



**VANUATU ENVIRONMENTAL UNIT**  
**MINISTRY OF LANDS, GOVERNMENT OF THE**  
**REPUBLIC OF VANUATU**

**A REVIEW OF VANUATU'S LEGISLATIVE REGULATION AND  
MANAGEMENT OF INVASIVE SPECIES**

Report  
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The views expressed herein are the authors'  
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the Ministry of Lands, or the Government of Vanuatu.)*

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## *0.2 ABBREVIATIONS*

NBSAP	NATIONAL BIODIVERSITY STRATEGY & ACTION PLANNING PROJECT
PVMC	PORT VILA MUNICIPAL COUNCIL
SPREP	SOUTH PACIFIC REGIONAL ENVIRONMENTAL PROJECT
SLGC	SHEFA LOCAL GOVERNMENT COUNCIL
UNCBD	UNITED NATIONS CONVENTION ON BIOLOGICAL DIVERSITY
UNCLOS	UNITED NATIONS CONVENTION ON LAW OF THE SEA
VEU	VANUATU ENVIRONMENTAL UNIT
VQIS	VANUATU QUARANTINE & INSPECTION SERVICES

### 0.3 ACKNOWLEDGEMENTS

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### 0.4 EXECUTIVE SUMMARY

#### 0.4.1 Background

This Report reviews existing laws that are relevant to the regulation and management of invasive alien species. The Report identifies potential legislative gaps, omissions contained in these legislations. There is a clarification of the extent in which invasive alien species control measures take precedence over, or are subordinate to other relevant legal instruments of government. Finally, the Report makes recommendations<sup>1</sup> as to appropriate management mechanism to (i) prevent accidental or intentional introduction of invasive species, (ii) minimise accidental or intentional spread of invasive species within Vanuatu and (iii) co-ordinate invasive species awareness and local prevention and control efforts.

#### 0.4.2 Brief Introduction to Invasive Alien Species

Invasive alien species are recognised as one of the leading threats to biodiversity imposing enormous costs on agriculture, forestry, fisheries, and other human enterprises, as well as on human health. Rapidly accelerating human trade, tourism, transport, and travel over the past century have dramatically enhanced the spread of invasive species across international borders.

Awareness levels in Vanuatu have been developing towards the need to manage accidental and intentional introductions of invasive alien species. The Invasive Species Workshop held in Port Vila in June 2003, defined invasive alien species as **“a species that has been introduced into an environment in which it did not evolve, and whose introduction causes, or is likely to cause, economic or environmental harm, or harm to human health.”**<sup>2</sup>

Not all non-indigenous species are harmful. In fact the majority of species used in agriculture, forestry and fisheries are alien species. The initial step in any national programme to manage invasive species must be to distinguish the harmful from the harmless alien species and identify the impacts of the former on native biodiversity.

#### 0.4.3 Findings

Vanuatu currently offers protection against known and suspected animal and plant diseases that may be transmitted across its international ports of entry including the prohibition of any species, which

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<sup>1</sup> These recommendations were discussed at the Working Group 2 meeting on 20 November 2003.

<sup>2</sup> South Pacific Regional Environmental Programme Preventing Invasive Species Course for Vanuatu, Course material, Port Vila, 2003, p.3.

falls within the definition of a 'quarantine pest'.<sup>3</sup> Prevention and detection is derived from statutory rights of subjecting all animal and plant imports to risk assessments by the Principal Veterinary Officer and the Principal Plant Protections Officer. The Animal Importation and Quarantine Act No. 7 of 1988 [CAP.201], Animal Importation and Quarantine Regulation Order No.14 of 1994, and the Plant Protection Act set up a permit based regime where any live animal or plant cannot enter Vanuatu without the appropriate permit being granted by the Principal Plant Officer or the Principal Veterinary Officer. It is worth noting that the Principal Plant Officer has generous powers of search, inspection and destruction of suspected 'goods' that threaten native plants including the power to prohibit vessels from discharging their ballast into the harbour. <sup>4</sup>

The definition of "animal" under the Animal Importation and Quarantine Act No. 7 of 1988 [CAP.201] includes **"any living stage of any member of the animal kingdom except human beings and includes arachnids, birds, crustaceans, fish, insects and reptiles and also any fertilised egg or ovum"**.

The Plant Protection Act No. 14 of 1997 defines plant pest as any organism, including any pathogen, which is known, suspected, or liable to be directly or indirectly harmful to plants or beneficial organisms, and includes any noxious plant or weed, and any product of any pest. Transmission is detected by subjecting all animal and plant imports to stringent permit procedures, compulsory risk assessment and quarantine regulations.

It is worth noting that these laws limit Quarantine inspectors to look out for and prevent the introduction of known or suspected animal and plant diseases and quarantine pests. Plant and animal diseases are only one aspect of invasive species.

A 'quarantine pest' as defined under the Plant Protection Act provides a wider scope for Quarantine Officers to legitimately assess incoming 'alien' plant and animal for aspects of invasiveness to Vanuatu's biodiversity and native species. This Report finds that the border control legislation, fisheries and forestry should be amended to clearly identify that the prevention of invasive alien species threatens native animal and plant species and its control and management is a co-ordinated responsibility of these government agencies.

As a long-term proposal, the Environmental Management and Conservation Act No. 12 of 2002 contains a proviso that the Minister responsible for environment has the power to issue subsidiary legislation for the regulation of introduced foreign organisms. This is opportunity should be used as soon as possible after the Department has been set up and a Director appointed.

The various consultancies conducted with stakeholders and relevant border control agencies reveal a good level of awareness of the issue of invasive alien species.

#### **0.4.4 Recommendations**

1. The Director of the Environmental Department take immediate steps to recommend to the Minister responsible for Environment that a national plan for the control of invasive alien species is an area of national priority.<sup>5</sup> The practical application of this recommendation is that the Environmental Department is yet to be formally established and a Director appointed.<sup>6</sup>

<sup>3</sup> The Plant Protection Act No. 14 of 1997, Section 1.

