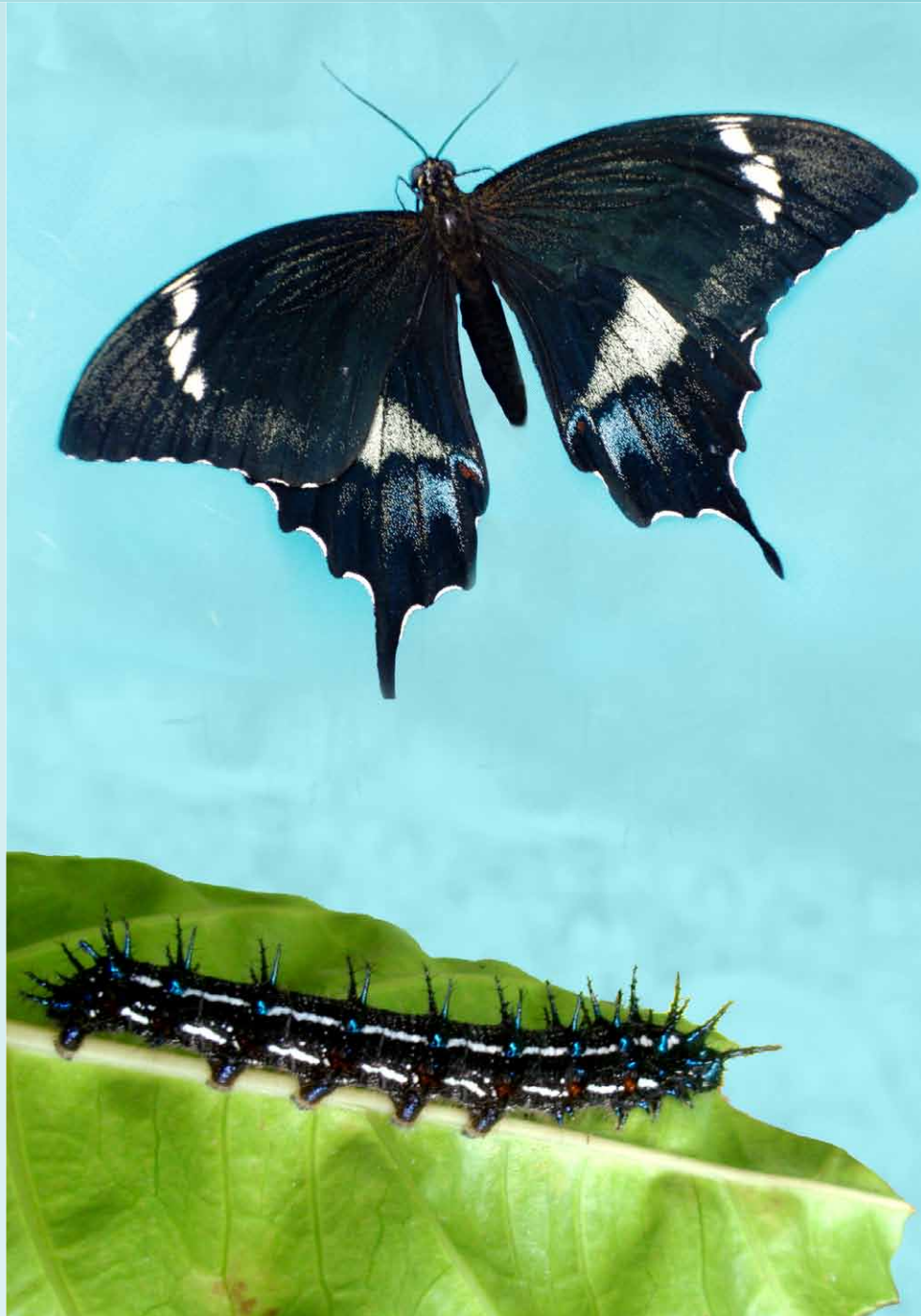


Capacity Building to Secure Endemic Samoan Swallowtail Butterfly as a Model for Valuing and Conserving Butterflies Distinctive in the Polynesia-Micronesia Hotspot

JANUARY 2011



BIODIVERSITY
CONSERVATION
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3

Capacity building to secure endemic Samoan swallowtail butterfly as a model for valuing and conserving butterflies distinctive in the Polynesia–Micronesia Hotspot

Biodiversity Conservation Lessons Learned Technical Series is published by:

Critical Ecosystem Partnership Fund (CEPF) and
Conservation International Pacific Islands Program (CI-Pacific)

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W: www.conservation.org

Conservation International Pacific Islands Program. 2011. Biodiversity Conservation Lessons Learned Technical Series 3: Capacity building to secure endemic Samoan swallowtail butterfly as a model for valuing and conserving butterflies distinctive in the Polynesia–Micronesia Hotspot.

