of twelve farms operating in the Morehead District in 1980, two were located on the Torassi: Balamuk Government Farm and Wando Crocodile Farm. These were not breeding establishments, but rather enclosures for rearing young, wild-caught reptiles, for later sale when the legally required belly width was attained (Tapari 1988:44-45).

By 1995 the Balamuk and Wando farms had been abandoned for a number of years. The Wando crocodile farm was destroyed by bushfires which swept through the area during a particularly long dry season in 1992 or 1993. All 200 or so crocodiles in the farm were killed, when the shade shelters under which they sought refuge caught fire and collapsed. Since then there has been no real government support to assist with the development of additional farms in the Morehead District (Tapari 1995:11).

Tapari considered that farming had potential in the study area, given the high prices paid for skins, and the ready source of fish to feed young crocodiles (Tapari 1988:44,46). Deer and wallaby meat, which is widely available in the Bula Plains, could also be used as feed. However, a range of problems and constraints, such as seasonal fluctuations in water levels, bushfires, high time and labour investment (often incompatible with highly mobile production activities), and inexperience have also played a part in the decision of local people not to re-establish such a venture (for wider discussion of these problems see Hollands 1987:82-83 and Simba 1987). Statistics for the early 1980s, when crocodile farming was actively encouraged by the Department of Wildlife throughout the country, reveal that 85 percent of farms were

unsuccessful, despite considerable government extension work (Hollands 1987:83). In the absence of such support, successful future farms seem unlikely in the area.

It is clear that crocodile numbers in the Torassi and adjoining swamps have decreased markedly since the Second World War (but see Hollands 1987:85), as a result of hunting, and the loss of much suitable breeding habitat on account of deer. They are said to be more numerous in certain swamps, such as the extensive Wemenevre swamp system, as well as in the mangroves along the coast. Populations even in these remote swamps have declined, though, as some breeding ponds have been destroyed by Rusa deer (Tapari 1995:11), while poachers from Papua Province are active along the coast.

Commoditisation of crocodiles has not been entirely free from disputes, as not all clans have suitable lands for hunting (e.g. Tapari 1995:2). However, permission is often granted to these people, based on an understanding that a majority of the proceeds are spent on school fees.

CSIRO Seed Collecting and the Waria-Waria Leaf Oil Project

Botanical Bioprospecting: CSIRO Seed Collecting

Since the 1980s staff of CSIRO's Tree Seed Centre, based in Canberra, have been travelling to several sites on the Oriomo Plateau of Western Province, to collect the seeds of a number of tropical tree species of the genera Acacia, Eucalyptus and Melaleuca (Strewe 1998). The seeds are exported to Australia, and later on-sold to developing countries, as part of the Tree Seed Centre's aim of providing planting material, advice and technical assistance to developing countries, for reforestation projects, and the creation of plantations for industrial pulpwood (e.g. Turvey 1995).¹⁶

While many of the species targeted in PNG also occur in Australia, those from the Morehead District in the Western Province have been identified as having superior characteristics, such as high survival and growth rates, single rather than multiple

¹⁶ The seeds collected from the Torassi area have largely been sent to Southeast Asia where they have been used in industrial pulpwood plantations (John Gunn, CSIRO, pers. comm. 1996).

stems, and high production volumes. It is likely, that this form of bioprospecting will not continue into the long term, however, as plantations of these Western Province varieties have now been established in Australia and other countries.

Collecting and selling seeds has been a minor source of cash income for the Wartha and their neighbours. The most common species purchased from the Wartha are *gurari* (*Acacia auriculiformis*) and *kenterker* (*Acacia crassicarpa*). People collect the pods from the ground around September to November, and later shell the seeds in their villages, a time-consuming exercise (Plate 9). Generally, CSIRO appoints one local person in each area as the seed purchaser. This individual dispenses the collection bags, and pays the collectors by weight. In 1997, a small bag of *A. crassicarpa* was worth K50.00 to the producer. In the Torassi area, a Maiawa clan leader was appointed the CSIRO agent, and he was often accused of underpaying seed collectors. As will be discussed below, this man has been at the centre of a number of disputes over lands and resources in the Torassi borderland.¹⁷

Waria Oil

A flow-on project from CSIRO's activities in the Torassi area has been its sponsorship of a leaf oil still project, which the organisation hoped would provide an additional source of income for Wartha people. The project began when the local seed buyer, a resident of Wando village, asked for assistance to develop such an industry, having observed the production of cajuput oil, made from *Melaleuca cajuputi*, by Marind and Kanum people in neighbouring Papua Province (Brophy and Doran 1996; WWF 2000; see Bowe 1995:54). Studies by CSIRO in the Torassi area over a three year period determined that the *wariawaria* tree (*Asteromyrtus symphyocarpa*) was the most suitable for production in the Torassi area, providing a cineole-rich oil.

¹⁷ This man has also been accused of 'selling' a local cure for snakebite to the CSIRO. The cure is made from the roots of a tree (unidentified); the roots are scraped, and a poultice applied to the puncture marks in the skin. The details of this arrangement remain unclear to local people, but many were angry about the possibility of him profiting from what is considered community-wide knowledge.

With funding from CSIRO and the Pacific Biological Foundation, a purpose-built still was flown into Bensbach in April 1996, accompanied by a consultant to provide advice and technical training (Doran and Gunn 1998; Dundon and Wilde 2000; Lea 1996). Within hours of its arrival, however, the consultant became aware that the project was embroiled in local community politics, involving confusion over the ownership of the still project, and the availability of leaf material in terms of permission to harvest from the lands belonging to other clans.

Many of the observations and details I recorded about this project have subsequently been repeated in an assessment of the project by two Canberra-based consultant anthropologists (Dundon and Wilde 2000). They found that although the still was donated as a 'community' project, the local CSIRO agent clearly thought he had 'ownership' through his role in initiating the idea of leaf oil production (see also Lea 1996). He was able to monopolise control of the still by immediately locating it in his new village, Torwaia, which was established on his own lands in 1995 in the context of ongoing disputes with Wando people. He was also able to perpetuate this domination by controlling necessary equipment (e.g. glass bottles for retail oil sales), and through his expertise in operating the still. Local people were often hesitant to operate the still, and so he managed its use when other clans wanted to distil oil. He profited handsomely in these instances, by charging these groups, in the form of a considerable percentage of the oil they had just produced, for operational and maintenance costs, transportation of the still, and the price of glass bottles.¹⁸ As a result, other clans became disenchanted with the scheme, and no longer participated in leaf oil production.¹⁹

¹⁸ This is despite the fact that he was given several thousand Kina by the Morehead Local Level Government to run the project, which included provision for bottles. His adopted brother was the Morehead LLG President at this time; requests to the LLG for financial assistance from two other oil-producing villages in the district, located in the Trans-Fly Census Division, were not successful (Dundon and Wilde 2000:26).

¹⁹ There were also numerous problems associated with marketing, pricing, and transportation, but nonetheless the reviewers' were of the opinion that the project still had economic potential (Dundon and Wilde 2000:28).

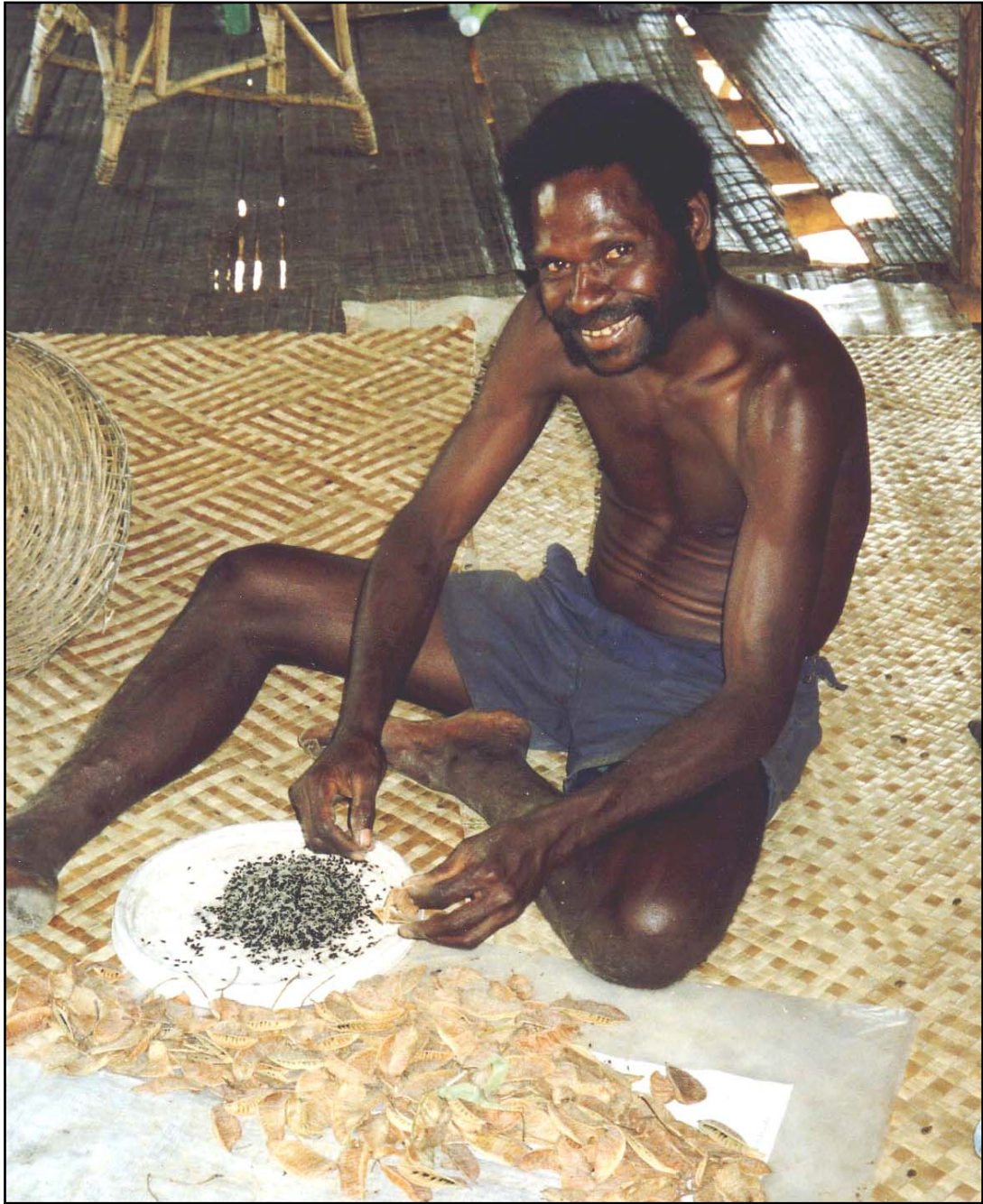


Plate 9: Iori Tapari shelling seeds for later sale to CSIRO. Wando village, 13 October 1997.

The *wariawaria* project highlights problems associated with local understandings of the ownership of projects, where control and participation by individuals often confers ownership, and where village innovators and entrepreneurs may become possessive of information and technology, and hence, barriers to more even development, particularly if they have to compete for resources (Burton 1995:39-40;

Fahey 1986:148). It also points to problems associated with inappropriate development schemes; in this case, the proponents were unaware of local politics until the twelfth hour, and the still was also not portable enough to be used by individual villages on a rotational basis, as was originally planned. This allowed the local agent the ability to control it, even where he did not own the equipment, as it remained on his land and under his care as the 'manager'. Another issue is the spatial distribution of the required resources, in this case, *wariawaria* leaves. In many the best and most concentrated stands of these trees were located on lands belonging to other clans, most of whom had long-running quarrels with the Maiawa group. Where then, there is a need by a local or outsider group, to 'reach out' across the landscape, and across other group territories, in order to obtain resources from numerous clan lands, there is more scope for conflict and argument.

This still saga contrasts with the experience of seed collection. Disputes about seed payments aside, this form of commodity production can be done by just about anyone, as the seeds come from trees that are very common throughout the area. Smaller stills that could be operated by family or local section groups, on their own lands, would have been a more appropriate development option, given the apparent inability of groups, beyond the size of the local section group, to act as a corporate entity.²⁰

Competing Property-Rights Regimes in the Torassi Borderland

Disputes over wildlife resources in the Torassi borderland have occurred in the context of interactions between nations and states, and capitalist and kinship modes of production, with competing perspectives of ownership and extractive rights.

Wildlife resources have been characterised by (1) excludability, where controlling access to the resource is difficult or impossible; and (2) subtractability, where joint use of such resources adversely affects the ability of other users to exploit them

²⁰ An anthropological report *before* the start of the project would have been useful in this regard. It is clear that the proponents saw in the local agent's enthusiasm and drive a fine example of individual entrepreneurialism and community spirit, values which can stand in tension in our own society; this highlights the danger of simply assuming that villagers subscribe to capitalist or development values as we understand them.

(Feeny et al. 1990:3-4). These certainly seems to be the case on the Torassi and Merauke borderlands, where wildlife resources are spread over a very large area, which is dissected by a poorly demarcated and enforced international boundary, and where sustained harvesting of certain species (e.g. deer, crocodiles, Saratoga) has led to declines in numbers, and a corresponding increase in local and cross-border poaching.

There are four basic and often overlapping property-rights regimes in which such resources may be held. These are: private property, that is, ownership by individuals or corporations; state property, where resource rights are vested exclusively in the government; open access, where well-defined property-rights are absent; and communal property, where resources are held by a community of local, interdependent users who exclude others (Feeny et al. 1990:4-5). Communal regimes are typical of indigenous nation peoples operating within kin-ordered modes of production, while the other forms are identified with states and the capitalist mode of production.

Of these, the open access category does not encourage the management of resources, as it embodies the danger of Hardin's law, which predicts the massive degradation or extinction of resources held in common (Hardin 1968:1244-1245). This degradation occurs as a result of the inability to regulate resource access, and is exacerbated in those instances where 'demand exceeds the capacity of the resource to sustain itself, and where the technology is available to exploit the resource at high level' (Feeny et al. 1990:6).

The above case studies of wildlife commoditisation on the Torassi borderland and its Merauke neighbour demonstrates the existence, and clash, of a mix of these access-rights regimes, and the competing perspectives of landscape, resources and people that they embody. The original communal property-rights regimes held by indigenous people on both sides of the border have been undermined by the arrival of outsiders, many of whom either dismiss these rights, or ignore the altogether, viewing frontier resources as common property. This has led to competition and conflict between all groups.

In PNG, the state, through the Constitution and various statutes, recognises customary (i.e. communal) ownership of lands and resources; land itself has not become a commodity, rather, the state encourages investment where there will be some return, using a system of leases and royalties. In the case of the Wartha and their neighbours, this has been further strengthened through the creation of the TWMA and its associated rules, a regime that allows local people to control and benefit from resource exploitation by outsiders (see Chapter 9). This protected area came into being partly as a response to a past experience of foreign expropriation of deer and fish from an ‘open-access’ perspective. To date, however, the TWMA rules have applied almost exclusively to the operation of the BWL (next chapter).

These safeguards have been eroded by the subsequent lack of state support for the protection of lands and resources. This may be seen in the fact that the border is not patrolled, and the failure of state bodies such as the Lands Department and the courts to provide assistance in matters pertaining to the local operation of outsider attempts to commoditise wildlife. Together with the general lack of services and economic development in the area, this has led to dissatisfaction with the PNG National Government. It is no surprise, therefore, that people have increasingly looked to Papua Province as a market for their wildlife resources, despite its exploitative, ‘open-access’ nature.

In contrast, on the Indonesian side of the border, the state asserts ownership of land, and wildlife and forestry resources. A highly centralized and bureaucratized neo-colonial state, Indonesia seeks to directly exercise its sovereignty, with a special focus on the role of border areas. Indonesian ‘nation-building’, affords little recognition to traditional customary land tenure, and encourages the ‘development’ of these areas through transmigration. While the indigenous people of Wasur National Park have been successful in obtaining a level of recognition of adat, (customary law), such rights are continually undermined by the activities of outsiders, and the Park rules themselves impose restriction on their use of resources. Although it is in many ways a much ‘stronger’ state than PNG, in terms of borderland governance and services, its public servants, in particular the police and military, are often directly involved in resource commoditisation for private profit, conducted in a corrupt and exploitative manner with local people. This in turn has led to land degradation and resource depletion, given the high level of competition over

resources between locals and transmigrants, which has contributed to increased cross-border purchase or poaching of wildlife.

In addition to state control of lands there has also been some purchasing of land from local Kanum and Marind people in the Merauke borderland (i.e. the creation of private property). New and innovative mechanisms of demarcating and asserting indigenous territoriality have been necessary, such as the creation of cultural maps using GPS technology, to challenge outsider attempts to expropriate further lands and resources (O'Farrell 2000).

In Papua Province, communal ownership is itself under threat, then, from the open access perspective of poachers and traders operating in the Merauke borderland, who stand in a position of power to indigenous people on both sides of the border on account of their access to technology, and experience in commodity transactions.

Wartha relations with their Marind and Kanum neighbours have suffered as a result of escalating poaching by the latter, and there seems to be the case that some Torassi people view them not as kin, and/or people with some cross-border rights, but as Indonesian citizens and poachers, such that they should not cross the border (at least in those circumstances where they are competing for resources). The Wartha's experience of colonialism (village nucleation in particular), has also made it more difficult to exclude outside others from their lands.

On the Torassi borderland, the ability to control wildlife resources has also proved a problem, as the communal property rights system, based on customary land tenure, is being challenged. Previously, the lack of hard and fast boundaries was simply not an issue, in a context of sharing, and there was the relative impossibility of any one person or clan to be materially better off than its neighbour. The introduction of new needs and wants, has solidified notions of boundary, and activated disputes, where differences in understandings of local borders are seen as the difference between a small amount of cash, and nothing at all. Wartha also report an increase in local poaching, for subsistence and commodity production, by other clans and dialect groups, creating intra- and inter-community friction.

Summary

The Wartha and other communities of the Torassi borderland identify as border people. The rights of cross-border trade and travel guaranteed to them under the Border Agreement reflect prevailing customary practices, traditions that have evolved in the course of articulation with wider indigenous and colonial systems, following the imposition of a colonial border, the establishment of Merauke, and pacification of the Marind.

Life on the borderland since Independence has proved a source of frustration for local people, as expectations of the government, in terms of the delivery of services and development, have not been fulfilled. The absence of the PNG state is palpable and keenly felt, although Wartha have occasionally been subjected to the terrifying expression of state sovereignty, during several visits by the ‘disciplinary forces’ to the area to ‘dissuade’ local support and sympathy for the OPM. Increasingly, local people look to the Merauke borderland to engage in economic activity, although this entails considerable travel and exploitation at the hands of Indonesian merchants.

Global fluctuations in exchange and commodity markets, and intercontinental environmental processes, have also had a direct impact on the production of wildlife commodities on the Torassi borderland. This is evidenced by the experience of the 1997 El Niño event and concurrent Asian financial crisis, which led to local overharvesting of Torassi Saratoga fingerlings. Nonetheless, Wartha were, and are, determined to participate in commodity production activities and cross-border trading—to the extent that this can be done around subsistence activities—in order to meet their modern need for cash, for school fees and other basic necessities.

The Wartha experience of wildlife commoditisation demonstrates the interconnectivity of the Torassi borderland with regional and global markets, and the tensions that can arise where kinship and capitalist modes of production, and divergent property-rights regimes, intersect. In the next chapter I consider these issues in more detail through an analysis of the Wartha relationship with the Bensbach Wildlife Lodge (BWL), a tourist resort operated by an expatriate Australian.

PART IV: COMMODITISATION AND MANAGEMENT OF WILDLIFE RESOURCES



Plate 10: The Bensbach Wildlife Lodge (manager's residence) at Marumbuei, 1 December 2002. Photograph: Edward Patching.

CHAPTER 8: THE BENSBACK WILDLIFE LODGE

Introduction

The BWL is central to any consideration of Torassi people's engagement with modernity and the capitalist economy. It is the only large, *in-situ* business enterprise in the area, and operates substantial trade stores at the lodge site and at Morehead. For over a quarter of a century, it has been the major source of income, and key supplier of direct and indirect services to local communities. Its operations have also generated significant conflicts over lands and resources. In this chapter, I detail the nature of these disputes, and identify the factors that lead to their eruption.

Establishment of the Bensbach Wildlife Lodge

Interest in establishing a tourist venture on the Torassi River began with a mid-1971 flight over the area by several Mount Hagen-based, expatriate Australian businessmen. One of these men, Noel Camps, was the driving force behind the development of the lodge. On 17 November 1971, Camps wrote to N. Logan, Assistant Director of Lands, Surveys and Mines, informing him of their desire to form a company to develop a tourist enterprise on the river, based on fishing, hunting and birdwatching. His letter also noted recent government attention to the area: 'it is known that the Department of Agriculture, Stock and Fisheries is conscious of the need for conserving the fauna of the area and the company will actively support any such programme' (Camps 1971).

Since the late 1960s, the colonial administration had been discussing the possibility of establishing some sort of protected zone in the district, on account of the abundant wildlife of the Bula Plains (see next chapter). Safari-style tourism was seen as having some potential as an industry in this otherwise economically depressed area (Paijmans et al. 1971:17; Wren 1968:50-51), and the interest from Camps and his partners was particularly well-timed in this respect.

In 1972 the administration assisted the developers to present the lodge proposal to local villagers. The PO present at one such meeting reported that landowners were happy for the development to proceed (Ramokasi 1972:8): 'the villagers are very

happy and have no disputes as regards of selling their land, probably they have so much of land [sic]'. A similar view was also communicated to the developers by the government: 'Land does not appear as important to these people as compared to other areas because there is so much of it and few, if any, land disputes have occurred' (Orwin 1972).¹

An area of high land on the riverbank at Marumbuei, four kilometres north of Wando, was selected as a suitable site for a lodge, and an application was made for a Special Purpose, 50 year lease over 125 acres (56.7 hectares)². This form of leasehold is known as the lease-lease back system. In PNG, direct dealings between landowners and commercial businesses and foreign investors are illegal, and land cannot be sold, leased, or disposed of except to nationals in accordance with customary law. However, the lease-lease back system allows for the state to lease customary land from its owners, which in turn leases it to the commercial business. The land then reverts to customary tenure at the expiration of the lease (Cooter 1991:775-776; Iatau and Williamson 1997:160-161; Trebilcock 1983:197, 1984:386,401-402). Following negotiations between the government, the proponents, and the Wartha and Kormbo people, the land was 'purchased' for the sum of K90.14, paid directly to the landowners (Tapari 1988:31). As I will demonstrate later in the chapter, local people understood that they were not completely extinguishing their interests in the site (they knew that the land would eventually revert back to customary tenure), but they certainly welcomed the idea of the resort.

Construction of the BWL began in 1973, and late the following year the lodge commenced operations, under the management of Mick Mackenzie. He was soon replaced by Brian Brumley, who was manager from 1975 to late 2002. Brumley came to personify the lodge for local people, and it is simply not possible to consider relations between the community and BWL without reference to him.

¹ These comments appear to paraphrase those of Williams (1936:51); no doubt a copy of *Papuans of the Trans-Fly* was on hand at Daru.

² N.J. Camps made the application (no. 71/3156) on 26 October 1972 to the Land Board, under Section 70 of *The Land Act 1962-1971*. The application was approved on 9 August 1973.

Bensbach Wildlife Lodge Pty Ltd is a private company, which commenced trading with a total of thirteen shareholders. Over the years, as shareholders died or relinquished their interests in the lodge, their shares were bought by the other partners. Until his death in December 2003, Brian Brumley was one of only three remaining shareholders; the other two were Mount Hagen-based businessmen, for whom the BWL was only one of a number of business interests; in effect, then, Brumley was the sole proprietor. Although the terms of the BWL lease state that any sale of shares should first be offered to indigenous PNG citizens, there has never been a national shareholder.

In the early 1990s the BWL entertained plans to extend the number of its shares to 100,000, to provide capital for developments such as a nine hole golf course and additional, bungalow-style accommodation (Brian Brumley, pers. comm., 1997). These ideas for expansion were never realised, as a result of ongoing lack of capital, and the onset of serious disputes from the mid-1990s. It is also clear from BWL company records that the original shareholders aimed to use the lodge as a base from which to operate far more lucrative ventures, such as commercial fishing for barramundi in the river and offshore areas, and the export of venison to European meat markets. The fishing proposal was rejected by the FRPG in the early post-colonial period, as it wanted to restrict the involvement of expatriates in such industries, and had plans to develop similar ventures itself; these plans never eventuated.