<sup>4</sup> Ibid, Section 12(1) subparagraph (d).

<sup>5</sup> Environmental Management and Conservation Act No. 12 of 2002, sections 8, 9, and 10 provide that the Minister determines when a National policy or plan is required for the conservation, sustainable development and management of the environment.

<sup>6</sup> The Environmental Management and Conservation Act No. 12 of 2002 was gazetted on 10 March 2003 and has entered into force the next day. The Public Service Commission has to approve administrative plans before advertising for posts for the new Department.

2. There is a great concern regarding the lack of data and research into the effects of invasive alien species for Vanuatu. It is recommended that the national strategy or plan developed must address local research as a preliminary task.
3. In the interim, it is recommended that steps be taken to amend the Animal Importations and Quarantine Act, the Plant Protection Act and the Fisheries Act with a provision that the introduction of alien species into Vanuatu requires the consultation and consent of the Head of the Environmental Unit.
4. A further recommendation is the need for legislative power to impose on the spot fines for attempted smuggling of unlawful species and or goods. This would act as deterrence for future offenders and raise the percentage of visitors and returning residents to declare all 'goods'. It would also be a more effective source of revenue for administration of quarantine laws.
5. Subsidiary legislation to be drafted by virtue of Ministerial powers granted under the Environmental Management and Conservation Act No. 12 of 2002 to outline administrative provisions and prescribe offences. This legislation will specifically prescribe for the control and management of invasive alien species and will therefore take precedence over any other legislation or government including research and investment policies to introduce alien species. This legislation should preferably compliment the existing Principal Plant Protection powers provided under the Plant Protection Act No. 14 of 1997.
6. That 'live fish' seized by Fisheries Officers when exercising powers of arrest for unlawful fishing in Vanuatu waters should be subject to a risk assessment prior to sale to the general public.
7. Although all research bodies prior to bringing in alien species are legally obligated to use existing permit requirement procedures, there should be further protocols developed to assess the invasiveness of such species so that appropriate measures and/or conditions are devised and imposed upon these research bodies. This precautionary approach should be mandatory for the introduction of biological control species.

## 1.0 STUDY BACKGROUND

The Vanuatu Environment Unit is undertaking a capacity building add-on to the National Biodiversity Strategy and Action Planning Project. A priority identified within its National Biodiversity Conservation Strategy is the management of introduced species within Vanuatu.<sup>7</sup> Invasive species is defined as an organism (including insect, fungal and viral micro organisms, animal, plants, aquatic and marine life forms) that is judged (by man) to, or has the potential to:

- reduce biodiversity;
- reduce the productivity or marketability of cultivated plants and animals;
- affect the health of humans; and
- affect the health of plants or animals, both in the wild or in cultivation.

Key legislations identified to play a major role in preventing potentially invasive species within their existing administrative agencies includes the Animal Importation and Quarantine Act, the Plant Protection Act, Import of Plants Act and the Prevention of the spread of Noxious Weeds. In addition the Environmental Management and Conservation Act, the Fisheries and Forestry Acts providing conservation obligations offer unique opportunities of introduced invasive species management. Municipality and Local Governmental Council Byelaws are another legal source identified as having the potential to offer assistance towards the domestic control of invasive alien species.

### 1.1 TERMS OF REFERENCE

The consultant is required to review existing legislation that enables the management of introduced and invasive species and procedures for application of this legislation. In addition the consultant is to identify and advise of potential gaps, omissions in relation to the management of invasive species in Vanuatu. Furthermore, the consultant is to advise on the extent in which invasive species control measures take precedence over, or are subordinate to other relevant legal instruments of government. Finally, the consultant is to assess and advise an appropriate management mechanism to (i) prevent accidental or intentional introduction of invasive species, (ii) minimise accidental or intentional spread of invasive species within Vanuatu and co-ordinate invasive species awareness and local prevention and control efforts.

### 1.2 METHOD OF STUDY

The preparation of this report involves analysis of legislations, previous literature reviews and the conducting of consultations with relevant stakeholders.

### 1.3 OUTPUTS

A report of not more than 20 pages will be submitted including cover, table of contents, annexure. A Draft Report is to be prepared and submitted by 04 August 2003. The project staff will provide relevant feedback within fifteen days of receiving the Draft Final Report. A working Group 2 meeting was convened on 20 November 2003 to provide additional feedback and approve recommendations. The Final Report was finalised and submitted on or about 26 November 2003.

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<sup>7</sup> Vanuatu National Biodiversity Conservation Strategy, Vanuatu Environmental Unit, Port Vila, November 1999, p.21.

## 2.0 THE IMPACT OF INVASIVE ALIEN SPECIES IN THE PACIFIC

The Ministerial Conference on Environment and Development in Asia and the Pacific 2000, which took place in Kitakyushu, Japan in 31 August - 5 September 2000, acknowledged the environmental impact of introduced invasive alien species. It found that imported plants and animals - often associated with agriculture - caused far greater long-term environmental damage than a physical disaster. These biological disasters are open-ended, causing irreversible changes to ecosystems. Most introductions of exotic organisms into the Pacific are deliberate. Associated diseases and pests are unexpectedly imported with desired species.<sup>8</sup>

The most dramatic recent biological disaster was the accidental introduction of the brown snake into Guam following World War II. The brown snake feeds on birds. Guam birds had no experience with snakes and today biologists are struggling to restore native bird populations on Guam. The massive decline of Guam's bird populations has had a series of impacts, including a massive infestation of spiders and other insects in bush areas of Guam.<sup>9</sup>

Red tides in New Zealand may have been stimulated by the introduction of toxic dinoflagellates<sup>10</sup> from Japan, carried in the ballast water of ore carrier ships. Epics of red tides killed a multitude of inshore marine life and contaminated shellfish. Health dangers resulted in the closure of many of New Zealand's oyster farms.<sup>11</sup>

Imported plants, especially agricultural grasses for grazing, displace native habitats through human cultivation and by subsequent seed dispersion. Some species aggressively invade wildlife areas, killing native plants and thus destroying important ecological links between indigenous animals and associated plants.<sup>12</sup>

Undesirable plants and plant diseases were often imported along with the desirable plants. Some of these diseases and pests were highly dangerous and have infected wildlife areas, displacing or killing native species. For example, the *Merremia* vine was introduced to Vanuatu from the United States during World War II (possibly to camouflage military installations). Today, the vine smothers whole forests when logging opens clearings in the rainforest canopy.<sup>13</sup>

Thus the impact of introduced invasive alien species not only affects ecosystems, threatening the survival of invasive species - it can have serious human effects as well.