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Cover Photographs: Samoan swallowtail butterfly (*Papilio godeffroyi*) by Eric Edwards (top);
Nymphalidae caterpillar of *Doleschallia tongana vomana* (bottom)

Series Editors: James Atherton and Leilani Duffy, Conservation International Pacific Islands Program

Conservation International is a private, non-profit organization exempt from federal income tax under section 501c(3) of the Internal Revenue Code.

ISBN 978-982-9130-03-7

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ABOUT THE BIODIVERSITY CONSERVATION LESSONS LEARNED TECHNICAL SERIES

This document is part of a technical report series on conservation projects funded by the Critical Ecosystem Partnership Fund (CEPF) and the Conservation International Pacific Islands Program (CI-Pacific). The main purpose of this series is to disseminate project findings and successes to a broader audience of conservation professionals in the Pacific, along with interested members of the public and students. The reports are being prepared on an ad-hoc basis as projects are completed and written up.

In most cases the reports are composed of two parts, the first part is a detailed technical report on the project which gives details on the methodology used, the results and any recommendations. The second part is a brief project completion report written for the donor and focused on conservation impacts and lessons learned.

The CEPF fund in the Polynesia-Micronesia region was launched in September 2008 and will be active until 2013. It is being managed as a partnership between CI Pacific and CEPF. The purpose of the fund is to engage and build the capacity of non-governmental organizations to achieve terrestrial conservation. The total grant envelope is approximately US\$6 million, and focuses on three main elements: the prevention, control and eradication of invasive species in key biodiversity areas (KBAs); strengthening the conservation status and management of a prioritized set of 60 KBAs and building the awareness and participation of local leaders and community members in the implementation of threatened species recovery plans.

Since the launch of the fund, a number of calls for proposals have been completed for 14 eligible Pacific Island Countries and Territories (Samoa, Tonga, Kiribati, Fiji, Niue, Cook Islands, Palau, FSM, Marshall Islands, French Polynesia, Wallis and Futuna, Eastern Island, Pitcairn and Tokelau). By late 2010 more than 35 projects in 9 countries and territories were being funded.

The Polynesia-Micronesia Biodiversity Hotspot is one of the most threatened of Earth's 34 biodiversity hotspots, with only 21 percent of the region's original vegetation remaining in pristine condition. The Hotspot faces a large number of severe threats including invasive species, alteration or destruction of native habitat and over exploitation of natural resources. The limited land area exacerbates these threats and to date there have been more recorded bird extinctions in this Hotspot than any other. In the future climate change is likely to become a major threat especially for low lying islands and atolls which could disappear completely.

For more information on the funding criteria and how to apply for a CEPF grant please visit:

- www.cepf.net/where_we_work/regions/asia_pacific/polynesia_micronesia/Pages/default.aspx
- www.cepf.net

For more information on Conservation International's work in the Pacific please visit:

- www.conservation.org/explore/asia-pacific/pacific_islands/pages/overview.aspx

or e-mail us at cipacific@conservation.org

Location of the project in the Polynesia-Micronesia Biodiversity Hotspot

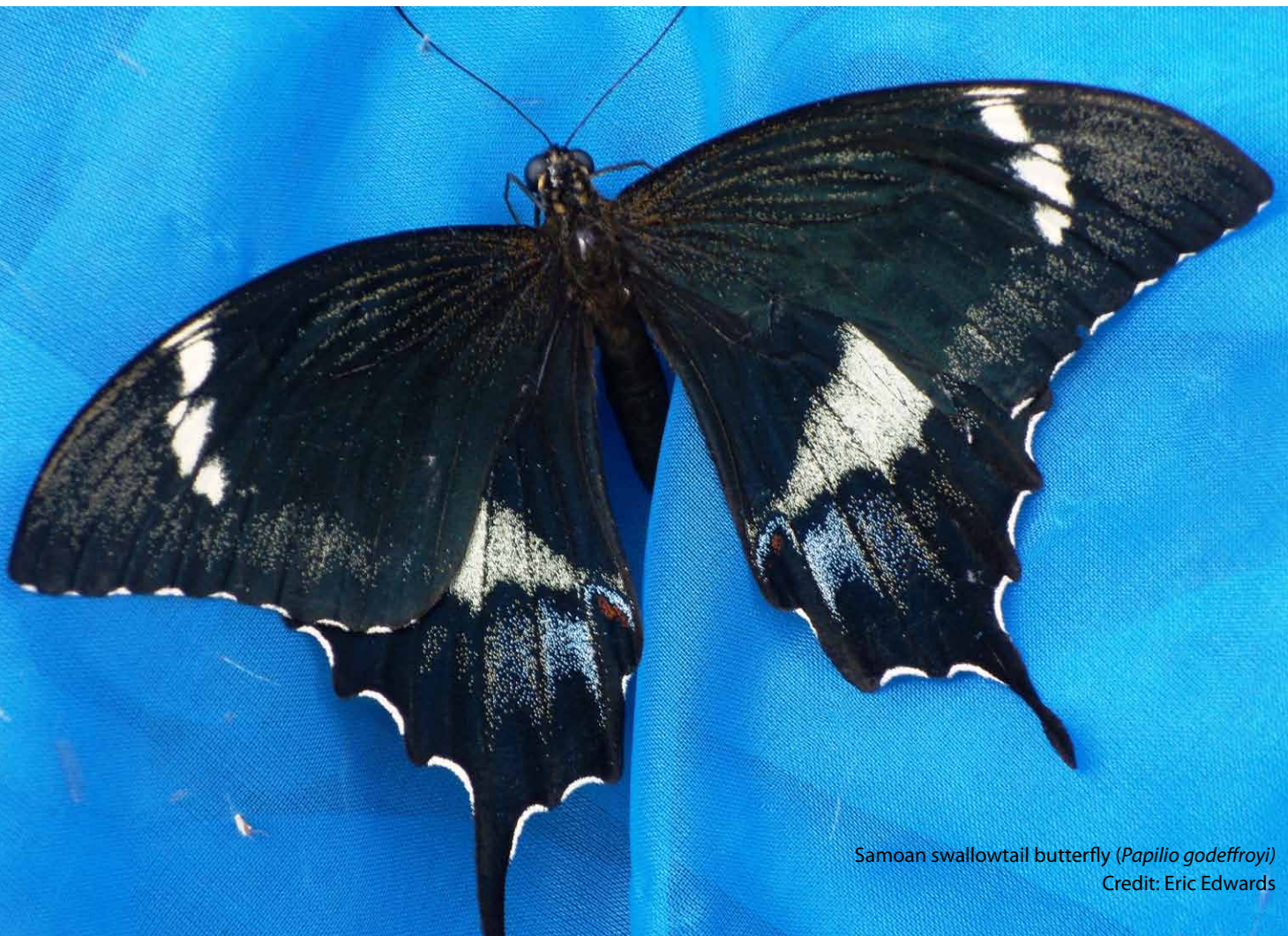


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Acronyms

CI	Conservation International
MNRE	Ministry of Natural Resources and Environment(& ASCC)
DMWR	Department of Marine and Wildlife Resources
NZBE	New Zealand Butterfly Enterprises Ltd.
JICA	Japan International Cooperation Agency
ASCC	America Samoa Community College
ANPS	American National Park Service



Samoan swallowtail butterfly (*Papilio godeffroyi*)
Credit: Eric Edwards

CAPACITY BUILDING TO SECURE ENDEMIC SAMOAN SWALLOWTAIL BUTTERFLY AS A MODEL FOR VALUING AND CONSERVING BUTTERFLIES DISTINCTIVE IN THE POLYNESIA-MICRONESIA HOTSPOT

Lessons Learned

In future projects associated with this type of process, we will make it a priority to involve the Samoan partners in the work and results in American Samoa. We will budget to transport them there and show them the butterfly, larval host-plant, life-cycle and habitat.

The context for this lesson includes initiating work for biodiversity that has a natural geography that crosses political boundaries between the 'two Samoas'. We have now learned that Samoan Swallowtail may actually be confined to a small part of its range – on Tutuila Island. A bridging inter-country partnership would build on the knowledge and capacity each country has.