The early correspondence between the BWL and the government is replete with assurances that the local people would receive a raft of benefits in addition to employment and training opportunities, including educational assistance (in the form of scholarships), managerial training, and eventual participation as shareholders.³ These ideas were never realised, and the BWL was run in a colonial, paternalistic

³ According to the manager, local people had on numerous occasions been invited to purchase shares, and would have been welcome to do so; he felt they were hesitant due to a lack of knowledge about shares and investment. Herington (1978:10) states that the TWMA Committee decided to purchase shares in the BWL in 1977; this did not proceed. Brumley (pers. comm., 1997) also stated that attempts to prepare several local people for junior management roles were not successful, as the trainees lacked commitment and aptitude.

fashion, with Brumley very much in charge in a ‘hands-on’ manner, overseeing a staff of domestics and labourers.

Operations of the Bensbach Wildlife Lodge

By the late 1990s, the lodge had been established for over twenty years, and had developed an air of slight dereliction. Nonetheless, it was a remarkable development given its position in such a very remote part of PNG. Materials for construction and subsequent supplies were brought in by barge, up both the Torassi and Morehead Rivers, as well as by aircraft.⁴ As discussed in Chapter Four, these rivers and the coastal zone are not the easiest to navigate, and this has contributed over the years to problems of resupply, with some masters refusing to take barges up the rivers.

The main lodge building is built from natural materials, with a kunai (Imperata cylindrica) grass roof and woven sago walls. It consists of a kitchen, cold store, lounge bar, dining area, and two wings of twin-share accommodation for 18 tourists. A second, later building houses the manager’s residence, office, laundry, linen store, storage rooms, and several other rooms for staff and guests (Plate 10). A maximum of twenty-three tourists can be accommodated at any one time. Other structures on the site include sheds for the storage of outboard motors and fuel, a workshop, outdoor laundry, and the trade store. Power is supplied by a diesel generator. The lodge has a radio, and between 1997 and 2002, a satellite telephone and facsimile machine.

The BWL provides accommodation, guides and carriers for game hunters and sports fishers. Its operations are highly seasonal, with most tours taking place between May and October (i.e. the dry season), on account of the marked seasonality of the local environment; fish disperse into the flooded coastal and river floodplains during the wet season, and deer are more difficult to locate as they move off the Bula Plains and river floodplains onto higher, forested areas.

⁴ The airstrip at Weam, open since 1963, was used by the BWL until the company built their own (discussed below). The alignment of the Weam airstrip is such that it suffers from strong cross-winds, and at least one aircraft has crashed there as a result (Brian Brumley, pers. comm., 1997).

The success of its tourist operations very much relied on the management's extensive network of contacts in PNG (almost exclusively expatriate) and abroad. It was often supplied with fresh produce by a light aircraft belonging to one of the shareholders in Mount Hagen. A Port Moresby-based agent liaised with overseas travel agencies, and one or two other expatriates often resided at the lodge, providing assistance and company to the manager. Several times a year the manager would fly to Port Moresby, Daru or Cairns, to attend to business matters, such as the ordering of supplies, parts and store goods. On at least one occasion in the 1980s he travelled to Merauke, to arrange for the cross-border shipping of goods up the Torassi.

The commercial performance of the BWL was also subject to fluctuations in the global economy and changing tourist markets. According to the manager, the best ever year was 2002, when gross profits from the company's tourist operations amounted to approximately K600,000.⁵ In the early 1980s, however, it was running at a loss due to a decline in tourist numbers, the result of:

high air fares, the world economic recession and in particular the difficulties (drought, bush-fires, floods, low prices) faced by the Australian farming community who were the main overseas visitors (Eaton 1985:9-10).

The percentage of tourists visiting the lodge for birdwatching, photography and ecotours increased over time, and in 1995 the company believed that this was the future of the venture (Brian Brumley, pers. comm., 1995), although police restriction on the use of firearms in the border area was a key reason for this shift in activity (see below). A significant minority of revenue is generated by visiting PNG and Australian government officers, including members of the annual border quarantine surveys, and staff of the Department of Environment and Conservation (DEC), associated with the management of the TWMA. Government parties use the BWL as an operational base, and hire its boats to visit the Bula Plains and the various settlements along the river.

The difficulties of operating a tourist venture in such a remote area were enormous in the weak state that is PNG; the manager often complained about stock losses during shipment of goods (damage, theft, spoilage); very high prices for fuel and vehicle parts; lost and late orders; bureaucratic red tape, and so on. Many of these complaints were coloured by his paternalistic view of PNG in the post-colonial period, but nonetheless these were very real and ever-present problems.

Bensbach Wildlife Lodge and the Local Economy

Employment

In November 1995 the lodge employed eighteen full-time and part-time staff; during the peak tourist season this number increased to between twenty and twenty-five (Brian Brumley, pers. comm., 1995).⁶ The average wage was K100, although workers could earn up to double this amount by working seven day weeks during the peak season. The BWL was, therefore, the key source of cash income in the area, albeit for only a few individuals. Most of the labourers lived at Pikunjur, a kilometre or so to the north of the lodge, or at Dembantjepeth (Wando Patrol Post).

In 1997, when most BWL operations were suspended on account of disputes, there were a total of seven full-time positions occupied by local people (Table 4). In fact a total of ten people were employed, as there were two security guards, who worked alternate fortnights, and three female domestics, who took it in turns to work a fortnight at the lodge. This provided a total of K744.00 coming into the community per fortnight. According to the manager, wages in normal years amounted to around K60,000; not an insubstantial figure for these small, remote villages.

⁵ This was an exceptional year (Brian Brumley, pers. comm., 2003). It is likely that the net profit was a much lower figure, on account of high taxes and operating costs, including wages (see below). The manager once laughed at the suggestion by local people that the BWL was a multi-million dollar operation, referring to it as 'a benevolent society'.

⁶ Eaton (1986:13) reports that in 1983, the BWL provided employment to eleven people and occasional work for several others.

Table 4: Fortnightly Employment at BWL, 1997.

Position	Fortnightly Pay	Number Employed	Total Payments
Worker	K100.00	4	K400.00
Security Guard	K112.00	1	K112.00
'Haus Meri' i.e. female domestic	K112.00	1	K112.00
Storekeeper	K120.00	1	K120.00
TOTAL		7	K744.00

Source: Brian Brumley, pers. comm., 1997.

Other Community Benefits

The presence of the BWL gave local people a number of indirect benefits including an airstrip and subsequent regular air and mail services, the use of lodge vehicles and boats when urgent needs arose (e.g. medical evacuations to Morehead clinic), and the presence of trade stores at BWL and Morehead, which are among the major sources of market goods in the District (Tapari 1995:7,10). Other services included provision of free electricity to the TCS, occasional free air travel to Daru on returning BWL charter flights, and an encashment facility for the wage cheques of local public servants. Workers at the lodge have also obtained skills in shopkeeping, and vehicle and boat operation and maintenance (Tapari 1995:10). The lodge also purchased a wide variety of foodstuffs from local people, such as eggs, crayfish, mud crabs, and barramundi, and various fruit and vegetables.

Annual takings from the BWL trade store between 1978 and 1996 are shown in Table 5. The higher income figures for the periods 1980-1981, and 1990-1993, are probably due to the influx of workers associated with the government deer farm, and the operation of NAMI respectively. Public servants at Balamuk, TCS, and Weam also spent their wages at the store. This expenditure notwithstanding, the store takings also give some indication of the amount of cash circulating in local villages, as the majority of wages and royalties obtained by locals were spent in the store. During disputes, this would fuel accusations that the lodge was taking advantage of the people. Nonetheless, it was the only trade store of any consequence in the area that was regularly stocked with a variety of goods. On one occasion the manager

identified the operation of the trade stores at BWL and Morehead (the latter is called Tonda Trading) as being responsible for most of the company's profits.

Revenue from hunting and fishing under the TWMA rules also provides cash income to local people; a sliding scale of royalty payments for deer, fish and ducks taken by tourists sees 50 percent paid directly to the landowner of the place from where the resource was taken, with the other half paid into a trust fund (see next chapter). This means that such benefits accrued to only a few individuals and families. The amount of royalties paid directly to landowners in any one year also appears to have never exceeded K3,000, which seems a very low sum given the large amounts of money tourists spend to visit this remote area, and the low value of the PNG Kina in the recent past. This reflects the fact that royalty levels remained quite low (see Eaton 1985:11), and the fact that the annual number of tourists was between 500 and 1,000, some of whom did not participate in hunting and fishing, such as birdwatchers. Most of the royalties accrued from deer hunting, which from the mid-1990s became less important for reasons cited above, as well as considerable disputation among local people over land rights in deer shooting areas (Brian Brumely, pers. comm., 2002).

Table 5: BWL Store annual takings, 1978-1996.

Year	Kina	Year	Kina
1978	41,548.60	1988	48,978.06
1979	34,094.93	1989	62,628.98
1980	81,926.32	1990	67,020.70
1981	101,965.83	1991	66,472.47
1982	56,516.83	1992	70,257.54
1983	45,963.23	1993	69,776.38
1984	48,390.06	1994	58,961.08
1985	58,259.93	1995	76,110.80
1986	39,986.17	1996	42,079.70
1987	50,537.71		

Source: BWL Company Records.

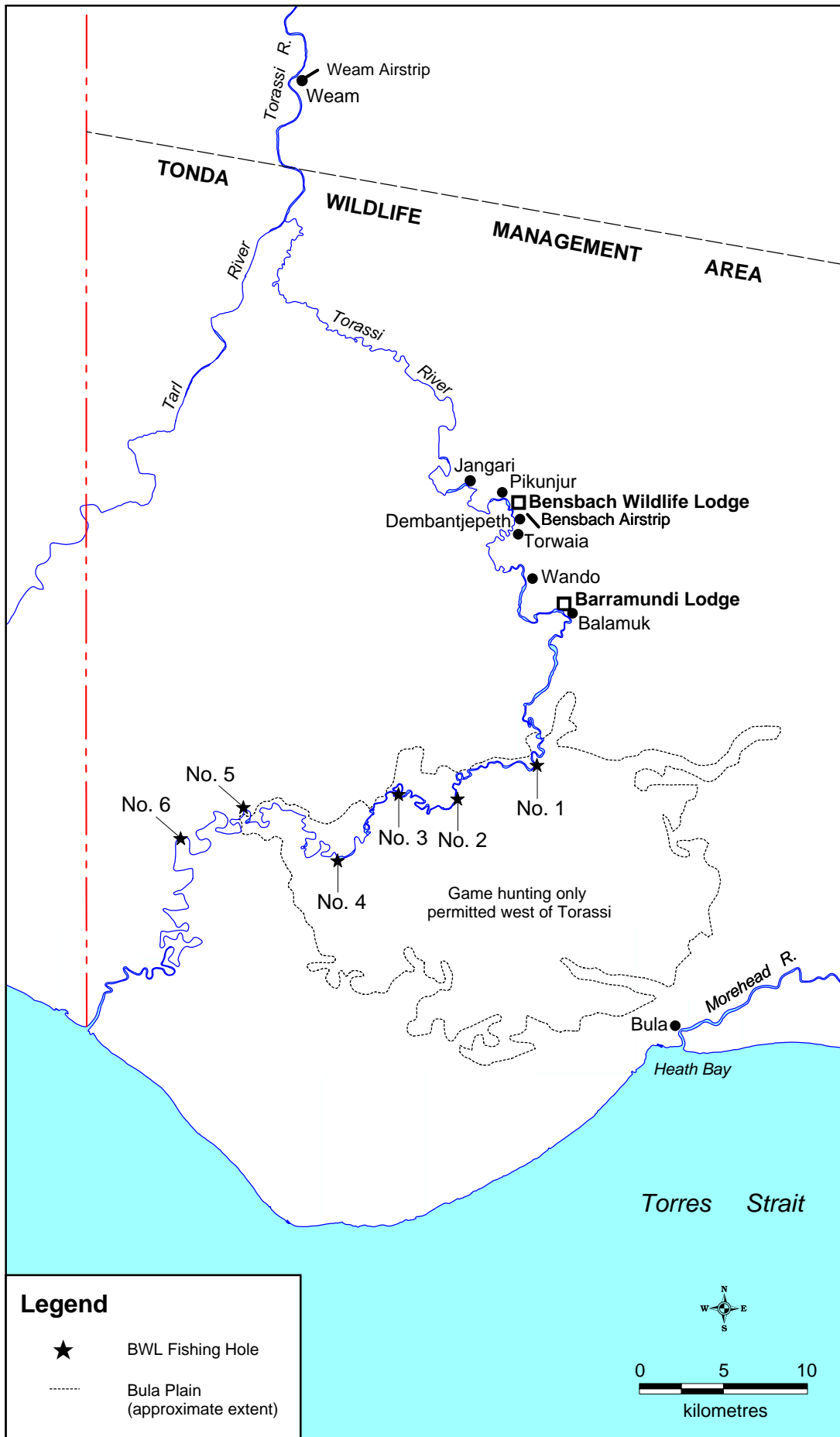
The Torassi groups that benefit most from this arrangement are those clans whose lands include the open plains (Bula Plains and riverbank floodplains) along the middle and lower reaches of the Torassi. In all, this amounted to only half a dozen Wartha patriline. In these areas, deer number in the many thousands. Six deep fishing holes, often located at the intersection of creeks and the main river channel, have also been identified as consistently good spots to cast for barramundi (Map 6).⁷ Excellent fishing areas are also to be found along stretches of the upper Torassi, in the vicinity of Weam, and at the junction with the Tarl River. The operations of the lodge, then, covered an enormous area in order to obtain these resources, most of which occurred in, or very near, the Torassi River.

The resulting inequality in the distribution of royalty payments from wildlife exploitation, together with an ongoing claim for compensation from the BWL or the PNG National Government for the construction of part of the Bensbach airstrip on customary, unalienated Wartha land, led to a major confrontation between local communities and the lodge in the mid-1990s. These actions resulted in on-again, off-again closures of the river and the airstrip by villagers, bitter social disruption, and a depressed local economy.

Disputes

Prior to the major eruption of disputes in 1995, there had been a number of earlier problems between the BWL and local people. Many of these resulted from dissatisfaction among the latter over the internal distribution of royalties, accusations that the BWL was not compensating villagers for its own use of resources, and disturbance to wildlife by inappropriate tourist activities.

⁷ The TWMA rules forbade tourist hunting between the Torassi and Morehead Rivers, i.e. on the Bula Plains, so that this activity would not spook the people's deer and other game, and cause them to migrate from the area. As deer are good swimmers, and the river is quite narrow, they frequently move between these areas.



Map 6: Area of Bensbach Wildlife Lodge Operations

An early dispute involved the payment of royalties to a Sangara clan with extensive holdings of land on the Bula Plains. For years the management had been paying one particular elder, oblivious to a simmering dispute within the clan, apparently due to his failure to share the money with his kin.⁸ In order to bring this matter to the attention of the BWL, his chief adversary blocked the river, stopping tourist boats from going down to the Bula Plains. This is probably the dispute mentioned by Eaton following his 1983 visit to the TWMA. He noted that the payment of money to the leaders of clans:

represents an individualisation of land tenure as traditionally hunting rights tended to be collective over the group territory. In an area where land disputes are rare mainly due to the low pressure of population on land, it is interesting that the payment of royalties has in one case led to a dispute which was settled through mediation (Eaton 1985:10).

Inequality between clans was also caused by the fact only a few groups would be paid royalties, on account of their ownership of 'good' stretches of river for fishing, or lands with open plains and large amounts of game (see also Tapari 1988:13). Eaton (1986:13) also notes that in 1983:

payments had been made to fifteen different men from six different villages. this money is often distributed among relatives but not to the whole village or clan. At present therefore these payments only benefit a relatively small part of the population of the management area.

The BWL manager reports that he only ever paid fishing royalties to a total of twenty-one landowners, between Weam and the Torassi Rivermouth (Brian Brumley, pers. comm. 2003); as mentioned above, the number of men who received hunting royalties was less than this figure.

Another dispute involved the use of an aircraft by one of the Mount Hagen shareholders to conduct sight-seeing tours over the area; the plane would also alight on the Bula Plains. This upset local people, as they believed that the low-level flights were scaring away the deer and other game on which they rely for food. In 1981

⁸ According to this patriline, the old man hoarded the royalties as he 'did not know about money', and some of his relatives believe that he buried it.

some young men slashed the aircraft's tyres; they were later charged, prosecuted and fined (Eaton 1985:10-11).

A third incident, in 1985, occurred when three youths from Pikunjur broke into the BWL trade store, and stole some clothing. They objected to the collection of Melaleuca bark by BWL workers from their land for use by the lodge, for which no payment was allegedly made. They also objected to the start of deer jerky production by the BWL, as the manager was paying local people K5.00 per head of deer, rather than the set K15.00 under the TWMA rules for trophy hunting. They claimed, then, that the BWL manager was 'stealing' the other K10.00 from them, and that they broke into the store as a result: 'if what he has taken from our land, what taken is free for him then his property for us should be free also'.⁹ According to the BWL, to pay anything more was uneconomical, as the process of sun-drying results in a product which is one-fifth the weight of an equivalent amount of frozen meat (see Stewart 1985:385), and Rusa deer are a relatively small and compact species in the first place. The venture was later abandoned, as the management believed that the men employed to produce the jerky were continually stealing part of the finished product, and these losses could not be overcome by sales (Brian Brumley, pers. comm., 1997); if true, this problem may have been related to the same disgruntlement over jerky royalties. At any rate, the rationale behind their actions points to the emphasis Torassi people place on reciprocity and equivalence.

This sparked an ongoing confrontation between the BWL manager and sections of Pikunjur village. The men involved in the store theft were arrested and placed in jail at Morehead, but their criminal case was not attended to, and they lingered there for some time. Eventually, they broke out of their cells and went back to Pikunjur, blaming the manager for delaying their case and extending their incarceration. Some men entered the lodge one night, breaking plates in the kitchen, and punching the manager's wife, before attempting to steal the lodge vehicle. The manager confronted one man, and fired at him with a shotgun, wounding him in the back.

⁹ Here I quote directly from the statement of the accused to Daru Police; a copy of this document was viewed at Balamuk Wildlife Station.

Local people later demanded that the police arrest him for attempted murder, but the manager was only given a K50 fine for unsafe discharge of a firearm.

In 1986 the manager was ambushed at the BWL at night and speared in the chest with a long, steel-bladed, pig-killing arrow. He was airlifted to Balimo, and a New Zealand surgeon operated on him there, saving his life. His assailant was captured, but only spent six months in prison at Daru, before being released. According to the manager, a Morehead relative posted to Daru released him, after ‘feeling sorry for him’ (Brian Brumley, pers. comm., 2003). An uneasy peace seems to have ensued, with each man feeling that the other had escaped true justice.

This dispute revolved around perceptions by young men that they were not receiving a proper share of royalties for wildlife resources. The BWL required many bush materials, for maintenance of buildings and so on, and it appears that this was often arranged on an ad hoc basis between lodge workers, as well as elders from surrounding villages, some of whom were ex-employees. Such elders, as leaders of patriline, were given the money, but often did not inform other members of their group about such deals, so that they might avoid being asked for a share; and if they did share it, there was often a perception that they had retained a larger amount. This created jealousy and frustration, which led to the thefts, and ultimately, serious violence. The exploitation of materials other than wildlife taken by tourists has proved problematic to all capitalist ventures in the area, and has been compounded by the fact that the relevant legislation—the *Fauna (Protection and Control) Act 1966*—only allows rules to be made with respect to fauna.

A common theme of many disputes with the lodge, has been the tendency for one or more aggrieved groups to block the river to tourists, or threaten damage to the BWL, to draw attention to their frustration and their cause. This reflects the factionalism evident in these societies, particularly along patriline, where groups would rather deny a benefit to another group, or all groups, than see their rivals prosper. Further, any gain, by either the lodge or a local landowner, is often interpreted by a not-so-fortunate group in terms of something that had been denied or taken away from them. This, of course, could lead to other problems, such as accusations of sorcery. I believe this illustrates the fact that in Wartha society, inequality is seen as a social evil. The ‘equalising’ effect of such behaviour probably has its roots in the cultural

ethic of egalitarianism. Nonetheless, it has serious impacts on business operations and reputations, particularly in this case, with tourists who are travelling huge distances, paying large sums of money, and on tight schedules. It was culturally rational, and reminiscent of some of the behaviours documented by Williams (1936:260), which he described as ‘the tendency...to draw attention to a wrong by actually making it worse....presumably to draw attention to the wrong which has been done to the owner, to excite the sympathy of others’. But it is ultimately dysfunctional for local groups to attack the very source of the profits they are fighting over, as a result of their own internal social problems, particularly where these are not directly related to the developer’s operations (although they all have their root in the commoditisation of resources).

Bensbach Airstrip

When the BWL first opened, tourists were flown to the government airstrip adjacent to Weam patrol post, and then shuttled downriver by boat to the lodge. This arrangement proved unsatisfactory, however, on account of fuel costs and the time involved (two hours), not to mention at least one accident where a boat capsized on its way down the river, ditching newly-arrived international visitors into the water. To overcome this problem, Mackenzie, the first manager of the lodge, began construction of an airstrip in 1973, on an area of high ground within and adjacent to the lodge lease area, using Highland labourers. Bensbach airstrip finally opened for commercial operations in February 1977, as a private airstrip, with the BWL responsible for its maintenance. Between 1978 and 1980 the BWL made several approaches to the National and Provincial Governments, proposing that they purchase and maintain the airstrip as a national asset, noting its increased usage by public servants, and its value as a strategic border asset. These offers were declined by both Port Moresby and Daru, although funding for maintenance was intermittently awarded to the company.

While one third of the length of the airstrip is located on the BWL leasehold, the remaining two thirds is situated on customary, unalienated land belonging to a Maiawa clan (Figure 5). According to this group, the manager obtained their consent to construct the airstrip after he promised to compensate them for the loss of this land, an area of approximately 7.8 hectares.

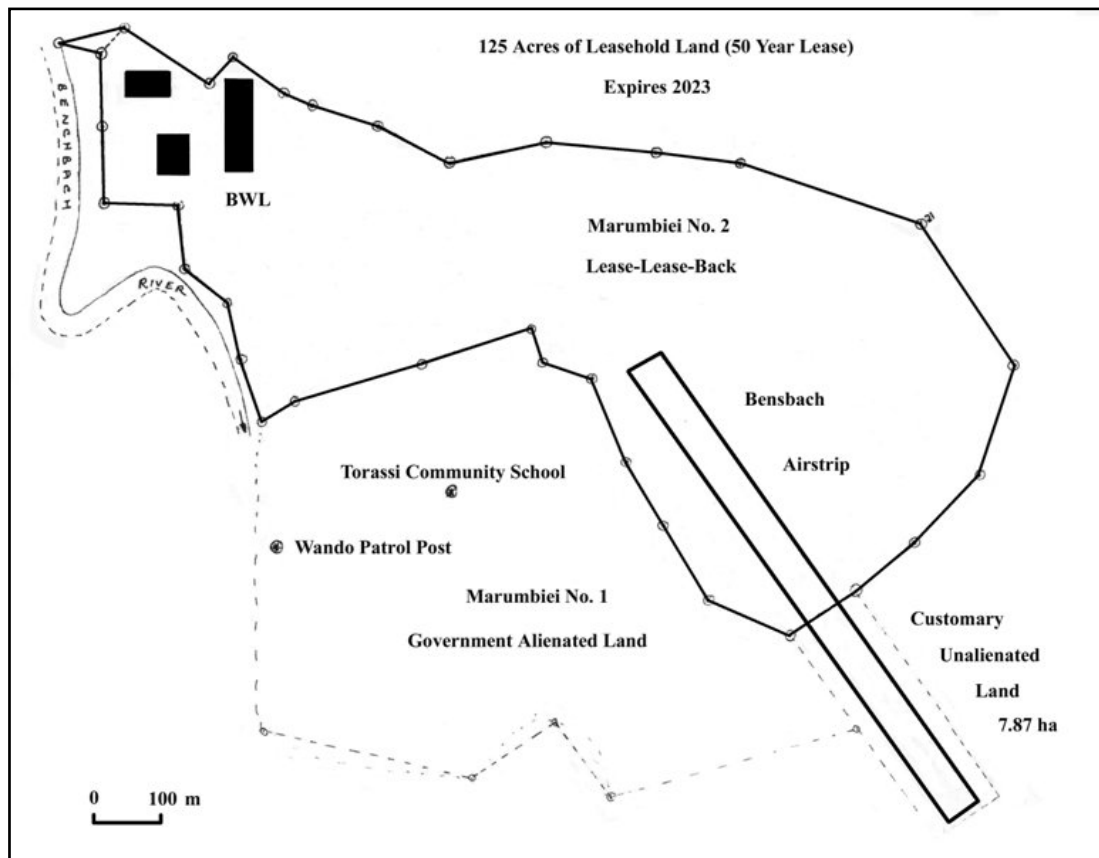


Figure 5: Sketch map of Bensbach Wildlife Lodge Lease area, showing airstrip extending into customary land (source: BWL company records).