## 3.0 FINDINGS

Vanuatu has no legislative and/ or administrative control in place, which specifically manages the control of invasive alien species. Government agencies such as the Animal Quarantine and the Plant Protection services, Customs, Ports & Harbour, and Maritime Authorities administer minimum border control measures. The administration of Vanuatu's international borders however, does not extend to the management of invasive alien species with the exception of the Animal Importation and Quarantine Act<sup>14</sup> and the Plant Protection Act<sup>15</sup>. The extent of protection offered by these Acts is discussed else where in this Report. Generally, legislation establishing border control agencies contain

<sup>8</sup> Ministerial Conference on Environment and Development in Asia and the Pacific 2000, Kitakyushu, Japan 31 August - 5 September 2000 [www.unescap.org/mced/pacific/background/invasion.htm](http://www.unescap.org/mced/pacific/background/invasion.htm)

<sup>9</sup> *Ibid.*

<sup>10</sup> Dr. Jo Ann M. Burkholder is a PEW Fellow, Professor of Botany and Marine, Earth and Atmospheric Sciences and Research Coordinator of the Aquatic Botany Program at North Carolina State University Botany Laboratory. She is co-discoverer of the toxic dinoflagellate *Pfiesteria piscicida* and is continuing to characterize its stimulation by sewage and other nutrient enrichment. She is also discovering the details of how these dinoflagellates destroy finfish and shellfish

<sup>11</sup> *Ibid.*

<sup>12</sup> *Ibid.*

<sup>13</sup> *Ibid.*

<sup>14</sup> [CAP.201] Regulation Order No.14 of 1994.

<sup>15</sup> No. 14 of 1997.

minimum environmental safeguards. These safeguards are limited to the prevention of marine pollution through oil spills, and the control of animal and plant diseases and the prohibition of identified quarantine pests.

### 3.1 EXISTING DOMESTIC LEGISLATION AND THEIR RESPECTIVE STRENGTHS AND WEAKNESSES

Vanuatu generally manages the importation of plant and animal material through standard border control legislation of its official ports of entry. In addition it has specific legislation for the conservation of the environment, plants, forests, and fisheries. The Quarantine and Inspection Services<sup>16</sup>, the Harbour Master,<sup>17</sup> the Department of Health, Fisheries, Forestry and Environment are responsible for the implementation of these laws.

The following table identifies current border control and environmental conservation legislation and their capacity (if any) to manage and control the introduction of invasive alien species. Maritime, Ports and harbour<sup>18</sup> and public health legislation having no provisions related to invasive alien species are excluded from this table. This does not mean that there are no possibilities in including them in any national strategy to coordinate the control of invasive alien species in Vanuatu.

LEGISLATION TITLE & DESCRIPTION:	STRENGTHS IN RELATION TO MANAGEMENT OF ALIEN INVASIVE SPECIES:	WEAKNESSES IN RELATION TO MANAGEMENT OF INVASIVE ALIEN SPECIES:
<p><b>Animal Importation and Quarantine Act No.7 of 1988 [CAP.201]</b></p> <p><i>Regulates the control of animal importation including the importation of animal products and biological products into Vanuatu and related matters. Repeals sections of the Animal Imports which are inconsistent [CAP.98]</i></p>	<p>The definition of "animal" is taken to be "any living stage of any member of the animal kingdom except human beings and includes arachnids, birds, crustaceans, fish, insects and reptiles and also any fertilised egg or ovum."<sup>19</sup> It is unlawful to import or introduce any animals into Vanuatu without first obtaining a permit granted in accordance with the provisions of the Act<sup>20</sup> i.e. obtaining a permit from the Principle Veterinary Officer.<sup>21</sup> The Principal Veterinary Officer may attach conditions to the permit if he or she decides to grant it.</p> <p>To this end, the Act even grants the Minister responsible for Agriculture and Livestock the power to prohibit the landing of animals not naturally occurring in Vanuatu.<sup>22</sup></p> <p>Section 18(2) of the Animal Importation and Quarantine Act No. 8 of 1986 [CAP.201] grants the Minister responsible for Agriculture and Livestock the power to issue orders</p>	<p>The primary intention of this Act is to prevent diagnosed and suspected animal diseases from entering Vanuatu ports of entries.<sup>23</sup> The definition of invasive species goes beyond the prevention of animal diseases.</p> <p>Some critics are doubtful as to whether the attachment of conditions can lawfully extend to control of use and application following import<sup>24</sup>. This is an important avenue to explore. The attachment of conditions may provide additional tools for the monitoring and regulation of introduced animals that may later on prove to be invasive.</p>

<sup>16</sup> The VQIS is hosted under the Ministry of Agriculture, Forestry and Fisheries. See Official Gazette of the Republic of Vanuatu No.15, 'Ministerial Portfolios', 17 June 2002.

<sup>17</sup> The Department of Ports and Marine is hosted within the Ministry of Infrastructure and Public Utilities.

<sup>18</sup> The Ports Act [CAP.26] defines 'ballast' as any material or thing used for the ballasting of vessels. The powers of the Harbour Master are limited to avoiding navigational hazards and pollutants from leaking into the sea. The Vanuatu Maritime Authority has taken over this responsibility, as they are the authority charged with devising a national anti-pollution plan for Vanuatu.