We feel that discussion of capacity for conservation work and inter-agency cooperation through 'recovery group' is a good model.

Project Design Process

Aspects of the project design that contributed to its success/shortcomings.

- Tour method of rapid roadside survey for butterflies contributed to an efficient survey of the large islands of Samoa and gave certainty to the next steps in the project.
- Close contact with government agencies early in the project contributed to a lot of synergy and assistance being given to us in terms of help with logistics and advice.

Project Implementation

Aspects of the project execution that contributed to its success/shortcomings.

Promotion of the project through workshops in both Samoa and American Samoa contributed to success of the project through agency buy-in. People not directly or logistically engaged in the work were exposed to the goals and outcomes.

Other lessons learned

relevant to the conservation community

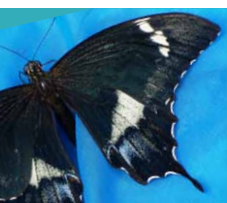
Perhaps of relevance for practitioners is our experience that starting a conversation about an endangered species easily leads to a discussion about habitat/ecosystem management and community participation. We had such interaction with village representatives and tourism managers as well as agency representatives.



FIGURE 1. Family Pieridae *Appias paulina*;
Falealupo–Savai'i.



FIGURE 2. Family Nymphalidae caterpillar of
Doleschallia tongana vomana (Fruhstorfer, 1902);
Safua –Savai'i.



Project Summary

Our project aim has been to build capacity to secure the endemic Samoan swallowtail butterfly as a model for valuing and conserving butterflies distinctive in the Polynesia–Micronesia Hotspot. This project has been sponsored under the theme ‘build awareness and participation of local leaders and community members in the implementation of protection and recovery plans for threatened species’. This project places importance on partnerships with various agencies, particularly MNRE and also in American Samoa where relict swallowtail species remain.

A planned visit to both Samoa and American Samoa during October/November 2009 was delayed due to the overwhelming tragedy of the September tsunami that hit both Samoa and American Samoa.

A summary of our progress and project achievements is below, with further detail to be found in our Project Completion Report.

PROJECT OBJECTIVES

Our primary project objectives have been as follows:

1. Meet potential in-country partners in both American Samoa and Samoa
2. Complete a rapid road survey of Samoan swallowtail & other butterflies
3. Use 1) & 2) above to agree and organise partnerships for key conservation actions and information transfer actions.

ONGOING PROGRESS

Since the project’s inception in February, we have made significant steps in progressing out project objectives, including:

- Visit to the New Zealand Arthropod Collection (NZAC) housed in Auckland to document all the Samoan butterflies in the collection (refer [APPENDIX 1](#)). The list includes an important and relatively recent record of Samoan swallowtail *Papilio godeffroyi* collected by D. Russel in 1979 at Palauli.
- The following potential swallowtail sightings were followed up:
 - Record from hills behind Palauli discussed above;
 - Large black butterfly seen at Namua (one of the Aleipata Is.) September 2009 Natasha Doherty and Fialelei;

- 'Papilionidae' Record from survey by Toni Tipamaa in 1996 'Fogasavai'i Montane Forest' 650–690 metres.
- Newspaper article: A press release was published in the **Samoa Observer** in July 2009
- Imagery of all Samoan butterflies: JICA and Manaaki Whenua/Landcare Research New Zealand have supported photo-montage imagery of all Samoan Arhipelago butterfly species. Some specimens were also supplied by Mark Schmaedick (American Samoa Community College). Electronic images and copyright are now held by MNRE, JICA, Manaaki Whenua and the authors. Initially this imagery will be used for a Samoan Archipelago butterfly poster. Currently the poster is being drafted with assistance provided to MNRE and JICA.
- Publication of an updated and annotated list of the butterflies of the Samoan Archipelago in the Japanese journal *Butterflies*. The data is mostly from the author's private expeditions of 2008. The article is due out in early 2010.
- Identification of the larval hosts of *Appias paulina* and *Doleschallia tongana* from the April 2009 expedition (Figures one and two above) – new host information for Samoa.
- Hawaii visit to inspect and gather data from Lepidoptera collection housed Bishop Museum.
- Apia visit:
 - meeting with CI, MNRE and JICA for joint botanical survey Upolu and Savaii
 - delivery of a formal locally advertised project/butterfly presentation.
 - meeting and workshop among agencies including MNRE, JICA, DMWR, ANPS & CI. To discuss re-establishing lost swallowtail and define key future actions and roles.
- Tutuila visit to meet DMWR for joint work programme. Key task to refine monitoring protocol and establish monitoring programme, accompanied by ASCC staff.
- Contingency visits to Samoa and American Samoa.
- Submission of Butterfly conservation recommendations.