The Maiawa clan state that when the second Brumley took over the lodge management, he inherited this earlier commitment, and it is difficult to imagine that he was unaware of the circumstances surrounding the airstrip's construction. The company, though, maintained that it had had not been apprised of any agreement, and asked the landowners to supply written evidence of it; needless to say, none exists. The BWL has taken the position that the airstrip is an issue that must be decided by the state, as it alone has the power to deal with landowners with respect to customary land. For example, the airstrip could be compulsorily acquired by the PNG National Government; the Constitution and *Land Act* allows acquisitions for prescribed public purposes, including airstrips (Trebilcock 1983:200, 1984:386).

As the years passed, the Maiawa landowners became increasingly frustrated with the failure of the BWL to honour the commitment they believe it had made. These grievances were compounded by, and perhaps stem from, their lack of access to the

BWL royalty stream: their lands, which include the lodge lease area, were not suited to fishing or hunting activities. Brumley recognised this, and asserted that he had always tried to hire a proportion of the BWL staff from this clan, but had been forced to fire several due to alleged thefts.

The dispute took on a new turn in the mid-1990s with the return to the Torassi area of a local man, a school teacher who was a member of this clan, from a posting to Goroka, Eastern Highlands Province. This man advised his clan members to adopt the more robust, Highland forms of confrontation associated with such claims, which he himself had witnessed during his time in that region.

This patriline then set about galvanising their struggle in 1995 with other Wartha, as well as members of other dialect groups throughout the Torassi River area, to shut down the airstrip, blockade the river, and force the state and lodge to attend to their demands. At the same time, a 'Joint Log of Demands from the Bensbach and Weam People', was sent to the BWL and the Provincial and PNG National Government, listing their grievances and demands.

The Log of Demands

In August 1995, the landowners first threatened to blockade Bensbach airstrip, which resulted in a meeting between them and representatives of DEC at Wando Patrol Post. The resulting government report (Genorupa and Nouairi 1995) found in favour of the BWL, although they noted that the manager tended to ignore the official status of the TWMA Committee in terms of the creation and enforcement of rules to govern lodge operations. The report also recommended that the BWL be allowed to apply for a lease over the rest of the airstrip.

As nothing appears to have resulted from this meeting, in 1996 the airstrip and the river were blockaded again in May, and police and DEC officials flew into the area after complaints by the BWL that local people were attempting to detain several aircraft that had brought tourists into the airstrip. A second DEC report found that most of the landowners' claims reflected jealousy, or frustration at the lack of government services in the area, and largely absolved the lodge of any wrongdoing (Raga and Velai 1996). They criticised villagers for being under the influence of 'a handful' of 'figureheads...who will say and do things the community will agree to

without thinking’, and their lack of appreciation for the direct and indirect benefits brought by the presence of the BWL. The TWMA Committee was also criticised for failing to enforce alleged breaches of its rules, and for not communicating with DEC about such matters.

Briefly stated, the key grievances of local people in the period 1995-1996 were as follows:

1. That the BWL was established in the colonial period, and operated without any set terms and conditions with respect to local resource owners; that it dominated all other activities, such as retail services and airstrip maintenance; and that it had failed to establish village development such as watertanks and vehicles.
2. The people proclaimed that their wildlife resources were their ‘GOLD’, and that since the BWL had been operating they had only been receiving royalties, and ‘nothing else’.
3. Illegal use of the airstrip on customary land owned by a Maiawa clan, and lack of a positive response to their earlier compensation demands, as well as alleged underpayments for the original BWL lease, and the adjoining government land purchase on which TCS and Wando Patrol Post are situated.
4. Various alleged breaches of the TWMA rules, including two sets of prices for deer, shooting by tourists in designated breeding areas, shooting of protected species, and fish dying as a result of ‘catch and release’ angling.
5. Compensation for the operations of NAMI, which left the area without paying for the deer it captured, numbers of which subsequently died (Genorupa and Nouairi 1995; Raga and Velai 1996).

This was followed by a list of demands, which stated that the government should purchase the BWL outright and allow the landowners to manage it; that the TWMA

rules should be renegotiated; that the BWL must draw up fresh terms and conditions with landowners to avoid future frustrations; and that:

The Government and Bensbach Wildlife Lodge both draw up a 'Special Development Package' for the Bensbach / Weam people because of the neglect and backward status of our two (2) areas eventhough [sic], they are strategically important to the country as border areas.

Clearly, this was a raft of claims relating not just to BWL operations, but neglect by the state, and continuing anger at a long dissolved company, NAMI. Some of the claims had foundation, and several were the directly related to long-running arguments between local clans over land tenure and the distribution of royalties, the result of the commoditisation of resources.

For example, the local BWL boat operators and guides were often accused of incorrectly identifying the ownership of deer shot and fish caught by tourists. It was claimed that they would tell the management that these activities occurred on lands or sections of river belonging to their consanguineal or affinal kin, and would later receive a slice of the royalties. This was something the BWL was not in a position to control; it was expected that the operators would tally the figures honestly.

The issue regarding two sets of prices for deer again highlights the notion of equivalence; a local man sold deer to Brian as meat for his dogs, for which he was paid less than the trophy rate. This infuriated some people, more so because this man was benefiting during periods when the lodge was closed, by allowing the management to obtain animals from his lands. The seller was himself quite happy with the arrangement.

These sorts of issues reflect the inability of village people, or the TWMA committee, to enforce sanctions, and are indicative of the atmosphere of mutual mistrust and suspicion patrilineal lines had of each other. Alliances would buckle and shift, with some people 'going back' to the lodge manager (i.e. cooperating with him, by opening their lands to tourism), while others continued to maintain an uncompromising position against the BWL. These relatively minor problems aside, the real issue at hand was the nature of the relationship between the BWL and local people, which I will analyse later in the chapter.

To strengthen their position against the lodge, the Maiawa clan attempted to utilise the structures of the Local Level and Provincial Governments. The teacher stood for the 1997 elections, and won the position of ward councillor, and soon thereafter became the President of the Morehead LLG.¹⁰ From this position, he attempted to close down Tonda Trading, the trade store operated by the BWL at Morehead. He claimed that the land rent it paid to the LLG was insignificant, and would not allow barges delivering cargo to the store to land at the station. The blockade and closure of the store proved very unpopular with public servants, occurring, as they did, during a time of scarcity caused by the El Niño event, and they consequently staged a demonstration at Morehead to protest these circumstances. A number also threatened to resign from their posts, and return to their home areas.

The Provincial Governor took up the landowners' cause, and wrote to the BWL, threatening to shut down its operations by, among other things, blocking the Bensbach to Morehead road. Many of these threats wildly exceeded his actual powers, and appear to have been based on considerable self-interest: the Governor was at this time involved in discussions with a Malaysian company which was supposedly planning to buy out and take over the BWL. Several of the key Maiawa leaders spent long periods away from their villages, visiting Morehead, Daru and Port Moresby in attempts to bring governmental attention to their cause, and elicit the support of public servants and elected representatives.

In 1997 the airstrip was closed again, but rumours began circulating that the FRPG had allocated K380,000 as compensation for the airstrip; rumours supported by statements in the national media that such an amount had indeed been released for this purpose (Anonymous 1997b). Excited expectation changed to anger with the roadside discovery, by Torassi people, of a piece of paper, which ostensibly listed a range of vehicles, equipment and other goods, to the value of K380,000. This was believed to have been composed by Maiawa clan members, and was cited by other clans as proof that they had never intended to share the spoils of a unified campaign

¹⁰ The President is elected by the councillors of the LLG.

against the lodge. In the event, the money and BWL-buyout never materialised, and the Provincial Governor was later incarcerated for misappropriation of funds.

As the dispute wore on, many local people became disaffected with the economic downturn that followed the laying off of workers from the lodge, and the loss of royalties. People were unable to obtain money for their children's school fees or purchase store goods during the ongoing drought, and worried about how their absent school children and relatives living in Daru and elsewhere could visit the area during holiday periods. Some people, including more conciliatory members of the Maiawa clan, expressed frustration about the involvement of Wartha who lived outside the area, in Daru, Port Moresby, and elsewhere in PNG. These local elites were controlling aspects of the dispute, and encouraging people to maintain the blockade. Villagers countered that these 'outside people' were not suffering as local people were, as they had government jobs and regular cash incomes.

The lack of effective government response to their demands also led to the dispute running out of steam, as it became apparent that the state was not going to purchase the BWL and then simply hand it over to landowners, and that compensation for the airstrip was increasingly unlikely. Part of the problem may be the fact that the airstrip was a private aerodrome, and hence the state balked at the idea of paying compensation for something that a private business had built, even though it alone had the power to settle this type of land issue. Throughout the dispute, there was the expectation by both local people and the BWL that the Lands Department would send a survey team to demarcate the airstrip, and that this would ultimately result in a compulsory acquisition, and compensation for the use of the customary land since 1977. Both groups wanted this to occur, but it never transpired. The failure of the Lands Department to expeditiously conduct surveys to describe the boundaries of the airstrip, a necessary prerequisite to the payment of rents or compensation, created tension and frustration for all groups.

Although the disputants managed to maintain an uneasy alliance between middle Torassi groups, people around Weam eventually decided to open the upper Torassi to fishing by visitors to the lodge, as they had nothing to gain by a continued blockade of their sections of the river. The BWL flew tourists into the old government airstrip at Weam, and also began extending the Bensbach airstrip northward, back into the

BWL lease area. Some Wartha and Kormbo groups also began opening their lands to lodge operations, after the manager began offering 100 percent royalties to landowners, in contravention of the TWMA rules. Although in 1999 the airstrip was again closed by the Maiawa clan, eventually even they entered into new agreements with the BWL manager; one of the key Maiawa spokesmen, for example, was given the position of manager of Tonda Trading at Morehead.

In the early years of the new century, the lodge was operating again, but only for fishing, and mostly in areas to the north of the BWL, as a Sangara clan to the south had become increasingly militant, closing the river south of Wando to tourists. As mentioned earlier, this group had a long-running quarrel with the Maiawa man who became manager of Tonda Trading, following his unsuccessful attempts in the 1990s to take over some of their lands on the Bula Plains. There was also a shift in leadership in this patriline; the eldest man was deaf and mute, and his younger brother, who had worked at the Ok Tedi mine, together with his eldest sister, a pastor in Port Moresby, came to be the spokespeople for their group. This patriline now upped the stakes with a completely new and unexpected initiative.

Barramundi Lodge

The Sangara clan began negotiations in the late 1990s with outside businesses, including Ok Tedi Mining, inviting them to establish a second lodge on the Torassi. This resulted in Papindo, an Indonesian company with retail interests throughout PNG, building a lodge on a site immediately to the north of Balamuk Wildlife Station. Construction was completed in 1999, and the venture planned to operate under the name Barramundi Lodge.

This is the lodge that never was. The BWL again demonstrated its ability to effectively counter any challenges to its operations; in this instance it was able to prevent prospective Barramundi Lodge tourists from entering the area, by closing their own, 'private' (i.e. leasehold) section of the airstrip, and so denied entry to aircraft that might bring in its competitor's customers. (In the meantime, the customary section had not been maintained, as local people lacked the necessary equipment, and could not be used.) Further, the Barramundi Lodge was apparently built without any consultation with DEC, and the BWL meanwhile called upon its

government contacts in Port Moresby and the expatriate community to lobby against the proposal, citing its apparent flaunting of numerous development procedures and licensing laws.¹¹ Some of these submissions played the environmental card; they insisted that the Torassi barramundi fishery could not support the operation of two lodges. While this is clearly as much a partisan economic argument as a defence of the environment it may hold some truth, given the apparent decline of this fishery in the last few years.

These developments occurred subsequent to my major period of fieldwork. When I visited the Torassi area briefly in 2000 and 2002, the Barramundi Lodge grounds were unkempt, and several vehicles sat rusting in the compound. I also heard from local people that its construction had sparked land disputes between several patriline; the lodge site is very close to the old NAMI deer farm, which was also subject to arguments over land ownership in the early 1990s.

The landowners therefore began building an airstrip on land near the old NAMI deer farm. Half way into construction, they learned that it would never be allowed to open: the BWL airstrip is a registered aerodrome, and PNG law would not allow another airstrip so close to the existing one at Bensbach; further, the new airstrip would obstruct Bensbach's flight path. With all hope of facilitating the entry of their own tourists gone, the Papindo owners appear to have given up on the venture, and are currently trying to sell it (Brian Brumley, pers. comm., 2003).

Exacerbating Local Disputes

Disputes during this period were not restricted to the Wartha and the BWL, as they created or exacerbated a number of disputes between local groups. One dispute occurred between a Sangara clan of Pikunjur and the Maiawa clan at the centre of the lodge dispute, over the boundary between their lands. Apparently both clans received payments for the leasehold land in the early 1970s. In the 1990s, the Maiawa claimed that the shared border was a creek to the north of the BWL, and that consequently, the Pikunjur patriline owned no land within the lease area. This was hotly disputed

¹¹ Such developments require an Environmental Plan; this document was subsequently lodged by the

by the Sanagara, who argued that the boundary was south of the creek, and so incorporated part of the BWL grounds.

An ongoing quarrel between one of the key spokesmen from this Maiawa clan, and a Sangara patriline in Wando, was also inflamed; as was a dispute between the Sangara and their Bangu neighbour in Wando, whose ancestor was given lands on the Bula Plains, and who, upon marrying a Sangara girl, was given extra land there. He was the man selling deer to BWL for the manager's dogs, and so profiting at a time when people were attempting to enforce an embargo on all dealings with the lodge. As a result, the Sangara threatened to rescind the land extension, and even take over the original land grant, on account of his in-migrant status. Even though he was close to his affines, significant arguments broke out, and he often threatened to leave the village (this argument was presented as Case Study 1 in Chapter 3).

Discussion

The BWL dispute provides a window on the articulation of capitalist and kinship modes of production, and their underlying rationalities. Both groups argued past each other, with very different perceptions of their rights and responsibilities. However it would be incorrect to cast these disputes in simplistic terms, such as 'evil colonialist-capitalist' and 'exploited landowners'. There was much hypocrisy, as well as good and bad will, on both sides. Individual actors also played important roles. The position of the stubborn, paternalistic manager, and the self-aggrandizement of certain Wartha elites, made it very difficult to resolve the situation amicably, as did the lack of a state presence on the remote borderland. In the following sections I reflect on some of the understandings, motivations and tactics of these three groups.

Wartha

Wartha view the relationship with the BWL in terms of pre-existing notions of what is culturally appropriate. There is the perception that they have equity in the BWL, as the 'wealth' of manager has been created through lodge operations on their lands,

landowners with the assistance of Dr Budai Tapari in Port Moresby.

using their resources; consequently, a more equal relationship with the manager is desired. This wealth was an affront to the traditional ethos of sharing and reciprocity. The frustrations of the Maiawa patriline at the centre of the dispute are understandable in this context. The BWL is a successful tourist venture in an economically depressed area, and yet they see little return from it, despite the fact it stands on land at Marumbuei, one of their tracts. They considered that any wealth created by the lodge partly belonged to them, indicative of the local emphasis on reciprocal exchange and equivalence. Hence, they were not interested in ‘just royalties’; in their minds, he was ‘stealing’ wealth that was rightfully theirs, and only an egalitarian agreement of joint partnership could rectify this situation. The BWL was deemed to have failed in its relationship with local people, in that it has not fulfilled its duty to reciprocate.

The assertion by some landowners that they could effectively take over and manage the lodge was naïve, because they simply lacked the capital and necessary skills.¹² As is common throughout Melanesia, however, landowners often see themselves as much ‘patrons’ as outsider companies and the state, and expect the developer to enter into a social relationship where expectations and obligations are fulfilled, and profits shared from activities taking place on their land (Toft 1997b). This may also be seen, perhaps, in the willingness of a number of landowners to open their lands to the BWL when they were approached directly by the manager, who offered to pay them 100 percent royalties, despite the fact that this was not legal under the TWMA rules. Although this sparked criticism and anger from groups who wanted the blockades to continue, the landowners believed they had the right to engage directly with the lodge manager over such matters.

Given the frustrations of living on a poor and underdeveloped frontier, and the above cultural orientations, it is not at all surprising that the dispute should erupt as it did, influenced by local activists with experiences beyond the Torassi. Their strategies demonstrated a keen awareness of compensation narratives from other parts of PNG, as well as the positive values ascribed by outside others to the Torassi in terms of its

¹² Some people wanted to buy out the BWL, but retain the services of the manager.

international status as a protected area and fishing destination. These were then utilized in their appeals to government, as evidenced, for example, by the Log of Demands, wherein local people stated that wildlife resources are 'our gold'. Landowners were also able to draw on a measure of support from elected officials at the three levels of government and, at times, the police, through appeals to nationalist, 'grassroots' sentiments.

The depth and breadth of frustration and resentment, which had built up over many years, allowed a pan-Torassi level of cooperation that had never been experienced before. A number of educated men were able to galvanize a loose federation of allies along the length of the river, and effectively shut down BWL operations by employing a range of tactics at the local and national levels.

To some extent this coalition was held together by bullying and intimidation; some people stated that they were browbeaten into signing petitions, and participating in blockades of the airstrip and river. At the same time, there was a general sense of excitement that carried many along, buoyed by high expectations of what might be achieved. Corporate action could not be sustained over the long term, however, as time and the lack of a return on their efforts took its toll. The alliance was constantly buckling and shifting under the weight of various pressures. Some people with long and harmonious relationships with the manager were sympathetic to his plight, while others became progressively annoyed at the economic impacts on their livelihoods, as hardship caused by the cessation of tourism and the laying off of BWL workers began to take effect. Many people became disenchanted with the uncompromising nature of the Maiawa strategy; they had gone along with it, in the hope that it would deliver what their leaders promised, but felt let down. Some people also pointed to the fact that for Maiawa, it was a case of 'nothing to lose', as they had never earned royalties, and only small amounts of wages; at the same time, they had a disproportionate number of public servant wage-earners among their number.

During my time in the field, paranoia was commonplace, as was jealousy and anger. The combination of the above tensions, and the independence of patriline, eroded cooperation, as an increasing number of clans began to enter into agreements with the BWL to reopen their areas to tourism, including some of the original disputants. This fuelled further anger and resentment, as these people were not only breaking

ranks in terms of a united front against the lodge, they were also benefiting at a time when an increasingly smaller number were still prepared to press for large-scale compensation. Increasingly bitter disputes over land boundaries, ownership, sorcery and unfulfilled marriage exchanges also precluded long-term corporate action.

The dispute demonstrated that people were quite reliant on the BWL for cash income, which amounted annually to around K100,000 in terms of royalties and wages. This far outweighed any other source of income. Many local people had become used to regular incomes, and found it difficult, if not impossible, to afford school fees and the goods to which they had become accustomed. Some turned to other methods of obtaining cash, such as participation in the Saratoga trade. However, the importance of subsistence agriculture, and corresponding lack of reliance on store foods, meant there was no real privation.¹³

At almost every turn, the lodge was able to counter, eventually, local attempts to force them to sell out, or to provide compensation for the airstrip, which they claimed they were unable to do, legally or financially; certainly, it was the responsibility of the state to resolve the matter of the airstrip. Not even the construction of a second lodge could challenge their domination of the market, as the BWL airstrip, the issue at the core of the contestation, was ultimately the very undoing of the 'the people's lodge'.

The Lodge

To a large extent, the lodge operated on the manager's terms. He had been living in the country since the 1950s, and his style was colonial, paternalistic and stubborn. He expressed no real interest in local culture, and could not fathom the nature of land ownership and politics. He believed that the TWMA rules set out the nature of his relationship with local people, with respect to the exploitation of their wildlife

¹³ It will be recalled that some of these events occurred during the 1987 El Niño event. Wartha appear to have endured this better than inland groups, on account of reasonable harvests from dry season riverbank gardens (Plate 3), and the abundance of game on the Bula Plains. Nonetheless, crop production, particularly yams, was significantly down on past years.

resources. Nonetheless, he was also quite prepared to assist local people in many other ways, directly and indirectly.

According to the BWL Manager, a key driving force behind the TWMA in the 1970s was DEC officer Nelson Dickens; with regard to the Committee, ‘what he said went, he ran the show’ (Brian Brumley, pers. comm., 1997). While it may well be the case that this interpretation is coloured by the BWL’s own, often uneasy relationship with this individual and the department, it would not be surprising if this was in fact the case. At any rate, the manager now looked on this period with a sense of nostalgia. Although he acknowledged the continuing role of the TWMA, he was dissatisfied with their general disorganisation in the period following the removal of effective DEC support in the early 1980s, and preferred not to have to deal with them on a regular basis (see next chapter).

With respect to the lease area, the manager was operating under something approaching private property rights; this is perhaps understandable given his labour and improvements, and the fact that the company has a fifty year lease on the site, which expires in 2023. While he accepted communal land and resource ownership outside this area, I suspect that he had less appreciation of the importance of communally owned flora. He certainly experienced serious problems as a result of his ad hoc dealings with local people to obtain bush materials to maintain the lodge buildings, which might suggest an ‘open-access’ perspective with regard to such resources.

Demands by some Wartha for an immediate joint partnership with the BWL were rejected by the management, although the company stated that they would gladly sell the lodge to any bidder for their asking price, which was over one million Kina (Brian Brumley, pers. comm., 1997). The manager knew that it was highly unlikely that either the Provincial or PNG National Government would expend such a sum to purchase an existing, legal operation. He also dismissed the idea that local involvement would be successful, as they did not possess the education, training and resources, and he believed that ‘*wantokism*’ would result in financial ruin. Furthermore, village people who had been assigned more responsibility in the past had failed to meet his expectations of commitment. This is, I believe, at least partly attributable to the fact that ongoing work of this kind is incompatible with the

seasonal round of subsistence production, the local moral economy, and traditional concepts of time (see Martin 2001). As a result, many people will only work for as long as they need to, in order to accumulate money for short-term requirements, and then cease these efforts.

The lodge was very susceptible to blockades on account of its need to access scattered resources from a centre point (the lodge); it was necessary to reach out across the landscape, and cross many clan boundaries, in order to expropriate wildlife in a multitude of locations. Burton (1995:26) has noted the difficulty of making ‘a success of business on borrowed land’, and how ‘the problem is aggravated manifold when a proposed venture requires secure rights to large areas of land and the resources within that land, like rubber, crocodiles, or saleable game’. The eventual explosion of local frustrations very quickly forced the company to shut down most of its operations, as closure of the river denied them access to deer and fish, and the blockade of the unalienated part of the airstrip denied them tourists.

The BWL may have been more responsible for its predicament in other ways. The royalty costs were exceptionally low, and the tourists were generally quite wealthy, and had already expended large amounts of money to visit this remote location. Considerably more money could have been provided to local people, without in any way impacting on lodge revenues. Part of the problem was the inability of the TWMA Committee to have its rule changes gazetted, with the fault apparently lying with the DEC. Nonetheless, experience shows that he was prepared to bend the TWMA rules with respect to royalties, so increased royalties to landowners should not have been too much of a problem. However, any such measures would not have addressed the issues of inequality in the distribution, between and within clans, of royalty payments, nor the core issues of the airstrip.

The BWL manager was largely able to weather the disputes, ensconced in his little outpost of Australia on the Torassi. He just managed to keep lines of communication and supply open, and he eventually extended the airstrip back into the lease area,

lengthening it to the extent that it could be used by a single-engine aircraft.¹⁴ The company also enjoyed superior access to legal information and policing, and the support of certain National Government departments and elected officials, as well as the expatriate business community in Mount Hagen, Port Moresby and elsewhere. With respect to law enforcement, he was sometimes able to get the Daru police to lift airstrip and river blockades, but these were only temporary measures, effective for as long as there was a police presence in the local area (usually only several days at a time), which he himself had to fund.¹⁵

The Government

The compensation ethic that is now found across the country means that all past land dealings are being revisited, irrespective of their prior legality. It is clear that state ineptitude and lack of coordination at all levels exacerbated the BWL dispute, to the point where it became completely dysfunctional, with negative outcomes for all involved. Had the state intervened at any early hour to provide compensation for the alienation of the airstrip land by compulsory acquisition, or for an extension of the BWL lease to cover this area, the dispute may not have evolved as it did. The remote, borderland location, and the parlous state of government finance, had a direct impact on local events. The state was unable to give a hearing, and respond adequately to, local grievances in an expeditious manner, which fuelled anger and frustration. Further, the revoking of gun licences by the police, in the wake of the 1992 OPM raid on the BWL, significantly curtailed deer hunting operations by the lodge. As this form of resource production provided the bulk of royalties to villagers with deer-rich lands, these circumstances probably contributed to an increase in local dissatisfaction with the lodge.