<sup>19</sup> Laws of the Republic of Vanuatu, 'Animal Importation and Quarantine' Act No.7 of 1988 [CAP.201], Section 1.

<sup>20</sup> Ibid, section 2(1) subparagraph (a) and (b).

<sup>21</sup> Ibid, section 4(1) and (2).

<sup>22</sup> Ibid, Section 18(1) subparagraph (b).

<sup>23</sup> Ibid, section 9 (h), Section 18 (1) (a), Section 19(1) subparagraphs (c), (d) and (e).

<sup>24</sup> Forster, Malcolm, p, 47.



	prohibiting the landing of specified animals or animal products from any place outside Vanuatu for the purposes of preventing or controlling the international trade in endangered wildlife species.	
<b>Animal Importation and Quarantine Regulations Order No.14 of 1994</b> <sup>25</sup> <i>Subsidiary legislation containing the procedures and forms for issuing provisional import permits, and quarantine procedure governing animal, animal products, biological products and related matters.</i>	Grants wide powers of inspection by Quarantine Officers to protect against the introduction of known animal diseases and pests.	The importation of all fish and fish products with the exemption of live fish is exempt from import permits.  The scope of these risk assessments protects against the introduction of suspected or known animal, human, livestock or diseases into the country. <sup>26</sup> The risk assessments do not require information regarding the potential invasiveness of any introduced animal species.
<b>Plant Protection Act No. 14 of 1997</b> <i>Entered into force on or about 06 April 1998.</i> <sup>27</sup> <i>The Act provides for (amongst other things) the exclusion and effective management of plant pests.</i>  Repeals The Rhinoceros Beetle (Prevention) Act JR 10 of 1961) [CAP.28 Repeals the Prevention of Noxious Weeds Act (JR 8 of 1966) CAP.44] Repeals the Import of Plants Act (JR 26 of 1964) [CAP.34]	Plant material is defined as “any goods that are wholly or partly derived from a member of the plant kingdom or its excretions or secretions.” <sup>28</sup>  A plant pest is under in section 1 is “any organism, including any pathogen, which is known, suspected, or liable to be directly or indirectly harmful to plants or beneficial organisms and includes any noxious plant or weed and any product of any pest.” <sup>29</sup> This definition extends to marine or aquatic plants. <sup>30</sup>  All craft and goods entering Vanuatu are subject to quarantine until granted quarantine release. Craft is defined as including any conveyance used or capable of being used for carrying goods or people by air, sea, and any shipping container. <sup>31</sup>  The Act provides for a Principal Plant Protection Officer and sufficient Quarantine Officers. They are granted extensive powers to board any craft and enter, open and inspect any part of the craft and its contents. Inspect	Any person that contravenes any requirement placed upon him under the Act, <sup>39</sup> or imports any goods presenting a risk or potential risk <sup>40</sup> , knowingly receives any unauthorised import, <sup>41</sup> fails to comply with a direction from a Quarantine Officer, <sup>42</sup> withholds information, <sup>43</sup> threatens an officer in the course of his duty <sup>44</sup> or removes any seized goods from the control of an officer <sup>45</sup> commits an offence.  If found guilty an offender can face fines not exceeding one million vatu and imprisonment for a period not exceeding three years. <sup>46</sup> Although these are pretty strong penalties, concern has been voiced from the Principal Plant Officer that prosecutions are often lengthy process which yield very small penalties at the end. For purposes of deterrence, suggestions are made that on the spot fines should be authorised to allow better implementation of the provisions of the Act. For example, Australian Quarantine impose an

<sup>25</sup> Refer to Animal Importations and Quarantine (Amendment) Regulation Order No. 51 of 2002.

<sup>26</sup> Section 18(1) subparagraph (c).

<sup>27</sup> Republic of Vanuatu Official Gazette No.9, ‘ Plant Protection Act No.14 of 1997’ 06 April 1998, State Law Office, Port Vila.

<sup>28</sup> Ibid, Section 1.

<sup>29</sup> Ibid, Section 1.

<sup>30</sup> Personal comments Catherine Malosu 22 September 2003. “Algae falls within the definition of the Plant Protection Act because of the presence of chlorophyll in its cells.”

<sup>31</sup> Ibid, Section 1.

any plant material and goods therein and require that any goods presenting a risk to be kept on board in a secure place and under seal; and direct the master to cease discharging or unloading garbage, waste, cleaning water, or ballast.<sup>32</sup>

Significantly, a Quarantine Officer who is of the opinion that a craft poses a risk may prohibit the landing of goods, direct the master to take the craft to an isolated place, arrange treatment of the craft and its contents and restrict operations in the craft until treatment is complete.<sup>33</sup> Further inspection powers including the right to require any information to be provided in any form and from any source, and treat any contaminated, diseased, or pest affected goods.<sup>34</sup>

The Minister has power to issue orders to carry out surveys to determine the presence of a pest and its distribution and subsequently order the carrying out of a specified pest management programme.<sup>35</sup>

This Act defines 'quarantine pest' to mean a plant pest known or suspected of being capable of causing significant harm to natural resources and which is either not yet present in Vanuatu, or is of limited distribution and subject to active control measures.<sup>36</sup> Natural resources is defined as meaning (a) organisms of all kinds, (b) the air, water, and soil in or on which any organism lives or may live, (c) landscape and land form, and (d) systems of interacting living organisms and their environment.<sup>37</sup> This is by far the most

instant fine of AUD\$2,000 for any person who attempts to bring goods into the country without declaring them.<sup>47</sup>

Although the Act provides powers to order a master of a vessel to cease discharging ballast into the harbour, practical difficulties in having the technical capacity to monitor and know which vessels should be subjected to these powers effectively means that the said powers have never been exercised by the Quarantine Officers.<sup>48</sup>

More co-ordination between departments is required to ensure that the Plant Protection Services are kept fully informed of all potentially invasive alien species. The lack of research and information to create effective databases is a fundamental component in any national strategy for the control and management of invasive alien species.