BIODIVERSITY CONSERVATION LESSONS LEARNED TECHNICAL SERIES

CEPF Small Grant Final Project Completion Report

Capacity building to secure endemic Samoan swallowtail butterfly as a model for valuing and conserving butterflies distinctive in the Polynesia-Micronesia Hotspot

Organization Legal Name

New Zealand Butterfly Enterprises Ltd

Project Title

Capacity Building to Secure Endemic Samoan Swallowtail Butterfly as a Model For Valuing and Conserving Butterflies Distinctive in the Polynesia-Micronesia Hotspot

Date of Report

25 April 2010

Report Author and Contact Information

Brian Patrick & Eric Edwards

Box 308, Alexandra

bpatrick@xtra.co.nz

CEPF Region

Polynesia-Micronesia Hotspot

Strategic Direction

Build awareness and participation of local leaders and community members in the implementation of protection and recovery plans for threatened species.

Grant Amount

\$18,600

Project Dates

1 February 2009 – 30 April 2010

Implementation Partners for this Project

Please explain the level of involvement for each partner

Samoa Government – Ministry for Natural Resources and Environment key partner. Due to prior work MNRE provided strong in kind support; liaison, project design, logistics and investigation. In excess of 40 person working days involved. Cooperation and in kind support also provided by Japan International Cooperation Agency (Samoa Office) and three agencies in American Samoa. In excess of 15 person working days involved.

Conservation Impacts

Please explain/describe how your project has contributed to the implementation of the CEPF ecosystem profile

The project has highlighted the special butterfly fauna of the Samoan Archipelago including species endemic to this small area and others possibly threatened with extinction. Ten out of the total of thirty species are only found in the Samoas which is 33% endemism.

The endemic species and subspecies are:

<i>Oriens augustula alexina</i>	Samoaan dart	endemic
<i>Hypolimnas errabunda</i>	Samoaan eggfly	endemic
<i>Phalanta exulans</i>	Samoaan ranger	endemic
<i>Papilio godeffroyi</i>	Pepe ae /Samoaan swallowtail	endemic
<i>Deudorix doris</i>	Samoaan cornealian	endemic
<i>Tirumala hamata melittula</i>	Samoaan blue tiger	endemic
<i>Tirumala hamata tutuilae</i>	American Samoaan blue tiger	endemic
<i>Euploea algea schmelzti</i>	Samoaan crow	endemic
<i>Euploea lewinii bourkei</i>	Common crow	endemic
<i>Melanitis leda hopkinsi</i>	Samoaan evening brown	endemic

12



FIGURE 3: Two Samoan endemic butterflies – Samoaan ranger and Samoaan eggfly.

Regionally endemic butterflies (Samoa, Tonga, Niue):		
<i>Appias athama manaia</i>	Eastern Pacific albatross	
<i>Belanois java schmeltzi</i>	Samoa, Tonga & Niue	
<i>Deudorix armstrongi</i>	Tonga	
<i>Jamides carissima thomasi</i>	Tonga	
<i>Jamides argentina</i>	Samoa & Niue	
<i>Catochrysops taitensis pepe</i>	Samoa & Cook Is.	
<i>Catochrysops taitensis hopkinsi</i>	Tonga	
<i>Tirumala hamata angustata</i>	Tonga	
<i>Euploea lewinii lewinii</i>	Tonga	
<i>Euploea lewinii perryi</i>	Niue & Cook Is.	
<i>Doleschallia tongana tongana</i>	Tonga	
<i>Vagrans egista bowdenia</i>	Samoa, Tonga, Austral Is. Cook Is.	
Species considered vulnerable to extinction are:		
<i>Acraea andromacha</i>	(from Samoa only) – Glasswing	
<i>Oriens augustula alexina</i>	Samoa dart	endemic
<i>Hypolimnas errabunda</i>	Samoa eggfly	endemic
<i>Phalanta exulans – Samoan ranger</i>	endemic	
<i>Papilio godeffroyi</i>	<i>Pepe ae</i> / Samoan swallowtail	endemic
<i>Deudorix doris</i>	Samoa cornealian	endemic