¹⁴ The airstrip has apparently been extended further northward since that time, and can be used by larger aircraft (Brian Brumley, pers. comm., 2003).

¹⁵ Section 390A of the PNG Criminal Code states that it is an offence for any 'person who, with intent to extort or gain anything in payment or compensation from any person...does or threatens to do any act which renders or is likely to render any...navigable river...impassable'. This provision is apparently unknown to many serving police (see Filer 1997:188), and no charges were ever laid for this or other offences committed during the BWL dispute, reflecting the absence of law and order in this remote borderland.

The BWL, on the other hand, could afford to expend its own resources to support the state. For example, it sometimes paid the airfares of police and government mediators, so that they could address the BWL's plight (it is perhaps no wonder that the local people saw the lodge and the government as allies, and asked them both to alleviate their underdevelopment). Further, these personnel were not only accommodated by the lodge, they were also shown considerable hospitality. This angered local people, who suspected that they were siding with the manager. Also, coming from more 'sophisticated' areas of PNG, these men considered it beneath them to stay in the village. It appears that these values, perhaps encompassed by a regional discursive formation associated with this and other rural areas, shaped official assessments of the case. For example, the DEC reports argued that local people were disorganized, inconsiderate, and ungrateful, and were being blindly led by self-serving individuals (Genorupa and Nouairi 1995; Raga and Velai 1996).

Encumbered by Kinship

The BWL dispute was an attempt by Torassi customary landowners to acquire the 'development' that they thought both the lodge and the state had withheld from them; it was highly dysfunctional in terms of its outcomes, a situation exacerbated by the actions of all three players: the BWL, the state, and local people. Ultimately, these contests over access to lands and resources witnessed the clash of different modes of production, of understandings of relationship, property-rights, and each other's projects.

In Chapter 3 I outlined Burton's (1995) thesis regarding South Fly cultures, which posits that they are 'encumbered' by their kinship system, social structure and land tenure system, in terms of their ability to successfully engage with capitalism. As I have shown, Wartha society fits this model. I now turn to a more detailed analysis of these cultural issues in light of the BWL lodge dispute. I begin, though, by considering the role of the creation of new wants by Wartha, in the wake of resource commoditisation.

Commoditisation and the Satisfaction of New Desires

Many of the problems that arose from the operation of the lodge stemmed from a discrepancy between villagers' want-formation and want-satisfaction, which generated social frustration and anger, and a desire to achieve the immediate provisioning of goods and services through recourse to direct action against the developer (see Sofield 1996:194).¹⁶ This led to disputes between locals over land boundaries and land ownership, and between locals and the BWL.

Some Wartha had unrealistic expectations about what they could achieve from the dispute, and what sort of lifestyle they could lead. For many, the lodge manager was the only model they had of a successful businessman, who lived in comfort at the lodge with the luxuries of life, such as beer and satellite television, and who flew to Cairns or Port Moresby several times of year. Some people, then, thought he was a 'millionaire'. Villagers became increasingly dissatisfied with royalties, wages, and the spin-off benefits the BWL had brought in terms of infrastructure and services. They desired full participation and control, as the very existence of the lodge on their land entailed a degree of ownership. Many voiced the belief that they had the right to take over the lodge; the state should simply purchase it outright, and then install local people as owner-operators. This, of course, was never going to happen.

Prior to contact with outsiders, there was no inequality in terms of material wealth, and prestige was never built on its personal accumulation. Individuals owned their own property, but most of the raw materials were readily available to everyone, and there were few durable artefacts, save very rare stone clubs, axes and ritual items (see Hitchcock 2004b). Although sharing has remained a central part of the moral economy, there is evidence that this has declined, such that some patriline leaders are accused of failing to distribute royalties. There has also been a shift in ideology by some, who now see success in terms of accumulation for themselves and their families. Again, this is not to say that sharing has ceased—far from it, goods circulate widely among kin—but there are increasing demands on those who do have cash and goods. Even where kin do share such things, there is often the suspicion that

¹⁶ Sofield's (1996) account of conflict associated with the Anuha Island Resort in the Solomon Islands is eerily similar to the BWL case.

other things are 'hidden'. This has caused more resentment, suspicion, jealousy, accusations of sorcery, and arguments over leadership.

The key local players in the dispute had vast expectations as to what could be achieved, namely, that ultimately the government would compensate them for the airstrip, and purchase the BWL, which they would thereafter operate. These men, three of whom were school teachers, could not possibly have been able to run the venture, and ran the risk of being exploited; this is suggested by their gubernatorial patron who wished to contract a Malaysian company to assist with management and training.

This reflects what Burton (1995:29) has identified as a common issue in villages in the South Fly; namely, the misidentification of objects, such as technology and infrastructure, as the 'key' to development. In both the cases of the BWL and the Barramundi Lodge, local people were of the belief that ownership of such a venture would provide them with at least some of the benefits and lifestyle that were enjoyed by the lodge manager.

Sister Exchange

The issue of sister exchange among the Wartha has been shown to exacerbate conflicts over land in several, often interrelated ways. The cultural solution to one-sided exchanges is generally uxori-local residence. Where this is followed by serial residence by the man's descendants (i.e. group membership is obtained through intergenerational residence), and such movements are remembered, the proprietary rights of these patrilineal groups have now been called into question; at worst, they have been labelled 'migrants', and threatened with expulsion. Further, ongoing disputes between exogamous groups over unfinished marriage exchanges has coloured some boundary disputes, and also precluded other forms of cooperation between patrilineal groups and the local section groups of which they are a part. In some instances, sister exchange disputes were characterised by sorcery accusations, as well as several

bloody assaults, resulting in further animosity between groups.¹⁷ The Maiawa man at the centre of many of the disputes in the area also divorced his wife, who was from the Sangara clan at Pikunjur, with whom the Maiawa were embroiled in a boundary dispute, which caused intercommunity consternation.

Leadership

The relatively acephalous nature of Wartha society has given way, in recent times, to a more concrete understanding of landownership and leadership. Many of the original disputes revolved around the payment of royalties; there was an individualisation of land ownership and concentration of power and benefit in the 'headman' or eldest man in a patriline. Prior to contact, these men did wield some power, but this was generally in the realm of decisions regarding production activities, such as when and where to garden, hunt, or collect sago; the organisation of feasts; and control over matter of ritual and marriage. Certainly, there was never a role for material wealth accumulation; indeed, there was an expectation of generosity and liberality (Williams 1936:243).

Further, arguments could develop within individual patriline as to who the 'real leader' should be. At least five men in the Maiawa patriline presented themselves as 'leaders' and community spokesmen; all had some degree of outside education and experience that assisted them in their actions. Issues of adoption and the splitting of lands among brothers had the potential to cloud the assignation or assumption of leadership; both are traditional practices, but in recent times there has been a tendency to argue that adopted men have less rights than natural sons, the result of feuding over commoditised resources. In past times, these were largely non-issues, but they became heated foci of debates in the context of control over commoditised resources. One of the major disputants in the Maiawa camp claimed to have been adopted twice (once by a Sangara elder, and also by his eldest uncle), and attempted to shift between these identities, not always successfully, as he perceived new economic opportunities arise.

¹⁷ I witnessed one violent brawl at Kormbo village, involving the use of bicycle chains, as well as the

Adoption issues compounded problems of representation and authenticity. The fact that such men can have very different individual projects, alliances and demands, and the fact that these can shift in instances of adoption, made it more difficult for the state and the lodge to negotiate with landowners, and complicated their own efforts to cooperate.

Adoption and in-migration could also impact on the ability of local officials to exercise their functions; the former Councillor for the area, whose ancestors came from Wemenevre, was often shouted down in meetings by other landowners, who reminded him of the fact that he was 'given land', and came from somewhere else. His successor, the teacher who went on to become the Morehead LLG President, also faced similar problems; he was born in West Papua, and adopted by a Wartha Maiawa family as a child.

There is also the problem of younger, more excitable men feeling personally aggrieved due to the control elders exercise over royalty payments, which can result in them taking matters into their own hands. Grievances over the collection, distribution and use of royalties are nothing new (e.g. Eaton 1991:72). It appears that in the past at least, some elders were hesitant about what to do with the money they collected. In some instances younger men with more experience of the cash economy persuaded or forced them to relinquish this role, resulting in the erosion of what little power they retained.

Land Tract Logic

From an analysis of the BWL dispute, there can be little doubt that the Wartha possess 'land tract logic' (Burton 1995); that is to say, although the general location of named tracts is known, boundaries are often hazy, contested, or both. The result, when land and resources have a price, is disputes over the position of these boundaries. It was less often the case that the ownership or section identity of actual places was contentious, except in circumstances where adoption or the original in-

aftermath of another attack on a Kormbo man with an axe; both assaults were the result of built-up frustrations over the failure to exchange wives.

migrant status of a family was an issue, or where brothers might fight over the control or division of territory.

Summary

It may seem surprising that endemic disputation over lands and resources characterises the Torassi borderland today, given that land has not been alienated, local people own extensive land holdings, subsistence production remains the dominant mode of production, and special rules and protections were employed by government to allow people to control and benefit from resource exploitation by outsiders. To understand this situation requires analysis of the specific nature of the articulation between the Wartha and outsiders, with reference to all its historical, cultural, economic, political, and environmental particularities, as well as the agency of individual actors, and the interaction of these people and processes on a remote, borderland.

Above all, the lodge saga demonstrates how the articulation of capitalist and kinship modes of production can lead to negative outcomes for local people and outsiders alike, due to the antithetical approaches of these systems to lands, resources and relationships. I argue that the nature of Wartha society—kinship and exchange relations, systems of leadership, and the ‘moral economy’—mitigated against successful articulation with the BWL, and also resulted in considerable intra- and intergroup feuding. As such, I identify the Wartha as encumbered by their kinship system in terms of their ability to successfully articulate with capitalism, as particularly evidenced by the BWL experience. This may be identified as a fairly benign form of capitalist encroachment, which operated in the context of the TWMA rules, ideally affording further land and resource ownership protections to local people, in addition to those guaranteed by the PNG constitution, the land tenure system, and various statutes. Yet the result has been dysfunction, and begs the question: what other form of large-scale capitalist activity could possibly prove otherwise?

Certainly, one could suggest that certain events would not have transpired, had things been done differently. But as disputes have accompanied almost all forms of commoditisation, I think it is reasonable to suggest that articulation on the Torassi

borderland will generally result in negative outcomes, where such activity requires local lands, and access to wildlife resources over a vast area. This is partly on account of the fact that the way of life of the Wartha and the capitalist mode of production are incongruent; problems emerge at their intersection. This is not to assign blame to them, or to judge them according to the rationality of a very different lifeway, and a very different mode of production; it is merely the logical conclusion to be drawn from the facts at hand.

The future looks bleak. Two lodges sit empty. Barramundi Lodge has never had a paying customer, and is surrounded by weeds and rusting vehicles. The BWL now has an international reputation for unreliability and instability, a situation compounded by several very poor years of Barramundi fishing. The manager and his expatriate assistant fell seriously ill within weeks of each other in late 2002; the manager has since died, and the assistant is unable to return. The two remaining shareholders apparently wish to sell the BWL, and have no interest in running the venture at present; it may well be that this is a calculated move to punish Torassi people. As a consequence, its major Australian tourist agency, Angling Adventures, has received no bookings at all for Bensbach in 2005, the first time this has ever occurred.¹⁸ Ultimately, the actions of all players, in a remote and ungoverned borderland, have contributed to the closure of the only major source of income for the Wartha and their neighbours.

The BWL saga also highlights the inability of the TWMA Committee to adequately discharge its core function, as a medium of communication between the BWL and local landowners. The operation of this body, and other aspects of the TWMA, is discussed in detail in the next chapter.

¹⁸ According to Garry Barmby (pers. comm., 2004), the Australian recreational fishermen's 'grape vine' results in such circumstances being very widely known, very quickly.

CHAPTER 9: TONDA WILDLIFE MANAGEMENT AREA

Introduction

In this chapter I outline the Wartha experience of the Tonda Wildlife Management Area (TWMA). Since its establishment in 1975, TWMA has mediated local people's interactions with developers wanting to commoditise their wildlife resources, namely the Bensbach Wildlife Lodge (BWL), and several government and private attempts to cull and farm Rusa deer. I examine the operations of the TWMA Committee, and its business arm, the Tonda Wildlife Management Corporation (TWMC), and argue that sociocultural issues account, in large part, for the failure of these bodies to adequately fulfil their designated roles and responsibilities.

In recent years the environmental NGO World Wide Fund for Nature (WWF) has been active in the area, attempting to strengthen the park's management, and establish cross-border linkages with Wasur National Park in Indonesia's Papua Province (contiguous with TWMA), and Kakadu National Park in Australia's Northern Territory. I critique these efforts, and also deconstruct WWF representations of the Torassi landscape and people.

Wildlife Management Areas

The TWMA was established under the *Fauna (Protection and Control) Act 1966*, which provides for the creation of certain types of protected areas in PNG. The most significant of these are Wildlife Management Areas (WMAs), which aim to promote the conservation and controlled utilisation of wildlife by landowners, with the support of the Department of Environment and Conservation (DEC) (Eaton 1986:12; Kwapena 1982:194; Osborne 1987:11). A committee, comprising local village representatives, is established to decide on rules governing the exploitation of fauna, which are then promulgated and gazetted by the Minister for Environment and Conservation, giving them legal status (Eaton 1991:68). The WMA program may be identified, then, as a form of Integrated Conservation and Development (ICAD), existing long before this rubric became fashionable.

Tonda was the first, and remains the largest WMA in the country, covering approximately 5,900 km² in the southwest corner of the Morehead District (Map 3). A number of other WMAs have subsequently been established throughout PNG. However, Tonda is the ‘flagship’ of the system, and often features prominently in government propaganda about such areas (e.g. Asigau 1989; Kwapena 1982, 1984).

Establishment of the Tonda Wildlife Management Area

TWMA evolved out of the colonial administration’s fascination, in the late 1960s, with the wildlife of the area, ‘unparalleled in diversity and density elsewhere in Papua New Guinea’ (Lindgren 1972:29). Of most interest were the great herds of Rusa deer on the grassy Bula Plains, which number in the thousands. By this time it was clear that the district had no or little agricultural or mineralogical potential (e.g. Pajmans et al. 1971; Wren 1968), and attention immediately turned to ways to commoditise this resource, such as culling for meat and jerky production, as discussed in Chapter 7.

The administration also believed that local people should have some control over, and benefit from, any future development attempts by outsiders. This appears to have stemmed from the unsatisfactory experience of deer shooters associated with Northern Frozen Foods Pty Ltd between 1965 and 1967; local people were particularly unhappy with the wastage of this operation (Wren 1968:47). Wren (1968:46-48) notes that Torassi villagers were being consulted in 1966 about plans by another company, Morehead Pty Ltd, to commence culling and fishing operations in the same area. The proposal included royalty payments for the exploitation of these resources, which would go into a trust fund to provide services in their district. Although this venture did not proceed, the concept of royalty payments and a trust fund were later incorporated into the TWMA rules (see below).

The spectacular image of thousands of Rusa deer, wallabies and waterbirds on the vast, seasonally-inundated plains also suggested the idea of establishing some sort of protected area, based on the great African game reserves, to promote safari-style tourism (e.g. Wren 1968:50-51; Lindgren 1972:29).

By 1972, the administration appears to have been well advanced with its plans for a protected zone, combining wildlife development and tourism with local management,

as is evident from a letter from the Director of the Department of Lands, Surveys and Mines, in response to Noel Camps's proposal for a tourist lodge on the Torassi:

As you would be aware, the Government is looking at this area with a view towards major wildlife development.

The concept of a local people involvement in management of a major wildlife resource is unique but we see no reason why it should not be a success provided the issue is very carefully handled in the first instance. Certain approaches have already been made to the people but these need to be clarified and consolidated (Grove 1972).

Herington (1978:7-9) has documented the background to the establishment of the TWMA. In 1969 initial suggestions to villagers that they sell the land for a reserve were rejected outright. This resulted in the concept of an area managed by representatives of customary landowners, with the support of the DEC. It seems, then, that the early refusal by Torassi people to alienate their lands resulted in the final form of the WMA system for the entire country:

The establishment of a protected areas system has proved to be extremely difficult because of the complex traditional land tenure system. New legislation and novel approaches to environmental management are proving necessary. The Wildlife Management Area approach, whereby areas are reserved for conservation and controlled utilisation purposes at the request of land-owners, was designed to overcome this (Collins et al. 1991:180).

Following ongoing consultations with villagers through the early 1970s, and amendments to legislation to enable the declaration of WMAs, Tonda was finally gazetted in 1975 as a WMA (Eaton 1985:10; Herington 1978:9). The TWMA Committee, consisting of fourteen representatives from villages with traditional land and resource rights in the area, was established at the same time, to draw up and administer rules governing the use of fauna.¹⁹

It will be seen, then, that the creation of TWMA, on the eve of PNG's Independence, was a 'top-down' approach, emplaced within colonial ideologies of protected areas and safari-park aesthetics. Nonetheless, it is clear that local people were keen to protect their resources, and welcomed the administration's initiative—on their own

¹⁹ The declaration and description of the TWMA area, and appointment of the fourteen representatives, appeared in the *PNG National Gazette* No. 7, 6 February 1975, p. 10.

terms as much as possible. Their motivation was not conservation for conservation's sake, but a desire to benefit materially from the exploitation of their resources, through controls on their use by outsiders:

the people in Tonda wanted development and to participate in the cash economy...Tonda is an outstanding area of particular importance for wildlife conservation as it carries heavy populations of deer, wallaby, pig, duck, cassowary and many other forms of wildlife which previously were used for subsistence purposes only – food, ornamentation and for exchange ceremonies. The people were now aware that their wildlife held additional values (Herington 1978:4).

As Eaton (1985:10) notes:

concern over hunting by outsiders was the main reason for the establishment of the wildlife management area...Its main aims were to protect traditional hunting and land rights, as well as to develop and manage the natural resources of the area.²⁰

Several commentators (e.g. Asigau 1989; Eaton 1985, 1991) indicate that WMAs serve to strengthen and formalise customary land and resource ownership. Although this is not explicitly stated in the legislation, it is a correct assessment. As Herington (1978:4-5) notes, WMAs were a new form of conservation program 'compatible with traditional rights and customs in these areas' with 'continued traditional ownership of the land'. These features—recognition of customary ownership, and that landowners are directly in control of the resources within their customary lands—were key to the subsequent popularity of the WMA concept throughout PNG (Asigau 1989:136). The gazettal of rules drawn up by local people confers statutory recognition of existing customary practices, as well as new practices aimed at protecting wildlife and/or benefiting from their exploitation in the context of the monetary economy (e.g. Herington 1978:4). In so doing they help make local land and resource rights official, building on the other protections afforded by the PNG Constitution and other PNG laws.

²⁰ The 'concern over hunting by outsiders' refers to the experience of the late 1960s with Northern Seafoods Pty Ltd.

Rules and Committee

The current rules cover the exploitation of deer, fish and other game caught by tourists visiting the BWL, i.e., harvesting by outsiders. As mentioned in the previous chapter, there has always been a symbiotic relationship between the BWL and the TWMA, given that the lodge is the major *in-situ* developer of wildlife resources.

These rules place restrictions on the locations, types and numbers of wildlife resources that may be killed by hunters or fishermen, and set the amounts of royalties that must be paid for each species (Eaton 1985:10). Half of the royalties are paid to the owners of the land from which resources are extracted, while the other half is deposited into a trust fund intended for the development and welfare of villagers with lands in the WMA (Eaton 1985:11). Sections 16 and 18 of the legislation allow for the appointment of an agent for the Committee, who is responsible for the issuing of licences and collection of fees and royalties. Until 1987, the BWL manager performed these duties. After that date the funds were administered by the Tonda Wildlife Management Corporation (TWMC) (see below).²¹

The key rules, as gazetted in 1975 and amended in 1976, were as follows:

1. Only customary landowners can hunt freely within the WMA;
2. Tourists must pay a licence fee (K2) to fish, and to hunt deer and ducks; they also require a firearm permit from the Police;
3. No hunting to be done between the Torassi and Morehead Rivers (i.e. not on the Bula Plains);
4. Limits and royalties apply to fish, deer and ducks taken; no more than five ducks and deer; duck royalty K2 each; deer royalties on sliding scale: first animal K5, fifth deer K60.
5. Hunters may not hunt from a vehicle or boat;

²¹ Two local men were gazetted as agents in 1980 to carry out these functions (*PNG National Gazette*, No. G108, 24 December 1980, p. 1159). This does not appear to have been a successful arrangement; Eaton (1986:12) reports that the collection of fees and royalties soon reverted back to the BWL.

6. Carcasses to remain property of licensee (Herington 1978:9-10; Kwapena 1984:319).

Other rule changes around 1986 resulted in the imposition of a bag limit of three deer, at K50 per deer; one boar per hunter for K20; and a single entry fee that covered all licences for hunting and fishing (Brian Brumley, pers. comm., 1997).²²

Operation of the Committee

The functions of the Committee have been hampered by a number of factors such as governance, environment, and sociocultural issues.

From the early 1980s, the financial difficulties of the PNG National Government led to a reduction in funding for conservation and development programs. The resulting lack of state support for the TWMA Committee adversely affected its ability to operate effectively (Bowe 2000:139; Collins et al. 1991:180; Eaton 1986, 1991). In 1983 Eaton (1985, 1996) was directed by DEC to assess the status of WMAs throughout the country. Following his visit to TWMA in September of that year, he reported that:

The Wildlife Branch was once very active in the area; they assisted the development of the management area, initiated the deer farming project and encouraged crocodile and butterfly farming. Cuts in public expenditure and restructuring of government departments have led to a complete run-down of all these activities. There is now only one wildlife officer in the area and he is unaware of his position, role and functions. He received little funding, supervision or guidance; he is unable to make patrols or do much extension work. In his own words, “normal yearly operations have entirely arrived at a stop” (Eaton 1986:13).

Other problems relate to the nature of local settlements, transport infrastructure, and seasonality. Villages are scattered across a large area, and hence it is has always proved difficult for the representatives to meet, on account of distance and travelling times, and lack of vehicles (and high costs of those few available for hire). Wet season inundation also means that most meetings are held in the dry season.

²² Chatterton (2000:81) states that the rules have been amended at least four times since 1975.

There has been little attention to the role of social and cultural factors in the operations of the Committee. From a Torassi perspective, a long-standing source of tension has been the payment of 50 percent of all royalties to this body. Many local landowners have never been happy about 'losing' what they consider to be half of 'their money', derived from the use of the resources of their lands and waters. In the late 1990s the BWL capitalised on this dissatisfaction in an attempt to end the stalemate it faced as a result of ongoing blockades, and began paying 100 percent royalties to landowners. More recently, it has been suggested by WWF, in the ongoing absence of any government financial aid, that percent of royalties go to landowners, and the remaining one quarter to a bank account managed by the Committee (Anonymous 2000).

This relates more generally to a problem of representation; Torassi people have sometimes expressed unease at the decision-making role of Committee members from the eastern part of the Morehead District, given that they are culturally and linguistically more distant and own lands that do not generate royalties. Some people consequently feel that they should not have a say in TWMA decisions impacting on Torassi events. This would seem to be the rationale behind a move by some Committee members in 1990 to 'split' the TWMA into two sub-management areas, east and west of the Morehead River, although these plans were later shelved.

The issue of representation has often made the Committee less authoritative, and hence less effective. As mentioned, each village had its own member on the Committee. However, this is not reflective of the social system. The really important units of society with respect to lands and resources today are the patriline, and the local section groups of which they are a part. According to Chatterton et al. (1997:23) 'dialect groups are the largest unit of land management'. This is true to the extent described in Chapter 3, where a dialect group has a recognised territory, and where through shared language, identity and proximity of residence, local people are able to discuss land management issues relating to this area. But dialect groups do not own land jointly, and they cannot function at a corporate level, apart from certain production activities. As mentioned in the last chapter, cooperative political action within and between dialect groups is not possible in the long term.