<sup>32</sup> Ibid, Section 13(1) subparagraphs (a), (b),(c) and (d).

<sup>33</sup> Ibid, Section 13(e) subparagraphs (i), (ii),(iii) and (iv).

<sup>34</sup> Ibid, Section 14.

<sup>35</sup> The Minister for Agriculture, Forestry and Fisheries issued the Plant Protection (Control of Quarantine Pest) Order No.20 of 1999. This Order was issued after consultation with the Director of the Vanuatu Inspection and Quarantine Services and the Principal Plant Officer to control the movement of the quarantine pest *Achatina fulica* ("Giant African Snail") from the area of infestation on the island of Tanna.

<sup>36</sup> Ibid, Section 1.

<sup>37</sup> Ibid, Section 1.

<sup>38</sup> Ibid, Section 12 (1) and (2).

<sup>39</sup> Ibid, Section 22(a).

<sup>40</sup> Ibid, Section 22(b).

<sup>41</sup> Ibid, Section 22(c).

<sup>42</sup> Ibid, Section 22(d).

<sup>43</sup> Ibid, Section 22(e)

<sup>44</sup> Ibid, Section 22(f)

<sup>45</sup> Ibid, Section 22(g)

<sup>46</sup> Ibid, Section 23.

<sup>47</sup> Figure quoted as at 12 November 2003

<sup>48</sup> Personal Communications Francis Quarani, 18 November 2003.

applicable provision that exists in law for Vanuatu, which relates to invasive alien species.

Section 11 of the Act directs that for the Director of Agriculture may by writing to his counterpart in another Department requesting assistance in implementing the provisions of the Act. When this is done that other Department is obligated to assist. This is a clear recognition of the need for interdepartmental coordination in implementing the provisions of this Act. This is helpful in the case of managing invasive alien species, as pathways are cross sectoral.

The Act also prescribes that any other Minister apart from the Minister of Agriculture, whose responsibilities are affected by the presence or potential introduction of a plant pest may apply in writing to the Minister responsible for the Plant Protection Act to request the of the provisions of the Act to meet the other Minister's responsibilities.<sup>48</sup> Also another invaluable coordination tool to implement the provisions of the Act.

**Fisheries Act  
[CAP.158]**

*Provides for the control, development and management of fisheries.*

The Minister responsible for fisheries has power to make regulations for Fisheries conservation.<sup>49</sup>

It is worth noting that the term fish is defined as "any aquatic animal, whether piscine or not, and includes any mollusc, crustacean, coral, sponge, holothurians (bech-de-mer), and reptile and their young and eggs and includes coconut crabs". This definition seems to exclude aquatic marine plants in particularly toxic algae introduced through the emissions of ballast by sea vessels. This area is covered under the Plant Protection Act which is discussed above.

Live fish taken or seized by an authorized officer within the definition of Section 22(2) is exempt from import permits and consequently excluded from the minimum risk assessment procedures of the animal importation quarantine officers. Fishery officers can sell these live fish in their control. There is no obligation for them to ensure that the live fish are not invasive or potentially invasive alien species prior to selling these live fish to local

<sup>49</sup> For example, Section 34 (2) subparagraph (n) grants power to the Minister to regulate conservation measures for the protection of turtles.

		residents. A small pathway – but a pathway nonetheless that should not be overlooked.
		Conservation measures merely place restrictions on harvesting activities of these fisheries.
<b>Vanuatu Agricultural Research and Training Centre Act</b>	Nil.	No direct or indirect legislative or administrative impact on management of invasive alien species. This is worrying because scientific research is a major pathway for the intentional introduction of invasive alien species.
<b>Environmental Management and Conservation Act No.12 of 2002</b>	Minister responsible for environment has power to regulate (amongst other things) the proposed introduction of foreign organisms. <sup>50</sup>  If the Minister responsible for Environment determines that a National Policy or Plan is required for the conservation, sustainable development and management of the environment, the Director must prepare such National plan or policy. <sup>51</sup>	Subsidiary legislation does not yet exist which specifically addresses management and implementation towards controlling invasive alien species.
<b>Forestry Act</b>	Nil.	No direct or indirect legislative or administrative impact on management of invasive alien species.
<b>United Nations Convention on Biological Diversity (Ratification) Act No. 23 of 1992</b>  <i>Imposes an obligation on Vanuatu to enact legislation to protect our biological diversity including the effective management of introduced invasive species.</i>	Article 7 (h) provides that “ <b>Contracting parties shall as far as possible and as appropriate, in particular for the paragraphs 8 to 10: prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species</b> ”. <sup>52</sup>	Subsidiary legislation does not yet exist which specifically addresses management and implementation towards controlling invasive alien species.
<b>Convention of International Trade in Endangered Species of Wild Fauna (CITES)</b>  <i>Convention members to implement national</i>	While the Act protects against the trade of endangered wild fauna and flora species at the same time it guards against the introduction of invasive alien wild life species.	Limited to regulating trade in endangered species of wild fauna species.

<sup>50</sup> Republic of Vanuatu, Official Gazette, No. 6. 10 March 2003, ‘Environmental Management and Conservation Act No.12 of 2002, Section 45 (2) subparagraphs (a) (ii).

<sup>51</sup> Ibid, Sections 8, 9 and 10.

<sup>52</sup> The United Nations Convention on Biological Diversity (Ratification) Act No.23 of 1992 , Article 7(h). Note that Articles 8-10 includes regulation of In-situ conservation, Ex-situ Conservation and the Sustainable use of components of Biological Diversity.