Please summarize the overall results/impact of your project against the expected results detailed in the approved proposal

Along with lead agencies and funding agencies we have;

- Surveyed for Samoan swallowtail butterfly in both Savai'i and Upolu, Samoa and followed-up other later reports.
- Confirmed that Samoan swallowtail butterfly has been extirpated from Samoa, but is still extant in American Samoa.
- Connected with conservation authorities in both Samoa and American Samoa to gain support for medium-term aim to re-introduce Samoan swallowtail butterfly to Samoa.
- Confirmed and located the native larval host-plant of the Samoan swallowtail butterfly in American Samoa.



FIGURE 4: Field team from March 2010: E. Edwards, C. Iese, S. Turnbull, L. Berry, J. Pisi, T. Simanu.

- Surveyed Samoa for larval host-plant and found reasonable populations on Nu’utele Island and north central Savai’i.
- Gained the basic information required for agencies to support education and advocacy initiatives for butterflies and their habitats.
- Provided an additional focus for the existing plant nurseries and conservation re-vegetation projects in both Samoa and American Samoa.
- Added butterflies particularly Samoan swallowtail to the list of species management programmes considered by different agencies.
- Researched and confirmed capacity in American Samoa to bred Samoan swallowtail butterfly and its larval host-plant, so that re-introduction is realistic with existing technology.
- Surveyed islands of Savai’i and Upolu, Samoa; Tutuila, American Samoa; and Vava’u, Tonga for Samoan swallowtail butterfly and other special butterflies.
- Located many new island records including ten new country records for these territories.
- Published one paper of finding in international journal and another draft paper prepared for publication.
- Five newspaper reports of project published – Samoa and New Zealand – and newsletter report published.
- Presented four public talks in Samoa, American Samoa and New Zealand.
- Examined collections of Samoan butterflies at USP Apia, American Samoa Community College, American Samoa, Bishop Museum, Hawaii and NZAC, Auckland to glean information on Samoan swallowtail and other special butterflies of Samoan Archipelago.
- Set-up official Recovery Group for Samoan swallowtail butterfly with representatives from both governmental and non-governmental agencies from Samoa and American Samoa.
- Gained recognition for the threatened Samoan Swallowtail in the Key Biodiversity Area publication: Conservation International – Pacific Islands Programme, Ministry of Natural Resources and Environment, Secretariat of the Pacific Regional Environment Programme. 2010 Priority Sites for Conservation in Samoa: Key Biodiversity Areas. Apia, Samoa.
- Submitted an assessment of the Samoan swallowtail butterfly threat status to the IUCN as official New Zealand assessor.

Please provide the following information where relevant

- *Hectares Protected: N/A*
- *Species Conserved: N/A*
- *Corridors Created: N/A*

Describe the success or challenges of the project toward achieving its short-term and long-term impact objectives

We encountered amazing co-operation with the project from governmental and non-governmental agencies and the general public. Operationally the survey and inspections went smoothly also.

Samoa government MNRE demonstrated great commitment and desire to establish and support a 'bring back the butterfly' recovery group. The existing native plant propagation capacity now has an additional focus regardless of other opportunities and will help the project endure.

We believe our surveys have been thorough and judging by the fact we found several new butterflies, we can be certain about our conclusion that the Samoan swallowtail butterfly is now extinct in Samoa.

A devastating Tsunami hit both Samoa and American Samoa in September 2009, causing us to delay completion in respect of the personal loss and turmoil associated with rebuilding and grieving.

Were there any unexpected impacts (positive or negative)?

1. New butterfly records for The Samoan Archipelago were found and this had not been anticipated.
2. Aside from the swallowtail, two other Samoan butterflies were not found and must be very local and rare in occurrence presently.
3. In kind institutional support was more than expected
4. Butterfly host plant (tamafalu) is currently being propagated in American Samoa.
5. The way the **Two Samoa's Initiative** applies to this project is a pleasant surprise.