Contemporary villages remain, in many instances, either colonial constructions, or are the result of a reconstitution of the traditional pattern of smaller hamlets, influenced by the location of modern amenities such as roads and other services. In recent years this has led to a considerable increase in the number of settlements in the district, with some dialect groups now represented by four or more villages. The original TWMA Committee comprised fourteen village representatives, but this had grown to twenty-one in 1996 (Chatterton et al. 1997:53), while in 2000 twenty-seven members were recognised (Anonymous 2000). This trend may make future operation even more unwieldy.²³

Examination of copies of the minutes of various TWMA Committee meetings, and discussion with members and landowners, reveals that there have often been tensions associated with the authority of these people to speak for other landowners. On occasion, members appear to have made unilateral decisions, and it is certainly not clear as to whom they were representing, themselves or their constituents; and there sometimes appeared to be a direct conflict of interest between these roles. Certainly during my time in the field, it was a common complaint that the members did not adequately represent the views of the majority of landowners. Some men see the role as a chance to engage with and wield new forms of power, and take the opportunity to self-aggrandize and further the interests of their own group. At any rate, given the small and independent nature of land-holding groups, and the history of disputation between them, it will be seen that no ‘majority consensus’ generally exists to be represented. Another common accusation was their failure to report back the results of meetings to local people. I would suggest that this is a fairly typical Melanesian trait, where control of information is often viewed as a form of power, and in a competitive context, people may become possessive of it (e.g. Fahey 1986:148). Although the point could be pushed too far, this may also reflect the secrecy associated with control of ritual and magic, which were important to traditional forms of leadership. This might also account for a general ignorance of the TWMA

²³ It is interesting to note that in the 2000 rule changes, Wando is listed as having two Committee members, who are from the Maiawa and Sangara clans most involved with the BWL disputes, which themselves have a long history of enmity. This again reflects the trend towards localisation, and if it were to continue, it would signal further problems for the ability of the Committee to operate effectively.

rules among the inhabitants of the area, which is reflected in the people's 'Log of Demands'; for example, the accusation about the BWL profiting by sending the carcasses of deer shot by tourists to Mount Hagen. The BWL could technically argue that the tourists, who owned the animal once it was shot, had given them the carcasses to do with as they please.

The upshot of this situation is that there were often occasions, in the course of local disputes with the BWL and NAMI, for disagreements between landowners and Committee members to occur, with both arguing that outsiders should deal directly with them, and not the other. Often, landowners felt that they could make their own arrangements with developers. This, of course, presented difficulties for these companies, especially where it related to activities that were not governed by the TWMA rules, such as the provision of Rusa deer meat for the BWL management and his dogs, and the harvesting of flora (not covered by the legislation).

The reduction in DEC support and guidance seems to have exacerbated this problem, and led to some questionable TWMA Committee decisions. During the 1980s and 1990s there were many different rules passed, most of which were never actually gazetted by the Minister; it is not even clear that they were even communicated to the DEC or the BWL in some cases. These ad hoc rule changes often seemed to be at the whim of individuals, in the context of disputes within communities, and/or with the BWL. The DEC vision was that rules would only ever be made law when they had the support of all the people with interests in the WMA, together with technical advice from government officers (Kwapena 1984:318). Several minutes of TWMA demonstrate that where common sense advice from government officers was not to the liking or political interests of members, it was often ignored. The general absence of the state meant that local people were less willing to accept its guidance and authority.

Another problem associated with rules changes, to judge from the TWMA Committee minutes, is the tendency for various government officials to grandstand, and insist upon the involvement of themselves and their (ineffective and under-funded) departments before votes were taken on new rules. Their inability to follow through with advice and assistance was a further impediment to the organic development of locally appropriate, commonsense regulations.

According to Chatterton (2000:82), it is a lack of education and scientific understanding of conservation biology which is responsible for the Committee being unable to enforce rules. This is not correct. It is close ties of kinship throughout the area that make the application of sanction difficult, as the wrongdoer is very likely to be consanguineal, affinal, or classificatory kin, or a member of a neighbouring, traditionally allied group. Local people I spoke to were keen to see the appointment of 'outside' officials to enforce the rules of the TWMA, which are said to be regularly flouted by public servants, tourists, BWL workers and villagers alike, to overcome the problem of not being able to fine a 'cousin-brother'.²⁴ Further, locals fining locals is likely to exacerbate existing disputes, or create new ones.

Tonda Wildlife Management Area and the Lodge

Problems of representation and authority were to dog the BWL dispute. For example, it is clear from the people's Log of Demands that while villagers cited BWL breaches of the TWMA to support their claims, they believed that the rules did not govern the actual relationship between the lodge and Torassi people. They claimed that the BWL operated without any 'set terms and conditions', and demanded a memorandum of understanding to guide BWL-landowner relationship at the local level. As far as the BWL was concerned, the TWMA rules governed their legal responsibilities in relation to the exploitation of locally owned resources. The manager therefore expected to be able to deal with a limited number of officially recognised representatives, rather than a plethora of landowners. At the same time, however, he was quite happy to make ad hoc arrangements with particular landowners when this suited his requirements.

Many of the alleged breaches were in fact the result of internal disputes between clans, of which the BWL was dimly aware, if at all. These included allegations of boat operator's incorrectly identifying the owners of wildlife resources, to benefit themselves and their kin.

²⁴ Nonetheless, in 2000 WWF (Anonymous 2000) helped to draw up new rules that made provision for the appointment of twenty-four local rangers. I discuss these issues later in the chapter.

The Log of Demands clearly showed that local people wanted their own official compact with the lodge, to cover their expectations of its responsibilities to landowners. These went beyond royalties or indirect services, to a full share in its wealth, which was created through their lands and resources. As mentioned in the previous chapter, this ‘wealth’ was galling to people for whom inequality is a denial of symmetrical relationship. Wartha therefore sought the intervention of the state to make the BWL manager meet the commitments they thought he had, as a member of the local community. This is not to say he was especially incorporated into the kinship system; but many people clearly did see him as a member of the Torassi community.²⁵

The TWMA was useful to Torassi people as one vehicle for the articulation of these demands. But while the DEC officers investigating the dispute expected that villagers would address any and all grievances over royalties or other BWL operations through the ‘proper’ channels, i.e., the TWMA Committee, Torassi landowners saw this as only one means to achieving their ends. By this time their other complaints, such as those concerning the airstrip, were so intertwined that it is unlikely that the TWMA process could ever have delivered resolution or satisfaction, even assuming that it could enforce the supposed breaches, which it could not.

In short, it appears that in some cases there was a clash between two access-right regimes—localised, customary practices, and the state-sanctioned TWMA rules, supposedly reflective of custom, and enforced by the TWMA Committee. However, there is nothing customary about the latter system. There will always be tension and disputation where local people feel that the rules do not reflect their interests. Given the general failure to enforce the regulations (due to the absence of impartial outsiders, such as DEC officers, and the fact that transgressors may well be relatives), landowners do not necessarily feel obliged to abide by them, particularly where they do conflict with their interests; they can always argue that they are the ‘boss’ of their own lands, and receive support for this stance from their fellows.

²⁵ The manger did, of course, have certain long associations with particular people and families. When he passed away, one Torassi LLG Member said, ‘he was my father’.

The TWMA was therefore unable to play an effective role during the BWL dispute, other than providing a sympathetic forum for Torassi landowners to air their grievances, and an official platform from which to address these to the state. It had no jurisdiction over the airstrip matter, and it often had to defer to Wartha people, as villagers from other places cannot talk of or for other people's lands—more so where the royalties created upon them supported the Committee's own existence. This stymied its ability to assume an impartial or moderating role. These problems were recognised by local government officials, who complained of the 'overpowering of Tonda WMA Committee and it's [sic] rules by a handful of resources [sic] owners along [the] Bensbach River' (Chatterton et al. 1997:Annex 3). I would suggest that the TWMA has, in a sense, been captive to the Torassi throughout its operational life, in that the landowners from that area have been most able to speak to matters of royalties and disbursements, which consume most of its deliberations.²⁶

As local people's demands and actions escalated to encompass the involvement of the Provincial and National Governments, the Committee increasingly had less of a role to play. Wartha saw it as only one mechanism by which benefits could be achieved with respect to lands and resources. This is not to suggest that it was not recognised as having a key role to play—Wartha respected its statutory authority, and membership of the Committee was a sought-after position. But the independence and egalitarianism of Wartha society meant that Committee decisions or advice could be easily ignored, where these encumbered their rights and interests as landowners.

The above problems and issues were well known facts. In particular, the lack of DEC support through the 1970s and 1980s, and the inability to enforce sanctions, were very frustrating for Wartha and other Morehead people, and undoubtedly stoked existing resentment over their relative powerlessness to achieve additional benefits from the operation of the BWL and other developers, from a system that promised them ownership, control, and development.

²⁶ This may change in the future; for the forthcoming 2005 fishing season, BWL has no bookings (a first), while there are a dozen groups of tourists booked to go fishing on the Morehead River, operating from an Australian fishing vessel (Gary Barmby, pers. comm., 2004).

Tonda Wildlife Management Corporation

From around 1980, local people and government officials began to voice concerns regarding the 50 percent of royalties that were held in the trust fund.²⁷ This money had been collected and banked by the BWL under the rules of the TWMA, and could not be accessed by locals until the TWMA established some sort of incorporated business group and opened a bank account. For several years repeated requests to the state to assist them in this matter went ignored, leading to increased frustrations and anger against the BWL, which was incorrectly identified as holding up the process.

Finally, Tonda Wildlife Management Corporation Pty Ltd (Company No. C12714) (TWMC) was incorporated on 22 September 1987 under the *Companies Act*, as the business arm of the TWMA. The lodge duly handed over the fees and royalties held in trust, which by that time amounted to some K26,000. TWMC then transferred K10,000 to a cheque account, while another K10,000 was transferred into an interest bearing deposit account. The remainder was apparently spent very quickly in the course of the operations of the TWMA Committee.

The idea behind this organisation was to make loans available to individuals and groups in the area for the development of small business projects. In other words, it was to assist with development throughout the Morehead District, to address the inequality that resulted from only a very few landowners obtaining royalties from BWL operations.

The revenue of the TWMC steadily declined after 1987. Every year, two meetings would be held by the Committee, costing between K1,000 and K2,000. The dispersed nature of local settlements meant that such events required substantial expenditure on truck hire and food supplies. Further, the Committee sometimes had to pay for the accommodation and food of visiting public servants from Daru. In some cases, these officers stated that they would only attend if the Committee paid their airfares, due to travel restrictions imposed by their limited departmental

²⁷ Most of the following information concerning the TWMC was supplied to me by the incorporation's former Chairman.

budgets. This seems to have been more common on occasions when extraordinary meetings were held to consider landowner grievances against the BWL.

There was also a number of *ex gratia* payments to past Committee members in recognition of their involvement with the body, and the later establishment of a K200 ‘resignation fee’ resulted in a flurry of departures from the Committee. Also, after the handover of agency functions by the BWL, these duties were undertaken by two Torassi agents. Their job was to accompany tourists on the BWL boats, in addition to the BWL operators, to check where the resources were collected, and note royalty figures.²⁸ These were voluntary, unpaid positions. Later, the committee decided that they should be paid, and they were given K600 or K650 each for work done previously, despite the fact that Section 19 of the legislation explicitly states that the position will not attract remuneration.

In an attempt to create its own revenue stream, the corporation operated a trade store in Morehead between March 1995 and January 1996. During this time it received eight or nine shipments of freight from Daru; these were organised by the Chairman, who would travel there to buy stock from Daru Trading Company Pty Ltd, one of the larger stores on the island.²⁹ Problems of fiscal mismanagement, including extension of credit to kin, resulted in lower than expected profitability. Worse was to come when thieves broke into the store in late 1995, stealing around K4,000 in cash. The Chairman stated that if not for these problems, it was a profitable venture, generating approximately K2,000 to K3,000 profit on each shipment of goods. These profits went back into the TWMC cheque account.

It appears that a number of other payments were made for activities wholly unrelated to the operations of the TWMA Committee, including a large sum of money allegedly given to one man to visit Israel as part of a Christian pilgrimage.³⁰ As well,

²⁸ According to the BWL manager, this system of guides (intended by the TWMA Committee to overcome the problems of operators making incorrect statements about resource use) was never successful, as they were consistently late for work, and took up too much room in the small boats used by the BWL (Brian Brumley, pers. comm., 1997).

²⁹ Given Daru’s distance, this would have entailed a considerable amount of air travel, which no doubt further depleted the coffers.

³⁰ Local rumour says that this man never got beyond Daru.

a number of loans were made, supposedly to individuals seeking to establish business enterprises; none of these were successful, and no money was ever repaid, as the recipients apparently viewed them as grants. Additionally, in the course of the disputes with the BWL, several Daru and Port Moresby-based accountants and lawyers were also paid for various services, for apparently very little return on this expenditure.

It is clear that Committee members and agents considered their involvement in the organisation to be work, and by the 1990s sitting fees were the norm, on top of all the other costs. Unfortunately this, together with the other episodes of poor fiscal management cited above, ate into available revenue much faster than it was able to be replaced by BWL operations.³¹

The BWL manager often complained that the local people should have invested the money in shares in the lodge.³² In fact, this had been considered by the Committee in the 1970s, but never eventuated (Herington 1978:10). He suspected that local people did not understand the concept, on account of their poor education. While this may account for the situation in part, I suspect that the idea of long-term investment was not only foreign to local people, it actually went against the ethos of direct and immediate exchange. Where a return is not immediately forthcoming, there is a calculation of loss, which is soon demanded.

The former Corporation Chairman stated that he had no training in the submission of tax returns, filing only one, in the first year. When I interviewed him in 1987 the TWMC was not operating, and is presumed insolvent.

The World Wide Fund for Nature

Since 1996, the international conservation NGO, World Wide Fund for Nature (WWF), has been active in TWMA. These activities have grown out of its

³¹ The TWMA rule changes suggested in 2000 also include allowance for sitting fees.

³² Several overviews of the operation of the TWMA have glossed over the BWL dispute, attributing it in part to ‘concerns that it is not open to local shareholding’ (Chatterton 2000:81; see also Chatterton et al. 1997:54). If local people did in fact say this, I would venture to suggest that they meant something else, namely, that they wanted to be *directors*, not *shareholders*.

involvement in neighbouring Wasur National Park, where it has had a presence since 1991, working with local people to help protect wildlife and traditional resource rights, and to create sustainable development initiatives (Bowe 2000:142; Craven 1992).

On the Torassi borderland, WWF seeks to address what it identifies as the core problems precluding effective management of the area, namely a lack of funds, which prevents regular Committee meetings from taking place, as well as ‘a general lack of understanding about the role of the Committee and a lack of awareness of some of the more pressing ecological problems’ (Bowe 2000:139). WWF has attempted to tackle all of these issues, through several different projects, in order to make TWMA more than just a ‘paper park’.

WWF first commenced a program of community consultation with the people of the TWMA in 1996, to develop the Community Land Care Project, which ‘seeks to address the declining management framework of Tonda Wildlife Management Area through capacity building in conservation management and eco-enterprises, and to link it more solidly to regional development planning’ (Chatterton 2000:82; Chatterton et al. 1997). Specifically, this has involved assistance to hold Committee meetings, progress the gazettal of new rules and the appointment of rangers, and the convening of workshops on pest species and environmental changes (e.g. Anonymous 2000; Bowe 2000:139).

With respect to the regional issue, WWF has initiated what is called the Tri-National Wetlands Programs, which aims to establish linkages between Tonda and its borderland neighbour, Wasur National Park in Papua Province, and Kakadu National Park in Australia’s Northern Territory. In so doing, it is hoped that this will enable the transfer of information and lessons on wetland management between these ‘sister-parks’, which all share similar ecosystems, species, and threats, but very different management systems (Bowe 2000:138). With respect to the borderland parks of TWMA and Wasur in particular, there is a recognition that threats within the region cannot necessarily be addressed entirely within political boundaries (Chatterton 2000:82). This program has involved cross-border visits by rangers and Committee members from each park to the others, for training and education (e.g. WWF 2000). There has been an especially strong focus on learning about the

changing vegetation patterns, such as Melaleuca colonisation, and the link between this and Rusa deer and traditional fire regimes on both sides of the border (e.g. Stronach 2000).

WWF Narratives of Tonda Wildlife Management Area

WWF narratives of TWMA celebrate its remarkable biodiversity and beauty, and stand in stark contrast to earlier colonial perceptions of a monotonous landscape, alternating between swampy morass and dry, waterless plain. One WWF publication has even gone as far to describe TWMA as the ‘The last natural frontier of the World’ (Anonymous 2002:1): ‘to date, the Tonda WMA is still unmapped and the biodiversity is yet to be discovered. There is a need to conduct scientific studies – there could be plants and wildlife that is yet to be discovered’ (Anonymous 2002:2).³³ Such a representation conveniently obscures decades of research in the area, to present a picture of an exciting, unknown wilderness.

WWF brochures and websites detailing their activities in Tonda, Wasur and Kakadu are also replete with images of smiling children in traditional costume; colourful waterbirds; and idyllic scenes of dugout canoes gliding past water lilies, no doubt calculated to appeal to the international donor community. More recently, support from the governments of Australia, PNG and Indonesia for the sister-parks, in the form of the Tri-National Wetlands Initiative (which appears to be the WWF Tri-National Wetlands Program with significant government funding) has been designated a ‘Gift to the Earth’. This is WWF’s highest accolade for the good conservation work of others:

a public celebration by WWF, the international conservation organization, of a conservation action by a government, a company, or an individual which is both a demonstration of environmental leadership and a globally significant contribution to the protection of the living world (Anonymous 2002:2).

In fact, this status was self-awarded to their own project, which ‘enables WWF to draw worldwide attention to the conservation achievement among media, funding

³³ Presumably enough biodiversity is known to celebrate this aspect!

agencies, and other international organisations, as well as the larger public (Anonymous 2002:2).

While these celebratory narratives are completely understandable in the context of attempts to secure funding vital to the initiation and continuation of such projects, given competition from dozens of other NGOs and ‘donor fatigue’, they completely obscure the political context of these protected areas. While these issues hardly matter in the world of ‘grey literature’ and flashy websites, it has real implications for on-the-ground management of lands and resources, in terms of the ability of projects to meet their own goals, and those of local people. In the case of the Torassi, it appears that WWF has so far given little attention to sociocultural issues relating to the TWMA, in particular, the nature of local land and resource ownership, to judge from their attempts to progress the gazettal of new rules. To date, the only border of interest is the imaginary line running north of the Torassi rivermouth. I would suggest that attention to local boundaries is just as apposite to questions of control and access to wildlife resources, given the history of articulation and disputation in the area.

WWF Relationship with Local People

I would also argue that the Wartha and WWF have very different expectations about the relationship they are establishing with each other. As mentioned in the preceding chapter, Wartha couch relations with outsiders, in particular those that are ongoing, in the idiom of kinship. From this flows an expectation of equality, partnership, and reciprocity.

It is clear from the letter of invitation from the TWMA Committee to WWF, which was written by a Wartha man, that local people expect more ‘development’ than ‘conservation’ to result from these interactions (Appendix 14). In fact, it was the PNG WWF officer who has noted this with respect to their operations in Tonda: ‘sometimes the expectations from the community is [sic] different, they see an outside body like WWF as being a provider of services’ (Junne Cosmos, WWF PNG, quoted in Anonymous 2002:2). While WWF may have presented their work to locals as an Integrated Conservation and Development (ICAD) program (Chatterton et al. 1997), there certainly has been no observable contribution to ‘development’ so far,

either in the provision of those forms of aid that are most sought-after by villagers (in particular, water supplies in this drought-prevalent region), or assistance with business ventures, as explicitly requested in the 'Letter of Invitation'.

In Wasur National Park, on the other hand, WWF have apparently provided assistance to local Kanum people to operate small, village-size leaf oil stills (Bowe 1995), and have also helped one village to establish a guest house. While leaf oil production has apparently been quite successful, the accommodation venture has received very few tourists (Mike Cookson, ANU, pers. comm., 2003).

The fact remains that WWF is an environmental NGO which, like all other Western conservationists, primarily seeks 'to address 'the needs of nature' rather than the aspirations of its local guardians' (Filer 2000:1). When WWF and Wartha speak of conservation and development, they are speaking of different projects and orientations. I would suggest that more attention by WWF to the 'D' in ICAD would do more to establish and build relationships than any number of workshops on deer grazing or fire regimes. Past history demonstrates that good relations are those that are serviced.

WWF and the Lodge

Given the inseparable fortunes of the BWL and TWMA since their emergence in the early 1970s, it is interesting to note the extent to which references to the lodge are largely absent in WWF writings about the TWMA. Occasional reference is certainly made to its role in providing royalties, and that it is involved in disputes with landowners (e.g. Chatterton et al. 1997). But there is very little discussion beyond these facts, despite its role as the only outside operation that exploits wildlife on a large scale, thereby providing almost all revenue to local landowners and the TWMA.³⁴

³⁴ An exception is Chatterton (2000:81), who notes that 'the tourist lodge (run by an expatriate) is a prime motivator in maintaining the Area and provides a significant model of corporate support for conservation'; he also notes that local people are aware of its importance to the area and the WMA.

I would suggest that these omissions are politically motivated. It is not in WWF's interests to communicate the dysfunctional aspects of the TWMA to its potential donor community. Further, any focus on the BWL as a key player in the area's fortunes would diminish the role of indigenous people, who are said to be the driving force behind its inception and ongoing management. WWF is itself keenly aware of the disputes, and their staff do not stay at the BWL when they visit the Torassi area. In fact, local people have insisted that they do not stay there, as they do not want the lodge to benefit (villagers receive small amounts of money from WWF for overnight accommodation); it is probably also the case that people would worry about WWF 'siding' with the manager, were they to stay at the lodge, which is what they feel about many about public servants.

The BWL manager was furious about WWF's representation of the BWL in their major pre-program report (Chatterton et al. 1997).³⁵ He complained that they had never met with him to discuss BWL operations, and had simply repeated local people's views and allegations. The BWL wanted the chance to air its counternarrative, which is also, of course, a politically charged and value-laden story about lands, resources and peoples. However, failure to at least hear out the BWL story seems incredibly naïve. Ultimately, though, it serves their ends, which is to present local people as exotic, dynamic, and independent. At the same time, it also presents them as dependent, in the sense that their problems such as funding, direction, and management are highlighted, as is WWF's role in enabling these to be overcome. The political ecology of the TWMA—struggles over lands, resources, and meanings—is a striking omission.

The Future?

Recent attempts by WWF to engage with the TWMA Committee and inhabitants of the area are, in my view, not likely to be successful in the long term. This is partly due to dependency, and the fact that NGO engagements are determined by cyclical donor funding, which is very difficult to maintain for years on end. This makes them,

³⁵ For example, the chronology on page 25 of this report states that the manager was attacked (speared) in 1984 for 'not paying proper royalties'. This occurred in 1986, and was the result of a complex series of events, as mentioned in the last chapter.

in a sense, as dependent as local people are on outside others, and accounts, in part, for their essentialised representations of the people and landscape of the TWMA. In so doing, they sidestep the real issues, namely conflicts over lands and resources.

I do not wish to prejudge these efforts, but would like to point to their experience in Wasur National Park. This is a totally different borderland area, with many more pressing problems relating to dispossession of lands and cultures, introduced species, poaching and so on. There appear to have been some considerable successes here, considering the Indonesian state's stance on indigenous land ownership, and their relationship with Papuans. For example, various tribal clans are involved in the park's management, and there has been recognition of their right to harvest certain resources, an innovation in the Indonesian context. However, a World Bank assessment of ICADs in Indonesia noted the considerable problems and pressures associated with continued transmigration, the Trans-Irian Highway, police and military corruption (particularly with regard to poaching), political instability, lack of governmental capacity, and uncoordinated regional planning. Consequently, this report suggested that local management efforts in Wasur are not likely to be sustainable without continued direct support from the NGOs (Wells et al. 1999:108).

Perhaps, most pessimistically, I could ask exactly what 'conservation' in the area has achieved since 1975, as well as the recent WWF initiatives. It is certainly the case that the TWMA rules have guaranteed resource rents for wildlife extraction, which have provided small amounts of money to some people, but this has not resulted in any major improvement in the standard of living for the majority of people (Tapari 1995). Further, although there has been increased awareness of environmental issues among Wartha as a result of WWF activities, I cannot see how this can translate into any meaningful action on the ground, such as the elimination of the known pests in the area, e.g. the destruction of weeds. Unlike Kakadu, and even Wasur, the PNG government is totally incapable of responding to such developments. The problems of the TWMA are not local; on a borderland, adjoining the frontier of a large Asian state, they are subject to much wider social, political and environmental forces.

Environmental management is really about people management, and to speak of land in the Melanesian context is to speak of land ownership. If more attention is paid to the sociocultural issues associated with the reality of the TWMA, and the wider

relations between the Committee, landowners, and outside developers, such initiatives may have more prospect of success beyond the short term. Nonetheless, the great challenges of life on a remote and underdeveloped borderland remain formidable obstacles to the implementation of conservation and development in the area.

Ultimately, local people, due to the nature of their society, their environment, and their position on an underdeveloped borderland, are unlikely to be able to enforce a statutory resource-rights regime without external assistance. The activities of WWF may even promote dependency, as ultimately they control the purse strings. It is again the case that outsiders with are attempting to inculcate outsider (in this case regional and global) management and conservation agendas. While WWF does acknowledge the importance of traditional knowledge in areas such as fire management, their failure to engage with the politics means they can never hope to understand the nature of local control over lands and resources, and the source and nature of disputes. Attention to these details might suggest appropriate methods of dealing with conflicts, should they ever impact on their own activities, or on the activities of the developers that provide the royalties that make TWMA more than just a paper park.