<i>and regional efforts to regulate trade in endangered species</i>		
<b>The International Trade (Flora and Fauna) Act 1991</b>	Nil.	No direct or indirect legislative or administrative impact on management of invasive alien species. The protection of native flora and fauna must also take into account the danger of invasive alien species that will threaten these native species.
<i>Regulates flora and fauna trade by protecting native flora and fauna i.e. export controls.</i>		
<b>The Wild Bird (Protection) Act 1998 [CAP.30]</b>	Nil.	Restricted to prescribing domestic hunting seasons for protected species of wild birds, which are listed in the Act itself. <sup>53</sup> There is no legislative control for the introduction of invasive wild birds or other wildlife.
<i>To protect wild bird life.</i>		

### 3.2 RECENT DEVELOPMENTS IN ADDRESSING THE ISSUE OF INVASIVE ALIEN SPECIES IN VANUATU

In 2001 the NBSAP contracted FSPI and Abel Tapisuwe to prepare an inventory on plants and animals perceived as pests in their environment. This report lists known invasive species and shows awareness/ understanding are lacking i.e. people are aware of pests not environmental issues and shows a general lack of cooperation at community, island and national level in addressing invasive issues.<sup>54</sup> This report led the preparation of a thematic report on invasive pest to the Convention on Biodiversity Conference of Parties and a workshop to prioritise invasive species issues which was held in 2002.

The 2002 workshop hosted by the VEU invited participants from relevant government and non-governmental (NGO) agencies. The NBSAP project and Vanuatu Quarantine and Immigration Section (VQIS) have also developed a small project proposal to assess and control the fire ants. The fire ant has been identified on Vanua Lava and now Mota Lava. VQIS chemically treat a single infestation found in Luganville. The proposal is presently with DESD and donors.

In June 2003, a weeklong regional workshop on Invasive Species was conducted in Port Vila and funded by the South Pacific Regional Environmental Programme (SPREP). Participants included representation from a broad sector in both government and non-governmental agencies.<sup>55</sup>

The Forestry Department and the VQIS prepared as a joint effort a Vanuatu Country Report emphasising invasive species affecting the native forests of Vanuatu in 2003. The Country Report contains data on introduced invasive plant animal species affecting the growth and regeneration of native forests. The Country Report is much needed effort at building a database of invasive alien species in Vanuatu. The Report ultimately concluded that *"given the immense need for knowledge on*

<sup>53</sup> The Wild Bird (Protection Act) 1998 [CAP.30], Section 2.

<sup>54</sup> Jenny White comments on working draft report, 24 September 2003.

<sup>55</sup> Participants included Vanuatu Quarantine and Inspection Services, Department of Agriculture, Fisheries, Forestry, Customs, Environmental Unit, Lands, Vanuatu Cultural Centre, VANGO, and Chamber of Commerce. Participants from government sector and projects represented the provinces of Shefa, Penama, Torba, Malampa and Sanma. Refer to SPREP Preventing Invasive Species Course Vanuatu June 2003.

*and the diversity of species that impact on the forests, it would perhaps be more appropriate to have policies and other instruments on the management and control of forest invasive species.*<sup>56</sup>

All these developments raised the need to address the legislative and management issues required in setting up minimum border control measures and apply the precautionary principle. This is preferable to costly eradication measures.

### 3.3 DOMESTIC AGENCY RESPONSES TO OPPORTUNITIES FOR MANAGEMENT OF INVASIVE ALIEN SPECIES

The various government stakeholders consulted by the Consultant have expressed the need for legislative control of invasive alien species. All those bodies consulted have responded positively to the implementation of any new regulations either formal or informal to control the introduction of invasive alien species.

#### **3.3.1 Animal Importation and Quarantine Services**

The Animal Importation recognises the management of introduced animal species and Quarantine Services through informal procedures, which are in place to accommodate consultations with the Environmental Unit. Past attempts at introducing animal species such as camels, ostriches and dolphins by investors have always required consultation and approval from the Environmental Unit. This attitude is informal and subject to individual preferences of the Principal Veterinarian in charge from time to time. Legislative control however, can avoid this.<sup>57</sup> The insertion of a provision that the introduction of alien animal species requires a permit from the Environmental Unit into the existing environmental legislation is recommended as the most necessary step towards legislative control management.<sup>58</sup>

The objective of assessment is to predict whether a species is likely to become established and be invasive and to generate a relative ranking of risk. Entire pathways may also be analysed for risk, and this may be a more efficient procedure where many possible species and vectors are involved. The major drawbacks are the uncertainties involved in predicting species' behaviour under different circumstances in a new environment. Thus, lack of knowledge and ability to predict consequences may lead to substantial reliance on assumptions. On the other hand, risk assessment provides a logical process for gathering, analysing, synthesising, comparing and communicating information, which can improve the quality of decision-making.

#### **3.3.2 Port Vila Municipal Council**

Concerns raised within the Environmental health sector of the Port Vila Municipal Council are directed towards the problematic issue of invasive species introduced by ship ballast.<sup>59</sup> Awareness of invasive alien species is high and there is support for more legislative controls to ban the emission of ballast within Vanuatu ports and harbours. There is also a support for stricter maritime legislation to require ship hulls to be cleaned prior to arriving within official ports and harbours. There is also the further suggestion that all vessels be required by law to empty ballast outside of Vanuatu waters prior to entry of a port. These requirements however, would only result in delaying the arrival of these invasive alien species when they are washed up onto our shores. Additional suggestion that ballast water should be chemically treated to kill any algae or any other harmful alien organism contained in such water only raises the issue of such chemicals being released into the harbour. The Municipal health officer's emphasis the need for a more coordinated effort to raise awareness and implement control measures through Ports and Harbour authorities, vessel owners and the Yacht Club.

<sup>56</sup> Baheo and Quarani, Vanuatu: A Country Report, 2003. p.9.

<sup>57</sup> Personal communications with Dr. Gavin Alexander Struthers, 10 September 2003.

<sup>58</sup> Id.

<sup>59</sup> Personal communications with Tony Ata and Malcolm Dalesa, Port Vila Municipal Council, 25 July 2003.