Lessons Learned

Describe any lessons learned during the design and implementation of the project, as well as any related to organizational development and capacity building. Consider lessons that would inform projects designed or implemented by your organization or others, as well as lessons that might be considered by the global conservation community.

In future projects associated with this type of process, we will make it a priority to involve the Samoan partners in the work and results in American Samoa. We will budget to transport them there and show them the butterfly, larval host-plant, life-cycle and habitat.

We feel that discussion of capacity for conservation work and inter-agency cooperation through 'recovery group' is a good model.

Project Design Process: (aspects of the project design that contributed to its success/ shortcomings)

- Tour method of rapid roadside survey for butterflies contributed to an efficient survey of the large islands of Samoa and gave certainty to the next steps in the project.

- Close contact with government agencies early in the project contributed to a lot of synergy and assistance being given to us in terms of help with logistics and advice

Project Implementation: (aspects of the project execution that contributed to its success/ shortcomings)

- Promotion of the project through workshops in both Samoa and American Samoa contributed to success of the project through agency buy-in

Other lessons learned relevant to conservation community:

Perhaps of relevance for practitioners is our experience that starting a conversation about an endangered species easily leads to a discussion about habitat/ecosystem management and community participation. We had such interaction with village representatives and tourism managers as well as agency representatives.

Additional Funding

Provide details of any additional donors who supported this project and any funding secured for the project as a result of the CEPF grant or success of the project. N/A

Sustainability/Replicability

Summarize the success or challenge in achieving planned sustainability or replicability of project components or results. N/A

Summarize any unplanned sustainability or replicability achieved. N/A

Safeguard Policy Assessment

Provide a summary of the implementation of any required action toward the environmental and social safeguard policies within the project. N/A

Performance Tracking Report Addendum

CEPF Global Targets

Provide a numerical amount and brief description of the results achieved by your grant. Please respond to only those questions that are relevant to your project.

PROJECT RESULTS	Provide your numerical response for results achieved during the annual period.	Provide your numerical response for project from inception of CEPF support to date.	Describe the principal results achieved between 1 Feb 2009 – 30 April 2010.
1. Did your project strengthen management of a protected area guided by a sustainable management plan? Please indicate number of hectares improved.	N/A	N/A	N/A
2. How many hectares of new and/or expanded protected areas did your project help establish through a legal declaration or community agreement?	N/A	N/A	N/A
3. Did your project strengthen biodiversity conservation and/or natural resources management inside a key biodiversity area identified in the CEPF ecosystem profile? If so, please indicate how many hectares.	N/A	N/A	N/A
4. Did your project effectively introduce or strengthen biodiversity conservation in management practices outside protected areas? If so, please indicate how many hectares.	N/A	N/A	N/A
5. If your project promotes the sustainable use of natural resources, how many local communities accrued tangible socio-economic benefits?	N/A	N/A	N/A

Additional Comments/Recommendations

In addition to the objectives around quantifying the archipelago's butterfly fauna this project was Step One of a medium-term project to re-introduce the Samoan swallowtail butterfly to Samoa from American Samoa.

Step two is to activate the appointed Recovery Group and get them started on identifying places to re-introduce the butterfly, instigating growing the host-plant in nursery situation in Samoa and rearing of the butterfly in American Samoa ready for shipping to Samoa at the appropriate time. Additionally much liaison with villages and between agencies in Samoa and American Samoa is required.

We recommend that based on a positive start to the project, that Step two is prioritised and funded to begin soon so as there is continuity to the project building on the momentum already achieved.

Information Sharing and CEPF Policy

CEPF is committed to transparent operations and to helping civil society groups share experiences, lessons learned, and results. Final project completion reports are made available on our website, www.cepf.net, and publicized in our newsletter and other communications.