Summary

TWMA was created by a top-down government process, and has suffered from a lack of governmental support since the early 1980s. The TWMAC has never proved very successful in managing the TWMA, if it is to be judged by its core functions: the protection of wildlife, and the development through its controlled utilization.

To date, problems with the operation of the TWMA have been explained in terms of lack of access to funds and DEC support, distance and environment. While these factors certainly do impede its ability to function successfully, I have argued that sociocultural factors are critically important to any consideration of its operation.

A chief problem is the issue of representation. The current system, of one representative from each village, has not worked well in the past, and the increasing size of the Committee does not augur well for effective management in the future. This is because some dialect groups have more than one village, and the basic land-

holding group is the patriline, of which there may be a number in any one village, perhaps representing all three sections. Furthermore, there is a discernable trend of fragmentation even within patrilines, in terms of the division of lands between brothers and sons, and of settlements, which has been exacerbated by land disputes. Consequently, committee members cannot hope to 'speak for' lands for which they do not have the right to do so. The Committee (themselves landowners) has always had trouble enforcing sanctions, as local landowners will assert the primacy of their rights where they disagree with its decisions.

The divergence between kinship and capitalist social relations has also resulted in poor business decisions by the TWMC, and the erosion, piecemeal, of what was at one time a considerable amount of money.

The attempts by WWF to reinvigorate TWMA are dependent on continuous appeals to a fickle international donor community for large amounts of funding. Further, their own models of 'capacity-building' are as much top-down as those of DEC in the early years of TWMA's operations; they seek to inculcate the management and decision-making processes of outsider, largely Western NGOs, to local people. Little attention appears to have been given to the development side of their ICAD program. Their attempts to progress new rules for the TWMA to govern resource commoditisation, and presentation of capacity building exercises such as 'conflict resolution' workshops, do not appear to be informed by any detailed knowledge of local society and culture. There is a failure to tackle sociocultural issues that eventuate in the structural problems that result in disputes over representation. There is little point making new rules, if there is no capitalist activity in the area, and if management structures are not congruent with local kinship.

Given the level of disputation evident within dialect groups, I do not agree with WWF's claim that dialect groups are an effective unit of resource management. This is evidenced by the levels of dispute that occur within such groups over commoditised lands and resources, and the fact that they are usually divided into a number of local section groups, which reside in a number of scattered settlements. As I have stated elsewhere in the thesis, environmental management is ultimately about managing people. Dialect groups do not generally have unified goals in respect to lands and resources, and even if they did, they cannot function as corporate groups to

pursue them. A representative structure at the local section group, or even the patriline level, would be far more culturally appropriate, but would result in a very unwieldy structure. This might require the creation of the sort of sub-management areas previously considered by the TWMA Committee, whose members are aware of the tensions inherent in the current system.

PART V: CONCLUSIONS



Plate 11: Emmanuel Karum and Peter Ione, of Pikunjur village, at the MM13 border monument, west of Sota. 16 August 1997.

CHAPTER 10: CONCLUSIONS AND POSTSCRIPT

Wartha articulation with outside others in the pre-, colonial, and post-colonial periods—within local, regional and global systems—has always taken place in the context of a frontier borderland. These interactions have resulted in significant impacts on the Wartha lifeway and homeland, including marked changes to the nature of their environment, their subsistence production, and their society and culture.

Outsiders on both sides of the south New Guinea border have sought to commoditise or regulate Wartha wildlife resources, which has led to dysfunctional disputes and negative outcomes for landowners and Torassi-based developers alike. The critical, political ecology analysis taken in the thesis has examined the precise nature of societal-environmental interactions on the Torassi borderland, and has identified the source of these problems in the incompatibility of capitalist and kinship modes of production.

Accounting for Articulation

Past consideration of articulation on the borderland has focused on the constraints of distance and environment, a general lack of exploitable resources, and poor government infrastructure and services. In considering the nature of Wartha engagements with outsiders, I have sought to account for their conceptualisation of such relationships, and how this is reflected in action and outcomes. I have argued that a detailed understanding of core aspects of Wartha society—kinship and exchange relations, political leadership, and associated cultural orientations—elucidates the nature of articulation. In particular, the Wartha moral economy, which stresses sharing, cooperation, equality and direct, like-for-like reciprocity, has been seen to be particularly influential in shaping the way local people understand and enact relationships with those who wish to exploit or manage local lands and resources.

Wartha social relations and other cultural forms have guided interactions with outsiders, and have in turn been transformed by articulation with the agents of expansionist nations and states. This has altered aspects of Wartha society, economy,

politics, settlement and demography. These developments have intersected with increased social tension and disputation over commoditised wildlife resources. Inequalities in material wealth are fairly recent occurrences, and go against the values of the moral economy, as they suggest the failure to share; a serious breach of relationship that is dangerous to the social order, as it can arouse jealousy, anger, and accusations of sorcery.

The presence of disputation over lands and resources may seem surprising, given the existence of large territories, a small population, and almost total local control of the means of production, including ownership of abundant wildlife resources. Capitalist social relations of production, though small-scale, stand in tension with the Wartha kinship mode of production. Wartha social relations, forms of reciprocal exchange, and 'land tract logic' have made engagement with the ideologies and practices of capitalism a difficult experience. Being drawn into the larger market system, with access to new products and technologies, has generated new desires and needs. New understandings of economic and political power have eroded cooperation, sharing and sociality.

Social friction associated with the accumulation and distribution of cash incomes has resulted in conflicts over land boundaries, the specific forms of land ownership, and the identity of land owners. Permission for others to use lands and resources is not so freely given now, particularly where this entails creation of commodities with monetary value. While a sharing ethic remains strong throughout Wartha society, there are many who do not want others, in particular, more distant kin, to monetarily benefit from their land's resources. A frequent lament is that people are becoming less friendly and less willing to share.

Nonetheless, converting natural resources into commodities has not led, inexorably, to the replacement of a kinship mode of production by capitalist relations of production. The remote nature of the borderland has meant that remittances from co-ethnics are rare, and commodity production and resource royalties are comparatively low and unevenly distributed. Kinship social relations continue to underpin societal production and reproduction.

With respect to outsiders, it is clear that Wartha have been unable to countenance the alienation of their lands, as seen in their rejection of suggestions by the state that they sell some of their territory to establish a wildlife reserve. The case of the BWL dispute reveals the linkages between land and relationship, where local clans assert participatory ownership by virtue of the fact that resource extraction and economic development takes place on their lands. By being a resident in the area, and hence, part of the community, the BWL manager was expected to share the wealth created on customary lands, because demands of reciprocity are placed on the creative fiction of relationship. Wartha identity cannot be disassociated from their lands, and their tenure and resource rights cannot be extinguished or diminished, even temporarily, by government statute, or the rules of the TWMA. Consequently, people will always maintain an interest in all activities on their lands, and seek to benefit from these where commodity monetary value is created.

Borderland Life

The majority of anthropological research on the Melanesian experience of articulation has focused on the impacts of ‘the West’ (cf. Carrier 1992b:117). Torassi people, situated on an Asia-Pacific borderland, have experienced interactions with colonialist and capitalist agents from Asia as well. This has profoundly shaped the nature of societal-environmental interactions and impacts on the Wartha borderland. The emplacement of the Torassi at this regional political juncture is itself the outcome of past engagements with borders and frontiers: for the Marind-anim, the Torassi was their eastern border. The colonial project in south New Guinea—annexation, exploration, boundary-marking, and pacification—marked the Torassi as south New Guinea’s ‘border river’, a remarkable historical coincidence.

The story of articulation on the Torassi borderland is not simply the dialectic of meta-level constructs, such as empires and states, or modes of production. In this thesis I have shown the importance of the competing actions and values of individual agents, operating in the context of unequal power relations. I have argued that different groups and individuals have brought very different regional discursive formations—combining narratives of landscape, resources and people—to their particular projects on the Torassi borderland. These imaginaries have influenced the Wartha experience of articulation with the state, capitalism, and conservationists.

The Torassi remains a remote periphery, an underdeveloped, backwater area of the PNG state. Frontier borderlands, at least in the Western imagination, distil tropes of ‘danger’, ‘discovery’ and ‘dollars’. Frontiers are often associated with lawlessness, illegal and unregulated movements of people and goods, and profitability from transboundary exploitation and smuggling of ‘open-access’ resources. Commoditisation of resources on the Torassi documents the clash of multiple groups and individuals, often with competing property-rights regimes. Throughout, resource competition and landscape change takes place in a zone of engagement between two contiguous borderlands—Torassi and Merauke—enmeshed within wider politics and biophysical processes.

Wartha and their other neighbours are increasingly aware of their borderland status, and it is now a part of their identification as PNG citizens. Appeals to the state, associated with the BWL dispute, argued that it was incumbent on the PNG National Government to protect their lands and resources from outsiders, and to provide development on account of the strategic importance of the border. The state has failed them on both counts.

The Wartha experience of life on the periphery of the PNG state, and articulation with capitalism on an Asia-Pacific borderland has been analysed using a political ecology approach. In so doing, this thesis presents new insights on the Melanesian experience of modernity, and makes an anthropological contribution to the growing literature on border studies.

Postscript

Since the death of the BWL manager in late 2003, the lodge has not been fully functional. Although the airstrip has now been extended back into the BWL leasehold area, no planes arrive. The last few years have witnessed very poor Barramundi fishing seasons, and word of this situation has spread along the Australian recreational fishing ‘grapevine’. Angling Adventures, a Geelong, Victoria based company that organised the majority of Australian tours to the BWL, has received no bookings for the lodge in 2005.

Furthermore, it seems that the remaining BWL shareholders are currently not interested in opening the lodge for business, judging from recent local reports. The

motivations behind these actions are unclear. Perhaps the shareholders wish to punish local people, or perhaps they are planning to sell the BWL, as they have often threatened to do in the past. Again, this may simply reflect the fact that the BWL is not a priority operation for these men, given their other business interests in Mount Hagen. On the outer edge of the weak state that is PNG, two lodges stand empty on the border river. To date, neither has satisfied local people's dreams of development based on wildlife resources.

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APPENDIX 1: TIMELINE OF TORASSI HISTORICAL EVENTS

This chronology is based on my own research, as well as chronologies in Hellwig (1906:85-96) and Herington (1978:7-11).

- 1828 Dutch claim western New Guinea up to 141st Meridian.
- 1870s? A Mr Nicholls lands on the coast between the Torassi and Morehead (near Karu?), and visits a village nearby (Stone 1875-1876:108).
- 1890 March. Headquarters for the Western Division of British New Guinea established at Mabaduan (ARBNG 1889-1890:15,68).
- May. Sir William MacGregor discovers Morehead River (ARBNG 1889-1890:72-74).
- 1892 Mysterious English missionary Montague establishes a mission on the Morehead River. He is later captured by a Marind raiding party, and taken west to Sileraka (Scherpbier and Montague 1892).
- Dutch establish police post at Selerika or Sarira on Marind coast; is constantly attacked and soon abandoned (REF).
- 1893 Western Division government headquarters abandoned 17 Mar., moved to Daru Government station moved from Mabaduan to Daru 18 April 1893 (ARBNG 1892-93:41).
- Torassi River discovered February 27 by joint Anglo-Dutch expedition, led by Lieutenant-Governor Sir William MacGregor and Dutch Resident at Ternate, M. Bensbach. MacGregor names the stream after the Resident. He ascends river for approximately ten miles but sees no inhabitants (ARBNG 1892-1893:20-21).
- 1895 Convention between Britain and the Netherlands stipulates middle of the Torassi rivermouth as the southern longitudinal boundary between their possessions in New Guinea; position of this point calculated as being ‘at about 141° 1’ 47.9” of east longitude’ (cited in van der Veur 1966b:67).
- 1896 January. Sir William MacGregor makes second visit to the Morehead; notes RM at Daru has never been able to visit coast west of Boigu (ARBNG 1895-1896:42-43).
- May. Sir Wiliam MacGregor engages and repels a Marind war fleet on the Wassi Kussa (ARBNG 1895-1896:53-54).
- 1897 March. Sir William MacGregor makes third visit to Morehead River (ARBNG 1896-1897:23-25).

- Establishment of Police Post at Bugi, opposite Boigu Island, to deter Marind raids and protect local people (ARBNG 1897-1898:22).
- 1898 William Dammköhler ascends the Torassi, then Morehead River, in a dinghy from the cutter *Edna*. He is attacked by a Marind raiding party on the latter stream and narrowly escapes with his life (ARBNG 1898-1899:10-11).
- 1900 February. Lieutenant-Governor visits Morehead River to obtain details of raid on Sanana tribe. The names of those killed and captured sent to Dutch government (ARBNG 1900-1901:xix).
- William Dammköhler again visits the Torassi and Morehead Rivers with Torres Strait trader G. Pim, aboard the lugger *Tweed* (Pim 1901).
- October. RM Murray visits Morehead River in October, passes lugger *Tweed* on the way in (Pim 1901).
- November. Resident of Dutch New Guinea Kröesen visits British New Guinea in response to British complaints about Sanana raid. With RM Murray visits Saibai and Boigu to collect data on past raids, then visit mouth of Torassi, before returning to the Morehead. A six-man police detachment sent from Daru to the mouth of the Morehead to meet Murray fight off a Marind canoe fleet returning from an attack on Tugaribio village. Murray and Kroesen arrive at Morehead River and then visit Tugaribio. Dutch subsequently accept that Marind reside in their territory, pay compensation, and promise to establish border post (ARBNG 1900-1901:xx).
- First appearance of Toro in colonial records (Le Hunte 1900)
- 1902 February. Merauke established (Hellwig 1906:85).
- Broken arrow etc. received from Tugeri via Toro (Jiear 1903).
- 1903 March. Visit made by RMWD to mouth of Bensbach; planned trip up Morehead abandoned due to flooded state of river (ARBNG 1902-1903:21).
- July. RM A.H. Jiear visits newly founded Merauke to arrange Anglo-Dutch visit up the Torassi (Hellwig 1906:88; Jiear 1903).
- Government outstation at Bugi removed (ARBNG 1903-1904:41).
- 1903 September. RM Jiear visits Toro people (ARBNG 1903-1904:42; Jiear 1903).
- 1904 January. RM Jiear hears report at Bugi ‘that a small party of the Tugeri had paid a friendly visit to our Toro (Bensbach River) natives, and had presented the latter with two canoes’ (ARBNG 1904-1905:40).

- February. C.G. Seligmann visits Bensbach as part of Cooke-Daniels Ethnographical Expedition to British New Guinea, accompanying Government party headed by Acting Administrator Christopher Robinson. 'Tivi' is visited (ARBNG 1903-1904:7-8; Robinson 1904; Seligmann and Strong 1906).
- 1906 December. Visit of K.M. Van Weel to Torassi (Van Weel 1906; TKNAG 25:304-307.)
- 1908 December. Dutch patrol under Captain Weber and Lieutenant Nijweide ascends the Torassi. Contact is made with the Wartha and other groups living along the river (Militaire Exploratie 1920:36; see also Overweel 1995:61,134).
- 1908 September. Visit to Morehead River by Acting RM Beaver (ARP 1908-1909:47).
- 1912 June. Visit to Morehead District by RM Beaver (ARBNG 1911-1912:71; Beaver 1912).
- 1913 March. Lieutenant-Governor Murray makes visit of inspection to Morehead River; suggests Tonda a suitable site for establishment of a temporary police camp (ARP 1912-1913:15-18).
- August. Captain Opperman walks overland from Maro River and visits Weam on the upper Torassi (Militaire Exploratie 1920:46; Opperman 1913).
- December. Tonda Police Post established on Morehead River (Lyons 1914; Sinclair 1990:57).
- 1915? Patrol of Tonda police visits Wartha people (Woodward 1916).
- December. RM Lyons enters mouth of Torassi, but is forced to return with engine trouble; marks channel with stakes for future visit (Lyons 1915).
- 1916 December. RM Lyons ascends and makes traverse of the Torassi; encounters Wartha man (Lyons 1917a).
- 1916 October. PO Flint visits Torassi (Flint 1917).
- 1917 January-February. Paul Wirz ascends Torassi and travels overland to Morehead River (Lyons 1917b:6; Schmidt 1998; Wirz 1928:168-186).
- Lance-Corporal Duna of the Tonda police escorts Wirz's Marind guide back to Merauke (ARP 1917-1918; Sinclair 1990:57).
- November. RM Lyons enters and ascends Torassi; sees a garden but no people (Lyons 1917c).

- 1919 Influenza epidemic devastates southeast Dutch New Guinea and adjoining border area in Papua (Van Baal 1966; Williams 1936:48).
- 1921 Corporal Paradeba of Tonda police visits Merauke (Sinclair 1990:57).
- 1926 August. ARM Lambden visits Torassi (Lambden 1926); F.E. Williams visits Torassi (Williams 1926-1932).
- 1927 A Dr Kalthofen visits upper Torassi (Nevermann 1939).
Tonda Police Camp abandoned (Sinclair 1990:58; see also Lambden 1926:35-36; Zimmer 1928).
- 1928 August. ARM Zimmer visits Wando (Zimmer 1928)
- 1929 October. ARM Zimmer ascends Torassi in the *Minnetonka* and again visits Wando (Zimmer 1929).
- 1930 F.E. Williams visits Bensbach. All the people of the middle Torassi are absent, visiting Merauke (Williams 1930; 1936:47).
- 1932 September. German anthropologist Hans Nevermann meets eight Wartha who are visiting the Marind settlement of Jobarik, Dutch New Guinea, to trade (Nevermann 1939:48).
- 1937 September. Controleur of South New Guinea J. van Baal visits Torassi people camped near the border (van Baal 1938a-c, 1986:260-272).
- 1938 September. Patrol Officer Faithorn visits Muni at Terwaiam in response to letter from J. van Baal. Recommends Iambo be made Village Constable (Faithorn 1938).
- 1941 Suki mission established by the Unevangelized Fields Mission (Martin 1982:114; van Nieuwenhuijsen and van Nieuwenhuijsen 1965:374)
- 1942? American P-38 Lightning crashes at Ngram; pilot is rescued by Bavir people.
- 1946 September. PO Marsh travels to Torassi to hand over Javanese and Merauke people to Dutch New Guinea; also apprehends and returns over seventy Javanese who have recently entered Papua from DNG (Marsh 1946, pers. comm. 2002).
- 1947 PO McLarty visits area and distributes corn, pumpkin and bean seeds. These are planted in October, prior to the wet season, and fail as a result (Griffin 1951).
- 1950 October. Patrol Post established at Rouku on Morehead River (Martin 2001:6; Woodhill 1950).

- January. Iambo dismissed as Wando Village Constable ‘for neglect of duties and assisting D.N.G. people [crocodile hunters]’; Kaurai Maranti as new Village Constable’ (Griffin 1951).
- 1951 11 January. PO Griffin appoints councillor Kaurai Maranti as VC at Wando, in place of Iambo, ‘dismissed in 1950 for neglect of duties and assisting D.N.G. people [crocodile hunters]’; notes large section of population migrated here from Mani at least three years ago, ‘Mani now quite abandoned’ (Griffin 1951:3).
- LMS School opens at Rouku (Griffin 1951).
- 1956 LMS Paku moves to Wando from Wereave (Giffard 1956-1957:5).
- May. APC complete construction of drilling camp on Morehead River (Giffard 1956-1957:6).
- mid-1950s APC enters the area to conduct seismic tests (Wren 1968:4).
- 1957 APC leaves Morehead area; sells equipment including housing to Administration (Wren 1968:5).
- 1959 Decision made to relocate Rouku to Morehead in early 1959; move complete by August. 350 acres of land purchased for new Morehead patrol post; work on Morehead airstrip begun (Ken Humphreys, pers. comm.; Wren 1968:5).
- 1960 Australian and Dutch representatives meet in Port Moresby and adopt the position of the mouth of the Bensbach as longitude 141° 01’ 07” east; latitude 9° 7’ 42’ south (Cook et al. 1968:10).
- Morehead airstrip opened; first flight June 1960 (Humphreys pers. comm.; Robson and Tudor 1964:246).
- c.1960 APC ceases recruiting in Western Province (Provincial Planning Committee 1979:21).
- 1963 June 30. Weam airstrip, commenced in January, opens (Cooper 1963).
- First influx of refugees to Weam etc. (Cooper 1963).
- 1963 PO J.C. Macartney is arrested by Indonesian troops west of the upper Torassi, near the international border (Ryan 1970:91-92).
- 1964 Australian and Indonesian officials meet in Djarkarta and agree to resurvey the New Guinea border; the southern portion will be the meridian passing through the mouth of the Bensbach River, which will be redetermined (Cook et al. 1968:11).
- 1965 Northern Frozen Foods Pty Ltd begins shooting and fishing operations in Bula Plains area (Downes 1968-1969:99; Wren 1968:46).

- 1966 Australian Army Survey Corps maps the area (Wren 1968:42).
- 1967 Joint Australian-Indonesian border survey team demarcates middle of Torassi at 141° 1' 10" South (Cook et al. 1968:17).
- August-October. CSIRO survey of lands in Morehead and Kiunga districts (Paijmans et al. 1971:11; Wren 1968:42).
- October. Arufe airstrip opens (Martin 2001:iv).
- December. Northern Frozen Foods Pty Ltd ceases operations on the Bula Plains (Downes 1968-1969:99).
- 1968 A preliminary proposal to establish a national game reserve in the Bensbach area is made to government following an aerial survey and ground inspection (Herington 1978:7).
- 1969 Department of Agriculture, Stock and Fisheries begins ecological investigations of the deer in southwest Papua (Downes 1972:241).
- 9 October. Morehead Local Government Council proclaimed (ARP 1968-1970:80).
- 1970 Application made to Land Development Board recommending a small land purchase to accommodate the Wildlife Station at Balamuk (Herington 1978:7).
- 1972 26 October. N.J. camps makes application (no. 71/3156) for Special Purpose Lease at Marumbuei.
- Fly River Area Authority proclaimed (Wilson 1975:61).
- Major drought in Western Province (Jackson 1982:52,117; Department of Mines and Energy 1979:2).
- 1973 Border Treaty and Border Agreement signed by PNG and Indonesia.
- 9 August. Application for lease at Marumbuei approved.
- Construction of BWL and airstrip commences.
- 15 November. Bensbach Wildlife Lodge Pty Ltd formed.
- 1974 November. BWL completed.
- 1975 6 February. Tonda Wildlife Management Area promulgated and 14 TWMA Committee members appointed (*PNG National Gazette*, No. 7:10, 6th February).
- 16 September. PNG obtains independence from Australia.
- 1977 February. Bensbach airstrip opened (Herington 1978:11).

- 1978-79 Govt deer farming (Anonymous 1979; Ranck and Tapari 1984; Stewart 1985:384).
- Major El Niño event. Severe bushfires in 1979 dry season, following failure of 1978-1979 wet season (Stronach 2000:91).
- 1981 Young men slash tyres of aircraft that landed on Bula Plains, disturbing wildlife; court action followed in which twenty-one men were prosecuted and fined (Eaton 1985:11-12, 1986:13).
- 1983 September. Eaton (1985, 1986) visits and evaluates TWMA for DEC. He finds government support absent, and local dissatisfaction with BWL operations and activities of government officers; levels and distribution of royalties; and problems with enforcement of rules.
- 1985 Western (Fly River) Provincial Government suspended by National Government (May 2001:27).
- 1986 July. BWL manager shot with arrow by Kormbo villager in the course of long-running dispute over.
- 1987 TWMC incorporated. Transfer of K26,000 royalties in trust account from BWL to TWMC bank accounts.
- 1988 NAMI begins consultations with Torassi people (Clough 1988).
- 1989-90 NAMI operates in Bensbach area.
- 1992 OPM raids BWL, steals thirteen firearms; six later recovered (Brian Brumley, pers. comm. 2003).
- 1993 16 March. Tonda WMA designated a Wetland of International Importance under the Ramsar Convention.
- 1995 June. First closure of Bensbach airstrip by aggrieved landowners (pers. Obs.).
- August. DEC visit and investigation of Torassi landowners' blockade of airstrip and claims for compensation (Genorupa and Nouairi 1995).
- 1996 May. Torassi landowners again attempt to close airstrip; mediation with DEC follows (Raga and Velai 1996).
- 29 July. Letter sent from TWMA Committee to WWF requesting assistance with sustainable development programs.
- 1987 Major El Niño event.
- Asian Economic Crisis.
- 1998 Construction commences on Barramundi Lodge at Balamuk.