### **3.3.3 Forestry Department**

Awareness is currently limited to the agencies that have first hand experiences with the undesirable impact of invasive species. These are the Departments of Forestry and Environment. Forestry has recently completed a country report of invasive species in collaboration with the Principal Plant Protection Officer that are detrimental to the regeneration of native forests in Vanuatu. The department of forestry recognizes the work of the VQIS in the control of invasive alien species.<sup>60</sup> Having said this there is concern that the current forestry legislation is restricted to forest management and conservation activities. Nothing is provided for the control of invasive species that are harmful to forests. The forestry department and the Vanuatu quarantine and inspection services (VQIS) have recently produced a country report on invasive species that are considered as threats to Vanuatu's forests.<sup>61</sup>

### **3.3.4 Fisheries Department**

The Research unit of the Fisheries Department is looking into the possible biological control disaster where a certain species of fresh water fish introduced into Vanuatu by Health authorities to control vector borne diseases is discovered to have predatory characteristics that threatens other fresh water organisms. Other than this experience, Fisheries attitude tends towards the development of research into the potential danger of invasive alien species and their impact on marine life.<sup>62</sup> With this type of data, respective departments can initiate positive approaches and further more have a stronger impact on policy makers who can then support legislative changes that are required.

### **3.3.5 Plant Protection Services**

The Principal Plant Protection Officer admits that the generous powers accorded to his Section are limited to known or suspected plant pests. There is interest in new legislative control and management of invasive alien species. This section is confident that they have the necessary human resources to assist in any new management or legislative protection to control invasive alien species. There is support for legislative support to allow Quarantine officers to implement on the spot fines for offenders, as prosecution of offenders through the normal channels is not only costly but also lengthy.

### **3.3.6 Agriculture Department - Research Unit**

A major pathway requiring regulation is the deliberate introduction of species for use as crops, ornamentals, and game species. A high percentage of vertebrates and plants have been introduced intentionally for agricultural and commercial purposes.

The head of the Agriculture Research Unit acknowledges the serious environmental impacts of invasive alien species introduced by researchers for the purposes of their research. Agricultural department is currently experiencing problems with the intentional introduction of Erythrina - a South American tree known for its nitrogen fixing attributes. This particular tree -locally known as 'narira' in parts of Vanuatu, was monitored within the agricultural research station.<sup>63</sup> The fast growing characters of the narira were noted during it's monitoring period within the station thus farmers who were introduced to the narira were cautioned about the need for human control. Agricultural department is presently dealing with the lack of human control of the narira in parts of central Tanna, where the tree has spread out into the native forest and becoming a pest. Furthermore, the narira is a host to the fruit piercing moth and adding to the agricultural pests experienced by Central Tanna farmers. The obvious concern is that farmers are only interested in their personal

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<sup>60</sup> Personal communications with Reuben Baheo and Tate Hannington, 22 July 2003.

<sup>61</sup> Personal communications with Reuben Baheo, 23 November 2003.

<sup>62</sup> Personal communications with Sompert Reno, 28 July 2003.

<sup>63</sup> Personal communications with Fraser Bule, 10 September 2003.

benefits derived from the planting of narira and little understanding is given to the broader environmental problems associated with the uncontrolled spread of narira. The Agricultural research unit has identified an alternative nitrogen-fixing tree called cleracydia. However, the inability of the cleracydia to grow quickly means that local farmers continue to prefer growing narira in their gardens.

The Agricultural research unit emphasises the importance of all researchers to abide by strict quarantine regulations especially when bringing in alien species for research purposes. Currently, there is compliance with existing quarantine requirements – however, as stated in previous paragraphs, these restrictions are limited to ensuring the control of animal and plant pests and diseases.

This Unit has also voiced concern of domestic control of invasive alien species within the islands such as the spread of fire ants from the Banks to other parts of Vanuatu. There is also the need to realise that some alien species turn invasive under certain climatic conditions, which is present in some parts of Vanuatu only, for example the clyadierdia. Thus, there is need for the additional requirement that internal legislative and management control must be present to assist towards this end after alien species are permitted within Vanuatu.

### **3.3.7 Department of Public Health**

The department of public health is currently looking at amalgamating its vector borne diseases unit with its environmental health unit. This unit would address issues of invasive alien species that pose a human threat. The current concern has always been the control of the malaria and dengue mosquitoes. Recent reports from the Banks Islands identify the presence of a new larger mosquito, which feeds on human. The Health department is responding by investigating these reports. The suggestions from Health coincide largely with those voiced by Fisheries – the immediate need for research into the presence and dangers of alien species. The stage at which the Health Department enters a crisis is after it has affected humans to the extent that medical treatment is necessary. The department of Health also feels that it can work with the environmental unit where necessary, once a national policy is in place.

### **3.3.8 Department of Ports & Harbour**

The Department of Ports & Harbour is concerned that there is no legislation to prevent the discharge of ballast and bilge water in to the harbour by vessels. Ports & Harbour have experienced the discolouration of harbour waters in the past from water that is used to clean the engines of vessels – not engine coolant. The discharge of oil into the harbour is unlawful. However, these are issues of marine pollution and do not relate to the control and management of introduced alien marine species through the discharge of ballast. It is suggested that the Environmental Unit is the appropriate agency to take the leading role in any management of invasive alien species within Vanuatu.

Comments on practical monitoring of legislative prohibition on the discharge of ballast suggest that it would be difficult because ballast is not coloured therefore making it difficult to identify offending vessels and penalise the ship owners. Suggestions of testing ballast samples from incoming ships to identify the presence of organisms and thereby treating the ballast presents difficulties. Ports and Harbour does not have the technical expertise required to carry out that function at present. Recent research also suggests that precautionary approach is not fool proof and may offer unreliable results as some harmful organisms may still go undetected after such sample testing.