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Appendix 1

New Zealand Arthropod Collection, Auckland:
Label details and notes for Lepidoptera records from Samoa

Family /Taxon	Locality	Island	Date	Collectors	Notes
Hesperiidae					
<i>Oriens angustula alexina</i>	Malolelelei	Upolu Samoa	5-XI-50	J.S. Armstrong	
<i>Oriens fraseri</i>	Samoa	Samoa	1914-18	R.W. Tate Colln.	x4. Det. P.A. Maddison
Lycaenidae					
<i>Catochrysops taitensis</i>	Apia	Upolu Samoa	10-11-22	J.S. Armstrong	x13
<i>Famegana alsulus</i>	Apia	Upolu Samoa	4-3-24	J.S. Armstrong	x3
<i>Famegana alsulus</i>	Apia	Samoa	30-8-22	J.S. Armstrong	
<i>Nacaduba samoensis</i>	(not legible), Apia	Upolu	26-x-52	J.S. Armstrong	?= <i>Petrelaea tombugensis</i>
<i>Nacaduba samoensis</i>	Apia	Western Samoa	24-xii-22	J.S. Armstrong	?= <i>Petrelaea tombugensis</i>
<i>Nacaduba samoensis</i>	Cross Island Rd	Upolu I. Western Samoa	10-May 1953	J.S. Armstrong	?= <i>Petrelaea tombugensis</i>
<i>Zizina otis</i>	Apia	Upolu Samoa	4-5-24	J.S. Armstrong	Labelled <i>Z. otis</i> but ?= <i>Petrelaea tombugensis</i>
<i>Zizina otis</i>	Apia	Upolu Samoa	4-5-24	J.S. Armstrong	x3
<i>Zizina otis</i>	Pago Pago	American Samoa	July 1970	Carol J. Horning	

Family /Taxon	Locality	Island	Date	Collectors	Notes
Nymphalidae Acraeinae					
<i>Acraea andromacha polynesiaca</i>	Apia	Samoa	coll. 13.4.21	J.S.Armstrong	
Nymphalidae Nymphalinae					
<i>Doleschallia tongana vomana</i>	Tiapapata Malololeilei	Apia Samoa	Jan-Oct 2000	G. Sherley	
<i>Hypolimnas antilope lutescens</i>	Maota	Savaii W. Samoa	9.6.73	P.A. Maddison	Det. P.A. Maddison but ?= <i>H. errabunda</i>
<i>Phalanta exulans</i>	Asau 914 m	Savaii W. Samoa	3-Sep 1979	D. Russell	Second label: "3 kms S. from coast upper nursery"
<i>Phalanta exulans</i>	Malololeilei	Upolu Samoa	18-4-24	J.S. Armstrong	
<i>Phalanta exulans</i>	Malololeilei	Upolu Samoa	16-7-50	J.S. Armstrong	
<i>Phalanta exulans</i>	Mt. Le Pu'e 950 m	Upolu W. Samoa	25 Jun 1984	J.S. Dugdale	Second label: assoc <i>Melicytus</i>
<i>Phalanta exulans</i>	nr. Tiavi Falls, 2000'	Upolu Western Samoa	13.10.73	P.A. Maddison	
<i>Phalanta exulans</i>	Palauli	Savaii W. Samoa	22 Aug 1979	D. Russell	
Papilionidae					
<i>Papilio godeffroyi</i>	Apia	W. Samoa	18-3-23	J.S. Armstrong	left hindwing damage. All hand written.
<i>Papilio godeffroyi</i>	Apia	Samoa	coll 1-1-22	J.S. Armstrong	beaked by bird between tails on hindwings. All hand written
<i>Papilio godeffroyi</i>	Palauli, 335 m	Savaii Western Samoa	24 Aug 1979	D. Russell	"In meadow". Slight tail damage right hand side. Note date and names hand written

Family /Taxon	Locality	Island	Date	Collectors	Notes
Pieridae					
<i>Appias albina manaia</i>	(not legible)	Upolu Samoa	3-12-50	J.S. Armstrong	
<i>Appias albina manaia</i>	A'opo	Savaii W. Samoa	11/1/77	P.A. Maddison	"In flight"
<i>Appias albina manaia</i>	Auala	Savaii W. Samoa	4 Sep 1978	D. Russell	"Coast"
<i>Appias albina manaia</i>	AVAO	Savaii W. Samoa	11/1/77	P.A. Maddison	"In flight"
<i>Appias athama manaia</i>	Apolima	Samoa	3 Jan 1951	R. A. Harrison	female
<i>Belanois java</i>	near Sana	American Samoa	1985 (?)	P.A. Maddison	"In flight"
<i>Belanois java micronesia</i>	AVAO	Savaii W. Samoa	11/1/77	P.A. Maddison	not sub. sp. Micronesia. One only

Note: P.A. Maddison ?1985 American Samoa J. villida, B. java, V. egista, J. argentina, Z. otis

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