- 1999 30 January. Bensbach airstrip closed by Maiawa clan (Joe Bucket, BWL, pers. comm., 17 March 1999).
- 2003 16 September. Dr Budai Tapari passes away in Port Moresby (Hitchcock 2004a).
- 2003 November. Brian Brumley dies in Melbourne, Victoria.

APPENDIX 2: INDIVIDUALS INTERVIEWED

The following is a list of individuals who were interviewed, or with whom I corresponded, regarding their experiences in the Torassi borderland, or related matters. Information from these people is cited in the thesis as a personal communication.

Barmby, Garry	Angling Adventures, Geelong, Victoria. Interviewed 13 August 2004.
Brumley, Brian	BWL Manager, 1975-2002. Interviewed various dates at BWL 1995-2002, also Avoca, Melbourne, 2003.
Bucket, Joe	Assistant to BWL Manager. Interviews and telephone conversations, 1997-2003.
Calcutt, Robin	Former Administration Officer, Western District. Interviewed at The University of Queensland, Brisbane, 1998.
Humphreys, Ken	Former Patrol Officer, Rouku and Morehead. Caloundra, Queensland, 1998.
Mahuze, Donatus	Community leader, Kondo-Marind Corner, Daru. 1998.
Martin, Grahame	Missionary and anthropologist. Interview 2004.
Marsh, David	Former Patrol Officer, Territory of Papua. Interviewed at Hobern, Sydney, 18 October 2002.
Morgan, Col	Former NAMI employee. Telephone conversation 16 September 1998.
Owen, Ifor	Kilakila Laboratories, Port Moresby. Interviews and correspondence 1997-2004.
Patching, Edward	Treaty Liaison Officer (Torres Strait Treaty), Australian Department of Foreign Affairs and Trade, Thursday Island, Interviewed 2002.
Sambell, Bruce	Ausyfish, Childers, Queensland. Interviews and correspondence, 2003-2004.
Smidt, Dirk	Rikjksmuseum voor Volkenkunde, Leiden. Interview 2002.
Stables, Gordon	Australian Native Fish Breeders Pty Ltd, Cairns. Interviewed 30 December 2000.
Stewart, John Fraser	Former UNDP volunteer and NAMI employee. Correspondence 2000.

Stronach, Neil Former deer farm employee. Correspondence 2004.

Tapari, Budai Geography Department, UPNG. Interviews and
correspondence, 1995-2002.

Wani, Jacob National Fisheries Office, Papua New Guinea.
Correspondence 2004.

APPENDIX 3: INSTITUTIONS VISITED

Australia

Fryer Library, The University of Queensland

Anthropology Museum, The University of Queensland

National Library of Australia

Queensland Museum

Australian Museum, Sydney

Papua New Guinea

National Museum and Art Gallery

National Archives and Public Records Service

Switzerland

Museum der Kulturen, Basel

The Netherlands

Algemeen Rijksarchief, The Hague

KITLV

Rijksmuseum voor Volkenkunde, Leiden

United Kingdom

Cambridge University Museum of Archaeology and Anthropology

Pitt-Rivers Museum, Oxford

Public Record Office, Kew

United States

Melanesian Archive, University of California, San Diego

APPENDIX 4: LIST OF WARTHA SETTLEMENTS, 1903-2004

In the following table, known village sites are presented, together with the month of observation. From 1951, Wando was the major settlement of *Thuntai* dialect speakers. In the 1970s, some families moved to Balamuk Wildlife Station, and old Wando Patrol Post, to be closer to work at these centres; however, the majority of people continued to live at Wando. Ayres (1979-1983) reports that people had abandoned Wando temporarily on account of several deaths, with some people living at nearby Yenir.

Year (Month)	Location/s	Population	Reference	Notes
1903 (Sept)	Napi, Kua, Toro	176	Jiear 1903	
1904 (Jan)	Tivi	60-70	Robinson 1904; Seligmann and Strong 1906	Probably Tipir. People hiding in marshes from Marind.
1909 (Dec)	Kondor	60	Verslag 1920	9 huts observed at Kondor.
1915				
1916	Pati, Wando,		Woodward 1916	Toro deserted; people at Pati making gardens; Nambi (same as Napi above?) a garden village. Wando a 'small village'. Wendemerai (probably Wontermai) and Iamu named as other Toro villages.
1916 (Oct)	Toroniunga	108	Flint 1916	'Toroniunga' means 'we are going to Toro'. Lambden (1926:34) believes this total includes Korombo people.
1917 (Jan-Feb)	'Rohr', Wontermai	not stated	Wirz 1928:168-186	'Rohr' not known by local people. Possibly a misunderstanding on Wirz's part.
1926 (Aug)	Bawerthum, Wando,	64	Lamden 1926	Wonduramai (Wontermai) and Korndor (Korndor) deserted. Another branch of Toro people living to the south at Marer, Yamu and Param.

Year (Month)	Location/s	Population	Reference	Notes
1927	Pokaroteven, from Kenju	c. 90? (45 males counted)	Williams 1926-1932:Aug:27	
1928 (Sept)	Wando, Kenjo		Zimmer 1928	Toro and Sen deserted, people living at Wando; Kenjo not visited
1928	nr Thoro		Williams TFN	
1929 (Oct)	Wando		Zimmer 1929	
1930 (Oct)	Wando		Williams TFN; 1936:47	Houses at Wando deserted, people away at feast in Merauke
1933 (Feb)	Mareri, Wando		Faithorn 1933	
1933 (Sept)	Muni, Parbin, Yei	'around 50'	Nevermann 1939:8-49	'Tjaguar' (Tjakwat) noted as being a garden place. Nevermann did not travel to Papua and obtained population figures from Dutch officials in Merauke; reports Macassan bird of paradise hunter as stating Parbin is really Tekar; this is probably Yei + kar ('place'), which is nearby.
1937 (Sept)	Muni	50-60	Van Baal 1966:13, 1986:269	
1938 (Sept)	Terwayam		Faithorn	Refuge from Muni after attack. Two old men report they formerly lived at Wando. Koro?
1946	Wando, Tondaru, Kunji	34 at first two villages		Village Constable of Kunji reports he has not been visited for 9 years
c.1948	Muni		Clancy	last of Muni people move to Wando
1970s	Balanuk			Some Wartha, mainly Bangu section members, move to Government Wildlife Station
1980	Yentri		Ayres 1979-83, 1983:299	Some Wando people living here after death

APPENDIX 5: INHABITED SETTLEMENTS, 1995-1997

The following settlements were mapped between 1995-1997, using a GPS receiver. Datum: Australian Geodetic Datum. Position Format: Australian Map Grid 1966.

Place	Eastings	Northing	Date Recorded	Notes
Balamuk (north end)	0530571	9015272	03 Nov. 1995	Colonial rendition of true name for place, which is Bramuk. People from Wando and Bondobol moved here to be close to Wildlife Station
Balamuk (south end)	0531151	9014957	23 Nov. 1995	
Bondobol	0537116	9012761	29 Nov. 1995	Mbavir settlement; colonial rendition of true name for place, which is Bantfer.
Dembanjepeth (north end)	0527640	9020650	06 Nov. 1995	Wando Patrol Post located here
Dembanjepeth (south end)	0527600	9020560	06 Nov. 1995	
Jangari (middle)	0524810	9022930	20 Jun. 1997	Small hamlet north of Pikunjur
Metafar			03 Aug. 1997	
Metafar (middle)	0512651	9055771	03 Aug. 1997	
Metafar			03 Aug. 1997	
Pikunjur (northeast end)	0526920	9022510	04 Nov. 1995	Sometimes referred to as Korombo or Korombo Corner; true Korombo. People moved here to be closer to BWL.
Pikunjur (northwest end)	0526731	9022520	04 Nov. 1995	
Pikunjur (south end)	0526776	9022385	04 Nov. 1995	
Torwaia	0527617	9020105	10 Nov. 1995	Established c.1995 (Dundon and Wilde 2000)
Yentri	0527906	9020995	08 Nov. 1995	Torassi Community School
Wando (north end)	0528231	9017704	05 Nov. 1995	Colonial rendition of true name for place, which is Wanto.

Place	Easting	Northing	Date Recorded	Notes
Wando (south end)	0528269	9017140	05 Nov. 1995	Maremo
Wando (middle)	0528514	9017330	05 Nov. 1995	Taken at Waria, a 'side' of Wando
Weann	0514649	9047100	16 Jun. 1997	
Wereave (north end)	0512608	9055867	Aug. 1997	
Wereave (south end)	0512732	9055441	Aug. 1997	

APPENDIX 6: TORASSI CENSUS DATA, 1926-2000

The following are census figures for the villages where most of the fieldwork was carried out.

YEAR	1926 ¹	1953 ²	1966 ³	1980 ⁴	1990 ⁵	2000 ⁶
Bondobol	--	33	45	44	66	81
Balamuk	--	--	--	11	68	?
Bula	--	53	79	79	86	105
Korombo	42	57	45	48	107	138
Wando	64	82	114	152	128	166
Wando Station	--	--	--	13	41	38
BWL	--	--	--	2	24	4
TOTAL		225	283	349	520	532

-- not established at this time

? not listed in supplied figures

¹ Lambden 1926; ² Baker 1953; ³ Wren 1968:Appendix B; ⁴Data supplied by National Statistical Office; ⁵National Statistical Office 1993; ⁶Preliminary census data supplied by National Statistical Office in 2002.

APPENDIX 7: RAINFALL STATISTICS

Rainfall data for Wando, 1997

YEAR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1997	116	269	203.5	37	25	13.5	34.5	0	0	0	0	159	857.5

Rainfall data for Wearn (7 years with full record only), 1967-1979.

YEAR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1967	468	326	355	68	143	90	22	24	55	46	4	188	1789
1969	320	200	462	126	18	128	57	22	11	28	34	211	1617
1970	276	227	454	99	57	114	41	26	53	245	102	314	2008
1971	205	110	330	230	113	70	131	41	122	86	24	29	1501
1973	177	159	280	252	202	109	2	38	71	90	107	305	1792
1974	150	185	97	446	77	48	30	26	75	143	79	265	1621
1977	305	168	214	225	250	31	43	18	21	6	50	242	1573
AVG	272	196	313	207	123	84	47	28	58	92	57	222	1700

Source: Lindgren 1972:7; National Weather Service, official records.

APPENDIX 8: LIST OF VOUCHER SPECIMENS

In the following tables, I list details of all species that were collected from the Torassi area, and later deposited in museums in Australia and Papua New Guinea.

SHELLFISH¹

Scientific Name	Common Name	Thuntai	Provenance	Date	Specimens	Voucher #
<u>Hyridella misoolensis</u>	Freshwater mussel	<i>keth</i>	Wando village	Nov. 1995	1	QM MO 57388
<u>Nerita articulata</u>	Nerite	<i>fedada</i>	West bank, Torassi Rivermouth	15 Jul. 1997	2	QM MO 66218
<u>Telescopium telescopium</u>	Mud Whelk	<i>basik</i>	Karu	16 Jul. 1997	2	QM MO 66219
<u>Alathyria pertexta magnifica</u>	Freshwater Mussel	<i>keth?</i>	Coll. Wando village, originally from Morehead River	12 Jan. 1998	½	QM MO 61886
<u>Alathyria pertexta magnifica</u>	Freshwater mussel	<i>keth?</i>	Dou, Torassi	30 Jan. 1998	½	QM MO 61887
<u>Anadara lischkei</u>	Cockle	<i>eino</i>	West bank, Torassi Rivermouth	12 Jan. 1998	1	QM MO 61888

¹ All shellfish were identified by staff of the Queensland Museum.

Scientific Name	Common Name	Thuntai	Provenance	Date	Specimens	Voucher #
<i>Anadara</i> <i>lischkei</i> (or <i>A. subberata</i> ?)	Half-crenated Ark	<i>eino</i>	Karu	16 Jul. 1997	1	QM MO 61889
<i>Polymesoda bengalensis</i>	Mangrove clam		Bula village, near Morehead Rivermouth	3 Jan. 1998	3	QM MO 61890-1
<i>Polymesoda bengalensis</i>	Mangrove clam	<i>edof keth</i> or <i>damura</i> ²	west bank, Torassi Rivermouth	15 Jul. 1997	2	QM MO 61892
<i>Polymesoda bengalensis</i>	Mangrove clam	<i>edof keth</i>	west bank, Torassi Rivermouth	12 Jan. 1998	6	QM MO 61893
<i>Polymesoda erosa</i>	Mangrove clam	<i>edof keth</i>	Bula village, near Morehead Rivermouth	3 Jan. 1998	1	QM MO 61894
<i>Polymesoda</i> (<i>Geloina</i>) <i>erosa</i>	Mangrove clam	<i>meri et</i> ³	Bula Village, near Morehead Rivermouth	7 Aug. 1997	2	QM MO 61895
<i>Polymesoda erosa</i>	Mangrove clam	<i>edof keth</i>	Bula village, near Morehead Rivermouth	3 Jan. 1998	1	QM MO 61896

² *edof keth* = 'sea mussel'; *damura* = 'ankle'; a reference to shape of the shell.

³ This is in Ranjier tjokwasef dialect of Bula village people, lit. 'nipa [palm] shell'.

CRUSTACEANS

Scientific Name	Common Name	Thuntai	Provenance	Date	Specimens	Voucher #
<u>Cherax bicarinatus</u>	Crayfish	<i>sarbuth</i>	near Wando village	Jan. 1997	4	QM W21971-4
<u>Cherax quadricarinatus</u>	Redclaw Crayfish	<i>thekaiam</i>	near Wando village	Jan. 1997	4	QM W21967-70
<u>Macrobrachium rosenbergii</u>	Giant River Prawn	<i>douwi</i>	Wando village	Jan. 1997	1	QM W21966
<u>Holthuisana</u> sp.	Freshwater Crab	<i>jawi</i>	near Wando village 8°52'59.5" 141°16'34.8"	22 Apr. 1997	1	QM W24747
<u>Holthuisana</u> sp.	Freshwater Crab	<i>jawi</i>	near Wemenevre village	wet season 1998-99	2	QM W25615

FISH

Scientific Name	Common Name	Thuntai	Provenance	Date	Specimens	Voucher #
<u>Kurtus gulliveri</u>	Nursefish	?	Torassi River, Bula Plains area	13 Jan. 1998	1	QM I 31073
<u>Periophthalmodon freycineti</u>	Pug-headed Mudskipper	<i>kalakala</i>	Lower Torassi River	12 Jan. 1998	1	QM I 31074
<u>Arius graeffei</u>	Lesser Salmon Catfish	<i>thewu?</i>		1998?	1	QM I 31075
<u>Glossamia aprion</u>	Mouth Almighty	<i>kaukau</i>	Wando village	17 Apr. 1998?	1	WAM P. 31340-001
<u>Mogurnda mogurnda</u>	Trout Mogurnda	<i>katip</i>	Road near Wando 8°52'51.3" 141°16'39.4"	24 Apr. 1998	3	WAM P. 31341-001
<u>Oxyeleotris herwerdinii</u>	Blackbanded Gauvina	<i>pers?</i>		25 Apr. 1997?	1	WAM P. 31341-002
<u>Clarius batrachus</u>	Walking Catfish	<i>ikan lele</i>	Road near Wando 8°52'51.3" 141°16'39.4"	24 Apr. 1998	1	WAM P. 31341-003
<u>Hephaestus raymondi</u>	Raymond's Grunter	?	BWL	May 1997	1	WAM P. 31342-001
<u>Variichthys lacustris</u>	Lake Grunter	?	BWL	May 1997	1	WAM P. 31342-002
<u>Glossamia aprion</u>	Mouth Almighty	?	BWL	May 1997	1	WAM P. 31342-003
<u>Aseraggodes klunzingeri</u>	Tailed Sole	<i>thamin</i>	Yentri (TCS)	5 May 1997	1	WAM P. 31342-004
<u>Ophistemon bengalense</u>	Onegilled Eel	<i>janganambeth</i>	Between TCS & BWL	May 1997	1	WAM P. 31342-005
<u>Arius leptaspis</u>	Triangular Shield Catfish	<i>thewu?</i>	Creek mouth between BWL & Pikunjur (Korombo)	May 1997	1	WAM P. 31342-006

Scientific Name	Common Name	Thuntai	Provenance	Date	Specimens	Voucher #
<u>Craterocephalus randi</u>	Kubuna Hardyhead	<i>katip?</i>	Creek mouth between BWL & Pikunjur (Korombo)	May 1997	3	WAMP. 31342-007
<u>Melanotaenia maccullochi</u>	Macculloch's Rainbowfish	<i>katip?</i>	Creek mouth between BWL & Pikunjur (Korombo)	May 1997	2	WAMP. 31342-008
<u>Oxyeleotris nullipora</u>	Poreless Gudgeon	<i>pers?</i>	mouths of several swamp-draining creeks/drainage channels in vicinity of BWL	May 1997	9	WAMP. 31342-009
<u>Iriatherina wernerii</u>	Threadfin Rainbowfish	<i>katip?</i>	mouths of several swamp-draining creeks/drainage channels in vicinity of BWL	May 1997	9	WAMP. 31342-010
<u>Denarius bandata</u>	Pennyfish	?	mouths of several swamp-draining creeks/drainage channels in vicinity of BWL	May 1997	4	WAMP. 31342-011
<u>Ambassis agrammus</u>	Sailfin Glass Perchlet	?	mouths of several swamp-draining creeks/drainage channels in vicinity of BWL	May 1997	3	WAMP. 31342-012
<u>Melanotaenia splendida rubrostriata</u>	Rainbowfish	<i>katip?</i>	near BWL	May 1997	1	WAMP. 31342-013

Scientific Name	Common Name	Thuntai	Provenance	Date	Specimens	Voucher #
<u>Oxyeleotris herwerdenii</u>	Blackbanded Gauvina	<i>pers</i>	Dam at rear of BWL	Aug. 1997	1	WAM P. 31380-001
<u>Porocheilus meraukensis</u>	Merauke Tandan	<i>bawur</i>	Dam at rear of BWL	Aug. 1997	1	WAM P. 31380-002
<u>Toxotes lorentzi</u>	Archeryfish	?	Dam at rear of BWL	Aug. 1997	1	WAM P. 31380-003
<u>Anabas testudineus</u>	Climbing Perch	<i>betik</i>	Dam at rear of BWL	Aug. 1997	1	WAM P. 31380-004
<u>Ambassis agrammus</u>	Sailfin Glass Perchlet	?	Dam at rear of BWL	Aug. 1997	3	WAM P. 31380-005
<u>Craterocephalus randi</u>	Kubuna Hardyhead	<i>katip?</i>	Dam at rear of BWL	Aug. 1997	1	WAM P. 31380-006
<u>Ambassis agrammus</u>	Sailfin Glass Perchlet	?			5	WAM P. 31380-007
<u>Mogurnda mogurnda</u>	Trout Mogurnda	<i>katip</i>	Swampy pool near Wando	Sept. 1997	1	WAM P. 31381-001
<u>Oxyeleotris nullipora</u>	Poreless Gudgeon	<i>pers?</i>	Swampy pool near Wando	Sept. 1997	16	WAM P. 31381-002
<u>Periophthalmus novaeguineensis</u>	New Guinea Mudskipper	<i>kalakala?</i>	Bula	Oct. 1997	4	WAM P. 31382-001

REPTILES

Scientific Name	Common Name	Thuntai	Provenance	Coll. Date	Specimens	Voucher #
<u>Lialis burtonis</u>	Burton's Snake-lizard	<i>bitakin</i>	1 km west of Balamuk	24 Oct. 1997	1	QM J63999
<u>Emoia longicauda</u>	Tree Skink	<i>yako</i>	Wando village	10 Jan. 1998	1	QM J64409
<u>Carlia sp.</u>	Skink	<i>jelkin</i>	Wando Patrol Post	8 Oct. 1997	1	QM J63997
<u>Carlia sp.</u>	Skink	<i>jelkin</i>	Wando	Oct. 1997	1	QM J63998
<u>Carlia sp.</u>	Skink	<i>jelkin</i>	Wando		1	QM J64412
<u>Carlia sp.</u>	Skink	<i>jelkin</i>	Wando		2	QM J64417-8
<u>Carlia bicarinata</u>	Skink	<i>jelkin</i>	Wando		2	QM J64410-11
<u>Carlia bicarinata</u>	Skink	<i>jelkin</i>	Wando		1	QM J64416
<u>Carlia bicarinata</u>	Skink	<i>jelkin</i>	Wando		2	QM J64420-21
<u>Cryptoblepharus virgatus</u>	Lizard	<i>jelkin</i>	Wando		1	QM J64413
<u>Lygisaurus macfarlanei</u>	Skink	<i>jelkin?</i>	Wando		1	QM J64415
<u>Carlia fusca</u>	Brown Four-Fingered Skink	<i>jelkin</i>	Wando		1	QM J64414
<u>Acrochordus arafurae</u>	File snake	<i>karmunta</i>	Balamuk village	29 Jun. 1997	1	UP8724
<u>Tropidonophis mairii plumbea</u>	Common Keelback	<i>katakata</i>	Wando village	Apr. 1997	1	UP8725
<u>Chlamydosaurus kingi</u>	Friiled Lizard	<i>banga</i>	Near Balamuk village	21 Jun. 1997	1	UP8726
<u>Lophognathus temporalis</u>	Two-lined dragon	<i>buram</i>	Near Pikunjur village	20 May 1997	1	UP8727
<u>Egernia frefrei</u>	Major Skink	<i>matan?</i>	Near Pikunjur village	14 May 1997	1	UP8728

Scientific Name	Common Name	Thuntai	Provenance	Coll. Date	Specimens	Voucher #
<u>Varanus timorensis</u>	Spotted Tree Monitor	<i>bara</i>	Main road between Bensbach and Morehead	Jun. 1997	1	UP8729
<u>Carlia bicarinata</u>	Skink	<i>jelkin</i>	Wando village	Jul. 1997	1	UP8730
<u>Carlia longipes</u>	Skink	<i>jelkin</i>	Wando village	Apr. 1997	1	UP 8731
<u>Hemidactylus frenatus</u>	House Gecko	?	Inside BWL	23 May 1997	1	UP8732
<u>Cryptoblephalus virgatus</u>	Lizard	<i>jelkin</i>	Wando village	Jul. 1997	2	UP8733a,b
<u>Varanus timorensis</u>	Spotted Tree Monitor	<i>bara</i>			1	UP8741
<u>Varanus gouldii</u>	Gould's Monitor	<i>karokaro</i>	Bula Plains, south of Balamuk village	Aug. 1997	1	UP8742
<u>Varanus prasinus</u>	Emerald Monitor	<i>teuntateunta</i>	Wemenevre village	7 Jan. 1998	1	UP8743
<u>Eugongylus rufescens</u>	Lizard	<i>kiser</i>	Wando village	26 Jan. 1998	1	UP8744
<u>Varanus doreanus</u>	Monitor	<i>tatraiam</i>	Torassi river, south of Balamuk	12 Jan. 1998	1	UP8745
<u>Boiga irregularis</u>	Brown Cat Snake or Brown Treesnake	<i>kawokerna</i>	Near Torwaia village	27 Jan. 1998	1	UP8746

MAMMALS

Scientific Name	Common Name	Thuntai	Provenance	Date	Specimens	Voucher #
<u>Isoodon macrourus</u>	Northern Brown Bandicoot	<i>miti</i>	Wando village	5 Jan. 1997	♂ skull	UPNG3542
<u>Isoodon macrourus</u>	Northern Brown Bandicoot	<i>miti</i>	Wando village	18 Jan. 1997	♂ skull	UPNG3543
<u>Echymipera rufescens</u>	Long-nosed Echymipera	<i>teman</i>	Near Wando	Jan. 1997	♂ skull	UPNG3544
<u>Thylogale brunii</u>	Dusky Pademelon	<i>warup</i>	Tipir, south of Wando	27 Feb. 1997	♀ skull	UPNG3545
<u>Tachylossus aculeatus</u>	Short-beaked Echidna	<i>yesnan</i>	Balamuk village	6 Feb. 1997	? skull	UPNG3546
<u>Pipistrellus papuanus</u>	Papuan Pipistrelle	<i>beenbenant</i>	BWL, lounge room	16 Mar. 1997	♂ in spirit	UPNG3547
<u>Thylogale brunii</u>	Dusky Pademelon	<i>warup</i>	Near Wando village	6 Mar. 1997	♂ skull + skin	UPNG3548
<u>Rattus sordidus</u>	Canefield Rat	<i>abo?</i>	Near Wando village 8°53'18.1" 141°15'40.4"	28 Apr. 1997	♀ in spirit	UPNG3549
<u>Rattus sordidus</u>	Canefield Rat	<i>abo?</i>	Wando village	27 Apr. 1997	♂ in spirit	UPNG3550
<u>Rattus leucopus</u>	Cape York Rat	<i>abo</i>	Near Wando village 8°53'18.1" 141°15'40.4"	28 Apr. 1997	♂ in spirit	UPNG3551
<u>Melomys lutillus</u>	Grassland Melomys	<i>mbar</i>	Wando village	17 Apr. 1997	♂ in spirit	UPNG3552
<u>Melomys lutillus</u>	Grassland Melomys	<i>mbar</i>	Kuru, near Bondobol	1 May 1997	♀ in spirit	UPNG3553
<u>Melomys lutillus</u>	Grassland Melomys	<i>mbar</i>	Near Wando village	28 Apr. 1997	♀ in spirit	UPNG3554
<u>Rattus sordidus</u>	Canefield Rat	<i>abo</i>	Wando village	28 Apr. 1997	♂ skull	UPNG3556
<u>Rattus sordidus</u>	Canefield Rat	<i>abo</i>	Wando village	29 Apr. 1997	♀ skull	UPNG3557