### **3.3.9 Department of Customs and Inland Revenue**

The Department of Customs and Inland Revenue is governed by its own Act No. 15 of 1999 to manage, regulate and control official ports of entry and implement the provisions relating to payment



of customs tax, tariffs, levies and / or duties on all goods entering and leaving Vanuatu. The role of customs officers is significant in any future management and implementation of invasive alien species legislation or strategy. The department sees no difficulties in assisting the environmental unit – so long as they are well informed on the accepted policy whether formal or informal. The obvious suggestion is the requirement that they notify the Environmental Unit when they suspect that there is an attempt to introduce any alien organism into the country. <sup>64</sup>

### **3.3.10 Shefa Local Government Council**

The Shefa local government council planning (tourism) officer points out that the interests of the SLGC is to encourage eco-tourism development and is very aware of environmental hazards related to marine pollution. Informal procedures of insisting on environmental impact assessments see an existing liaison between the SLGC and the VEU. The participation of LGC's is imperative for environmental educational awareness in relation to the negative impacts of invasive alien species.

## **4.0 INTERNATIONAL BEST PRACTICES IN BRIEF**

Four major steps for dealing with alien species include prevention, early detection, eradication, and control. Prevention of introductions is the first and most cost-effective option. Exclusion methods based on pathways rather than on individual species provide the most efficient way to concentrate efforts at sites where pests are most likely to enter national boundaries and to intercept several potential invaders linked to a single pathway. Three major possibilities to prevent further invasions include (i) interception based on regulations enforced with inspections and fees, (ii) treatment of material suspected to be contaminated with non-indigenous species, and (iii) prohibition of particular commodities in accordance with international regulations. Deliberate introductions of non-indigenous species should all be subject to an import risk assessment. <sup>65</sup>

## **5.0 RECOMMENDATIONS**

The Working Group meeting on 20 November 2003 at the Chamber of Commerce Conference Room discussed the Consultants Final Draft Report. The following views that came across clearly were that:

1. Steps needed to be taken immediately to identify a central authority or body who could work on a national strategy to control and manage the introduction of invasive alien species in Vanuatu. The recommendation in this Report is that the Director of Environment advises the Minister responsible for environment for the need to prepare a national plans for the management and control of invasive alien species. <sup>66</sup> This step is subject to the timely establishment of the Environmental Department and the appointment of its Director.
2. There is a great concern regarding the lack of data and research into the effects of invasive alien species for Vanuatu. It is recommended that the national strategy or plan developed must address local research as a preliminary task. It is noted that once the proposed national scientific research council is established, it will continue this role to prioritise and facilitate local research in the area of control of invasive alien species.
3. In the interim, it is recommended that steps be taken to amend the Animal Importations and Quarantine Act, the Plant Protection Act and the Fisheries Act with a provision that the introduction of alien species into Vanuatu requires the consultation and consent of the Head of the Environmental Unit. Once there is a department of environment then the consent must come from the Director.

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<sup>64</sup> Personal communications with Kalopa Malang, 08 August 2003.

<sup>65</sup> GISP Introduction to Invasive Species management toolkit. (Insert web address)

<sup>66</sup> Environmental Management and Conservation Act No. 12 of 2002, Sections 8, 9, and 10.

4. A further recommendation voiced by Quarantine officers is the need for legislative power to impose on the spot fines for attempted smuggling of unlawful species and or goods. This would act as deterrence for future offenders and raise the percentage of visitors and returning residents to declare all 'goods'. It would also be a more effective source of revenue for administration of quarantine laws.
5. Subsidiary legislation to be drafted by virtue of Ministerial powers granted under the Environmental Management and Conservation Act No. 12 of 2002 to outline administrative provisions and prescribe offences. This legislation will specifically prescribe for the control and management of invasive alien species and should compliment the existing provisions of the Plant Protection Act No. 14 of 1997. Because it is a law that specifically regulates invasive alien species it would take precedence over any other law that allowed research or investment policies to introduce alien species. This report recognises that this recommendation would involve a lengthy process and can only be initiated after the Environment Department is set up and a Director appointed to implement the provisions of the said Act.
6. That 'live fish' seized by Fisheries Officers when exercising powers of arrest for unlawful fishing in Vanuatu waters should be subject to a risk assessment prior to sale to the general public.
7. Although all research bodies prior to bringing in alien species are legally obligated to use existing permit requirement procedures, there should be further protocols developed to assess the invasiveness of such species so that appropriate measures and/or conditions are devised and imposed upon these research bodies. This precautionary approach should be mandatory for the introduction of biological control species.

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## ANNEXURE ONE: LIST OF PERSONS INTERVIEWED

Name of Person(s) Interviewed:	Date of Interview:	Agency:
Reuben Baheo Tate Hannington	22 July 2003	Department of Forestry
Michel Kalorai	29 July 2003	Tourism Planning Officer, SHEFA Local Government Council
George Taleo	12 August 2003	Acting Director of Public Health, Department of Health
Francis Quarani	05 August 2003	Principal Plant Protection Officer, Quarantine & Immigration Services
Kalopa Malang		Department of Customs and Inland Revenue
Sompert Rena	28 July 2003	Research Officer, Department of Fisheries
Tony Atta Malcolm Dalesa	25 July 2003	Senior Environmental Health Officer Assistant Environmental Health Officer Port Vila Municipality Council.
Fraser Bule	10 September 2003	Department of Agriculture Agriculture Research Unit
Jenny White Catherine Malosu Donna Kalfatak (Written feedback on draft report)	25 September 2003	National Biodiversity Strategy and Action Plan Add-on Project Environmental Unit
Captain Norris Hamish	10 September 2003	Department of Ports & Marine
Dr. Gavin Alexander Struthers	10 September 2003	Animal Importations & Quarantine Principal Veterinary Officer
Working Group 2 (Functional Management of Biodiversity)	20 November 2003	Ernest Bani (Chairman VEU), Tony Ata (Port Vila Municipality, Senior Environmental Health Officer), Emil Mael (SHEFA Province, Senior Physical Planner), Kalopa Malang (Customs & Inland Revenue), Reuben Baheo (Forestry), Sylverio Bule (VQIS), Michael Garo (VQIS), Donna Kalfatak (NBSAP), Alick Berry (Chamber of Commerce), Willie Saksak (Chamber of Commerce)