Scientific Name	Common Name	Thuntai	Provenance	Date	Specimens	Voucher #
<u>Rattus rattus</u>	Black Rat		BWL, kitchen pantry	May & 6 June 1997	? + ♀ skulls x 2	UPNNG3558a,b
<u>Isodon macrourus</u>	Northern Brown Bandicoot	<i>miti</i>	BWL grounds	7 May 1997	♀ skull	UPNNG3559
<u>Macropus agilis</u>	Agile Wallaby	<i>tauri</i>	Tambari	18 May 1997	♂ skull	UPNNG3560
<u>Planigale novaeguineae</u>	Papuan Planigale	<i>mbar</i>	BWL grounds	20 May 1997	♀ in spirit	UPNNG3561
<u>Myotis adversus</u>	Large-footed Mouse-eared Bat	<i>beenbenant</i>	BWL, lounge room	25 May 1997	♂ in spirit	UPNNG3562
<u>Petaurus breviceps</u>	Sugar Glider	<i>theti</i>	Korombo	13 June 1997	♀ in spirit	UPNNG3563
<u>Lagorchestes conspicillatus</u>	Spectacled Hare-wallaby	<i>tipari</i>	West of Weam, approx. 3.5 km from border	11 Sept. 1997	♂ skull	UPNNG3573
<u>Spilocuscus maculatus chrysothous</u>	Common Spotted Cuscus	<i>wetama</i>	Gallery woodland, lower Torassi River?	17 July 1997	♀ skull	UPNNG3574
<u>Pipistrellus</u> sp.?	Bat	<i>beenbenant</i>	House, Wando village	12 Aug. 1997	? in spirit	UPNNG3575
<u>Pipistrellus</u> sp.?	Bat	<i>beenbenant</i>	House, Wando village	12 Aug. 1997	? in spirit	UPNNG33576
<u>Melomys lutillus</u>	Grassland Melomys	<i>mbar</i>	Wando village	Jul. 1997	? skull	UPNNG3577
<u>Dactylopsila tivririgata</u>	Striped Possum	<i>maru</i>	1 km east of Wando	Aug. 1997	♀ skull	UPNNG3578
<u>Pteropus neohibernicus</u>	Greater Flying-fox	<i>parma tanur</i>	Wando village	2 Oct. 1997	♂ skull	UPNNG3630
<u>Spilocuscus maculatus</u>	Common Spotted Cuscus	<i>wetama</i>	Wando village	21 Sep. 1997	♀ skull	UPNNG3631
<u>Planigale novaeguineae</u>	Papuan Planigale	<i>mbar?</i>	Wando	6 Jan. 1998	♂ in spirit	UPNNG3632
<u>Xeromys myoides</u>	False Water-rat	<i>mbar</i>	Wando village	6 Jan. 1998	♀ in spirit	UPNNG3633
<u>Pteropus alecto</u>	Black Flying-fox	<i>tanur</i>	Wando village	2 Oct. 1997	♀ skull	UPNNG3634

Scientific Name	Common Name	Thuntai	Provenance	Date	Specimens	Voucher #
<u>Echymipera rufescens</u>	Long-nosed Echymipera	<i>teman</i>	On road between BWL & TCS	4 Sept. 1997	♂ skull	UPNG3635
<u>Xeromys myoides</u>	False Water-rat	<i>mbar</i>	Wando village	2 Jan. 1998	♀ skull	UPNG3636
<u>Sminthopsis virginiae</u>	Red-cheeked Dunnart	<i>mbar</i>	Wando	22 Jan. 1998	♀ in spirit	UPNG3637
<u>Planigale novaeguinea</u>	Papuan Planigale	<i>mbar</i>	Wando village	31 Jan. 1998	♀ in spirit	UPNG3638
<u>Hydromys chrysoaster</u>	Water Rat	<i>mberk</i>	Wando village	1 Oct 1997	♀ in spirit	UPNG3639

Abbreviations

- BWL Bensbach Wildlife Lodge
 QM Queensland Museum
 TCS Torassi Community School
 UPNG University of Papua New Guinea
 WAM Western Australian Museum

APPENDIX 9: FISH

A total of 55 species of fish are known from the Torassi (Hitchcock 2002). These are listed below, in order following that presented in Allen (1991).

No.	Scientific Name	Common Name	Thuntai Name	Eaten
Native Species				
1	<u>Carcharhinus leucas</u>	Bull Shark	<i>seisei</i>	✓
2	<u>Carcharhinus amboinensis</u>	Amboinese Shark?	<i>seisei</i>	✓
3	<u>Pristis microdon</u>	Sawfish	<i>muki</i>	✓
4	<u>Scleropages jardini</u>	Saratoga	<i>kewarei</i>	✓
5	<u>Megalops cyprinoides</u>	Oxeye Herring or Tarpon	<i>dapi</i>	✓
6	<u>Nematalosa erebi</u>	?	?	?
7	<u>Thryssa scratchleyi</u>	Freshwater Anchovy	<i>kasiroro</i>	✓
8	<u>Arius graeffei</u>	Lesser Salmon Catfish	<i>thewu?</i>	✓
9	<u>Arius leptaspis</u>	Triangular Shield Catfish	<i>thewu</i>	✓
10	<u>Neosilurus ater</u>	Narrow-fronted Tandan	<i>bawur</i>	✓
11	<u>Porochilus meraukensis</u>	Merauke Tandan	<i>garna</i>	✓
12	<u>Strongylura krefftii</u>	Freshwater Longtom	<i>matai</i>	✓
13	<u>Iriatherina wernerii</u>	Threadfin Rainbowfish	<i>katip</i>	✗
14	<u>Melanotaenia maccullochi</u>	Macculloch's Rainbowfish	<i>katip?</i>	✗
15	<u>Melanotaenia splendida rubrostriata</u>	Red-striped Rainbowfish	<i>katip?</i>	✓
16	<u>Pseudomugil gertrudae</u>	Spotted Blue-eye	<i>katip?</i>	✗
17	<u>Pseudomugil tenellus</u>	Delicate Blue-eye	<i>katip?</i>	✗
18	<u>Craterocephalus randi</u>	Kubuna Hardyhead	<i>katip?</i>	✗
19	<u>Ophisternon bengalense</u>	Onegilled Eel	<i>janganambeth</i>	✗
20	<u>Ophisternon gutturale</u>	Swamp Eel	<i>janganambeth?</i>	✗
21	<u>Lates calcarifer</u>	Barramundi	<i>jarwan</i>	✓
22	<u>Ambassis agrammus</u>	Sailfin Glass Perchlet	?	?
23	<u>Ambassis interruptus</u>	Long-Spined Glass Perchlet	?	?
24	<u>Ambassis macleayi</u>	Macleay's Glass Perchlet	?	?
25	<u>Ambassis nalua</u>	?	?	?

No.	Scientific Name	Common Name	Thuntai Name	Eaten
26	<u>Ambassis urotaenia</u>	Bleeker's Glass Perchlet	?	?
27	<u>Denarius bandata</u>	Pennyfish	?	?
28	<u>Parambassis gulliveri</u>	Giant Glass Perchlet	<i>nungra terna</i>	✓
29	<u>Amniataba affinis</u>	Tiger Grunter	<i>meku or ngileilei</i>	✓
30	<u>Hephaestus raymondi</u>	Raymond's Grunter	<i>dedin?</i>	✓
31	<u>Pingalla lorentzi</u>	Lorentz's Grunter	?	✓
32	<u>Glossamia aprion</u>	Mouth Almighty	<i>kaukau</i>	✓
33	<u>Glossamia narindica</u>	Slender Mouth Almighty	?	?
34	<u>Coius campbelli</u>	Four-banded Tigerfish	?	?
35	<u>Toxotes chatareus</u>	Seven-spot Archerfish	<i>sath</i>	✓
36	<u>Toxotes lorentzi</u>	Lorentz's Archerfish	<i>tingai</i>	✓
37	<u>Liza macrolepis</u>	Large-scaled Mullet	<i>kurumbu?</i>	✓
38	<u>Liza subviridis</u>	Greenback Mullet	<i>kurumbu</i>	✓
39	<u>Hypseleotris compressa</u>	Empire Gudgeon	<i>pers?</i>	?
40	<u>Mogurnda mogurnda</u>	Trout mogurnda	<i>katip</i>	✗
41	<u>Oxyeleotris aruensis</u>	Aru Gudgeon	<i>pers?</i>	?
42	<u>Oxyeleotris fimbriata</u>	Fimbriate Gudgeon	<i>pers?</i>	?
43	<u>Oxyeleotris herwerdenii</u>	Blackbanded Gauvina	<i>pers</i>	✓
44	<u>Oxyeleotris nullipora</u>	Poreless Gudgeon	<i>pers?</i>	?
45	<u>Oxyeleotris paucipora</u>	Fewpored Gudgeon	<i>pers?</i>	?
46	<u>Glossogobius sp.</u>	Dwarf Goby	<i>katip?</i>	?
47	<u>Periophthalmus novaeguineensis</u>	New Guinea Mudskipper	<i>kalakala</i>	✗
48	<u>Periophthalmodon freycineti</u>	Pug-headed Mudskipper	<i>kalakala</i>	✗
49	<u>Redigobius bikolanus</u>	Speckled Goby	<i>katip?</i>	✗
50	<u>Kurtus gulliveri</u>	Nurseryfish	?	✗
51	<u>Aseraggodes klunzingeri</u>	Tailed Sole	<i>thamin</i>	?
Introduced Species				
52	<u>Clarias batrachus</u>	Walking Catfish	<u>ikan lele</u> (BI)	?
53	<u>Oreochromis mossambica</u>	Tilapia	<i>mujia</i> (BI: <u>mujiah</u>)	✓
54	<u>Anabas testudineus</u>	Climbing Perch	<i>betik</i> (BI: <u>betok</u>)	✓
55	<u>Channa striata</u>	Striped Snakehead	<i>gastor</i>	?

APPENDIX 10: GARDEN PLANTS

Identification of crops were made with reference to French (1986) and Wilson (1988). This list does not purport to be exhaustive.

Scientific Name	Common Name	Thuntai Name	Notes
<u>Amaranthus</u> sp. *	Amaranth	?	
<u>Ananas</u> <u>comosus</u>	Pineapple	<i>painar</i>	Introduced
<u>Capsicum</u> <u>frutescens</u>	Chilli	<i>kindei</i>	Introduced; etymology unknown; very long type called lumbu
<u>Citrullus</u> <u>lanatus</u>	Watermelon	<i>weiari</i>	Introduced
<u>Coix</u> <u>lachryma</u>	Job's Tears	?	Semi-wild; seeds used for beads
<u>Colocasia</u> <u>esculenta</u>	Taro	<i>tjuku</i>	
<u>Cucumis</u> <u>sativas</u>	Cucumber	?	Introduced
<u>Cucurbita</u> <u>moschata</u>	Pumpkin	<i>bannuki</i>	Introduced
<u>Dioscorea</u> <u>alata</u>	Greater Yam	<i>nasei</i>	
<u>Dioscorea</u> <u>esculenta</u>	Lesser Yam	<i>thambai</i>	
<u>Dioscorea</u> <u>pentaphylla</u> *			Rarely grown in gardens; some types collected from wild
<u>Elettaria</u> <u>cardamomum</u>	Cardamom	<i>katanom</i>	Introduced
<u>Hibiscus</u> <u>manihot</u>	Aibika	?	Introduced?

* Recorded in Balamuk gardens in 1992 by Robin Hide (pers. comm. 2004); not recorded by me.

Scientific Name	Common Name	Thuntai Name	Notes
<u>Ipomoea batatas</u>	Sweet potato	<i>neinei</i>	Introduced and naturalized
<u>Lycopersicon esculentum</u>	Tomato	?	Introduced
<u>Manihot esculenta</u>	Cassava	<i>biskar</i>	Introduced late nineteenth century and naturalized
<u>Musa spp.</u>	Banana	<i>kawo</i>	
<u>Passiflora edulis</u>	Passionfruit		Introduced
<u>Piper betle</u>	Betel pepper	<i>dedami</i>	
<u>Piper mythisticum</u>	Kava	<i>kerear</i>	Rarely grown today
<u>Nicotiana sp.</u>	Tobacco	<i>sokupa</i>	Rarely grown today
<u>Saccharum officinarum</u>	Sugar cane	<i>thatha</i>	
<u>Solanum melongera</u>	Eggplant	?	Introduced
<u>Vigna unguiculata sesquipedalis</u>	Snake bean	<i>tunituni</i>	Introduced
<u>Zea mays</u>	Corn	<i>yakon</i>	Introduced; corruption of English name
<u>Zingiber sp.</u>	Ginger	?	
? <u>Saccharum sp.</u>	Pitpit	<i>pis</i>	Planted around houses and in gardens for arrowshafts

APPENDIX 11: MOUND-AND-DITCH AGRICULTURAL SITES

Datum: Australian Geodetic Datum. Position Format: Australian Map Grid 1966.

No.	Place	Easting	Northing	Record Date
1	Balamuk	0530778	9015191	2 Mar. 1997
2	Bawurthum	0528044	9018765	27 Jun. 1997
3	Bondobol	0537079	9012579	7 Aug. 1997
4	Boombe	0528680	9014275	18 Dec. 1996
5	Bulbaro	0528597	9038635	15 Aug. 1997
6	Borem	0538909	9005494	12 Oct. 1997
7	Dembantjepeth	0527649	9020646	13 May 1997
8	Drango	0530291	9016270	3 Feb. 1997
9	Garmari	0521524	9004669	17 Oct. 1997
10	Iap	0531892	9005022	17 Oct. 1997
11	Iramb	0527714	9005259	16 Oct. 1997
12	Jangari	0524692	9023038	20 Jun. 1997
13	Kapio	0529252	9017053	22 Jun. 1997
14	Katatjepeth	0527014	9016714	25 Mar. 1997
15	Kithwai	0530358	9004946	17 Oct. 1997
16	Kondor	0530936	9013250	5 Feb. 1997
17	Kutatjepeth	0528668	9017445	24 Mar. 1997
18	Marumbwei	0527318	9021529	20 Jun. 1997
19	Mertra	0530765	9015902	24 Oct. 1997
20	Murbin	0536184	9005310	7 Aug. 1997
21	Ngrangra	0528088	9019465	7 Aug. 1997
22	Njei	0528142	9009753	5 Feb. 1997
23	Pikunjur	0526959	9022474	20 Jun. 1997
24	Puniam	0530488	9012841	5 Feb. 1997
25	Sen	0527600	9018556	24 Jun. 1997
26	Tambari	0529329	9006841	16 Oct. 1997
27	Tipei	0530229	9017162	24 Mar. 1997
28	Tipir	0527600	9014983	12 Jan. 1997
29	Tumnatjen	0527692	9019166	27 Jun. 1997
30	Wamathatjen	0528368	9019218	27 Jun. 1997
31	Wando	0528428	9017588	29 Sept. 1997
32	Wariah	0528613	9017308	20 Jun. 1997

No.	Place	Easting	Northing	Record Date
33	Warmu (E bank)	0526697	9006517	5 Feb. 1997
34	Warmu (W bank)	0526408	9006419	17 Oct. 1997
35	Wend	0517511	9000901	17 Oct. 1997
36	Yarngoia	0528872	9020530	27 Jun. 1997
37	Yenir	0529028	9016390	1997
38	Yenir Bont	0528786	9016064	1997
39	Yerkak	0534783	9014322	12 Oct. 1997

APPENDIX 12: TREE CROPS

Identifications of tree crops were made with reference to French (1986), Low (1991) and Brock (1993).

Scientific Name	Common Name	<i>Thuntai</i> Name	Notes
<u>Aleurites moluccana</u>	Candle nut	?	
<u>Anacardium occidentale</u>	Cashew	<i>monyat</i>	Introduced; etymology unknown
<u>Annona muricata</u>	Soursop	<i>markai ngati</i>	Introduced; <i>markai</i> = 'European'; tree at Wando
<u>Annona squamosa</u>	Custard Apple	<i>kustabol</i>	Name a corruption of the English
<u>Areca catechu?</u>	Betel nut?	?	
<u>Artocarpus communis</u>	Breadfruit	<i>ngati</i>	
<u>Carica papaya</u>	Pawpaw	<i>manebar</i>	Introduced
<u>Citrus limon</u>	Lemon	<i>siporo</i>	Introduced; name a corruption of Police Motu <i>sipora</i>
<u>Citrus paradisi</u>	Grapefruit	grapefruit	Introduced; tree at Pikanjur
<u>Citrus sinensis</u>	Orange	<i>orses</i>	Introduced from Merauke area; name a corruption of the English
<u>Cocos nucifera</u>	Coconut	<i>nungra</i>	
<u>Mangifera indica</u>	Mango	<i>wimas</i>	
<u>Metroxylon sagu</u>	Sago	<i>mbei</i>	
<u>Morus alba</u>	Mulberry	?	Introduced; tree at Balamuk
<u>Psidium guajava</u>	Guava		Introduced; tree at Balamuk
<u>Semecarpus australiensis</u>	Australian cashew	<i>mepa</i>	Nut roasted and eaten; sap and smoke cause blisters
<u>Tamarindus indica</u>	Tamarind	<i>asam</i> (BI)	Introduced

Scientific Name	Common Name	Thuntai Name	Notes
?Terminalia <u>kaernbachii</u>	Okari/Sea almond	<i>mekei</i>	

APPENDIX 13: EDIBLE WILD PLANT SPECIES

In this table, the names and identifications, where obtained, of over 50 wild edible plants are presented. Where scientific identifications appear, these should be viewed as provisional, as most are made with reference to photographs in Brock (1993), Walter and Sam (2000) and Wrightman and Andrews (1991). The basis for secure identifications appears in square brackets. A collection of pressed specimens of many of these plants, sent to the PNG Herbarium in Lae for identification, appears to have been lost. Martin (2001:253) notes that the Keraakie of Arufe consume over 30 wild fruits, in addition to other wild plant foods.

Scientific Name	Common Name	Thuntai Name	Part Eaten	Notes
<u>Acacia auriculiformis</u> (Mimosaceae)	Black wattle	<i>ngurari</i>	?	
? <u>Antidesma ghaesembilla</u>		<i>benbena</i>	fruit?	
<u>Bambusa</u> sp.	Bamboo	<i>maramb</i>	new shoots	
<u>Banksia dentata</u> (Proteaceae)	Bottle brush	<i>ndanga</i>	flower sap	
<u>Bridelia tomentosa</u> (Euphorbiaceae)		<i>sasembeth</i>	fruit	
<u>Cassytha filiformis</u> (Lauraceae)	Dodder	<i>bunbun</i>	fruit	
? <u>Cycas</u> sp.	Cycad	<i>ngont</i>	seeds	<i>saber</i> food
<u>Dioscorea pentaphylla</u>	Five leaflet yam	<i>murta</i>	root	<i>saber</i> food
<u>Magnifera minor</u> (Anacardiaceae) [PNGFRII]	Wild mango	<i>brabra</i>	fruit	
<u>Magnifera minor</u> (Anacardiaceae)	Wild mango	<i>ndarra</i>	fruit	

Scientific Name	Common Name	Thuntai Name	Part Eaten	Notes
<u>Melastoma poliorthum</u> (Melastomatoceae)	Native Lasiandra	<i>nduntak</i>	fruit, leaves	
<u>Nymphea</u> sp. [P]	Water Lilly	<i>ngor</i>	stem, seeds in seed head	
<u>Nauclea orientalis</u> (Rubiaceae) [PNGFRJ]	Leichardt Tree	<i>narmo</i>	fruit	
<u>Nypa frutescens</u> ?		<i>dunipa</i>	nut	
<u>Passiflora foetida</u> (Passifloraceae) [P]	Wild Passionfruit or Passionflower	<i>buthabutha</i>	fruit	Introduced but naturalized
<u>Syzygium forte</u> <u>potamophilum</u> (Myrtaceae)		<i>ngapi</i>	fruit	
<u>Syzygium</u> sp.		<i>ngamboyam</i>	fruit	
? <u>Syzygium fibrosum</u>		<i>jinjinbia</i>	fruit	
? <u>Syzygium minutuliflorum</u>		<i>mambu</i>	fruit	
<u>Syzygium suborbiculare</u> (Myrtaceae)	Red Bush Apple	<i>ngaberber</i>	fruit	
<u>Zingiber</u> sp.	Wild ginger	?	rhizome	
Unidentified		<i>afenk</i>	fruit	
Unidentified		<i>aiapaiaip</i>	fruit?	
Unidentified		<i>bati</i>	fruit	eaten only by children

Scientific Name	Common Name	Thuntai Name	Part Eaten	Notes
Unidentified		<i>bembena</i>	fruit?	
Unidentified		<i>bumbu</i>	?	
Unidentified	Wild yam	<i>butha</i>	white yam	wild yam
Unidentified		<i>ndernda</i>	red fruit	tree
Unidentified		<i>demban</i>	fruit (black when ripe; green then red when unripe)	tree
Unidentified		<i>gungarberari</i>	fruit	
Unidentified		<i>ikiqfar</i>	young central shoot	
Unidentified		<i>ipu</i>	fruit	
Unidentified		<i>jannga</i>	base?	
Unidentified		<i>jinjibia</i>	fruit	
Unidentified		<i>kakarsa</i>	fruit	
Unidentified		<i>kakritu</i>	root	wild long yam; <i>saber</i> food
Unidentified		<i>keiper</i>	stem	<i>saber</i> food
Unidentified		<i>kerapi</i>	top part of central stem	
Unidentified		<i>kawokawo</i>	fruit	
Unidentified		<i>marai</i>	seeds	only eaten by children
Unidentified		<i>meterfu</i>	fruit	
Unidentified		<i>munga</i>	cooked central shoot	
Unidentified		<i>nanjika</i>	fruit of tree	

Scientific Name	Common Name	Thuntai Name	Part Eaten	Notes
Unidentified		<i>njiret</i>	fruit	
Unidentified		<i>perndrarari</i>	fruit	
Unidentified		<i>rentak</i>	fruit put in oven overnight; then wrapped in bark and put in water for one week, then cooked in oven	
Unidentified		<i>tafangar</i>	old people used to eat fruit	
Unidentified		<i>tenter</i>	heart?	palm; <i>saber</i> food
Unidentified		<i>them</i>	fruit	only eaten by children
Unidentified		<i>tendarin</i>	fruit	
Unidentified		<i>thunti</i>	heart?	palm
Unidentified		<i>tuni</i>	root?	wild yam?
Unidentified		<i>ukak</i>	heart?	palm; <i>saber</i> food
Unidentified		<i>wawer</i>	?	
Unidentified		<i>yeper</i>	fruit	

Identification Abbreviations:

PNGFRI Papua New Guinea Forest Research Institute

P Photograph identification by Queensland Herbarium

APPENDIX 14: INVITATION TO WWF

Wando Village
Balamuk Patrol Post
BENSBACH
Western Province

Date: 29 July 1996

WWF South Pacific Program
P.O. Box 8280
BOROKO. NCD

Department of Environment and Conservation
P.O. Box 6601
BOROKO. NCD

SUBJECT: LETTER OF INVITATION FOR ASSISTANCE

On behalf of the Tonda Wild-Life Management Committee and landowners of the Wildlife Management Area, I would like to extend an invitation to World Wide Fund for Nature South Pacific Program (WWF SPP) and Environment and Conservation Department of Papua New Guinea (DEC) for assistance in strengthening conservation and the continual maintenance of the WMA.

Assistance is also needed to develop and improve cross-border linkages between PNG and West Irian, Indonesia.

Areas in which we believe that you can be of particular assistance are:

(a) Assist in identifying areas of commerce (development incentives) and that the local people will not need to over-use the resources in the area and can protect these resources.

(b) Once development initiatives are identified, training and education are needed.

(c) Assist in linking us with other interested groups.

Your contribution, participation and acceptance of this invitation with regard to the above subject will be greatly appreciated. We look forward to working with you in the future.

Yours faithfully,

X
TWMA Committee Member