CEPF FINAL PROJECT COMPLETION REPORT

Organization Legal Name:	Landcare Research New Zealand Ltd
Project Title:	Valuing the Impact of Selected Invasive Species in the Polynesia-Micronesia Hotspot
Date of Report:	Feb 28, 2013
Report Author and Contact Information	Suzie Greenhalgh (greenhalghs@landcareresearch.co.nz)

CEPF Region: Polynesia-Micronesia

Strategic Direction: 1. Invasive species prevention

Grant Amount: $189,025

Project Dates: Jan 1, 2012-Dec 31, 2012 (with amendment March 31, 2013 requested)

Implementation Partners for this Project (please explain the level of involvement for each partner):
University of the South Pacific:

- Provided survey (content) and location advice
- Translated the survey forms into Fijian
- Provided staff to conduct pre-testing of the survey with Landcare Research staff
- Provided students/staff and logistics for conducting the community and household surveys on Viti Levu, Fiji.
- Entered all survey data into excel for analysis
- Provided a classroom and equipment for the CBA training

Pacific Invasives Initiative:

- Coordinated the short-course advertising and managed applicant pool
- Provided input into bio-physical characteristics for some invasive species where CBA conducted
- Coordinated reviews of CBA analysis
- Coordinated the layout of the invasive species fact sheets

Conservation Impacts

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

This project provided tools (CBA guidance and excel-based tool) and information (factsheets) to enable local civil and government decision-makers to consider conservation values in a socio-economic framework as opposed to the traditional view of conservation as the 'environment' and therefore low priority issue. The project contributed to CEPFs stated opportunity to build upon the co-management of conservation areas involving both government and civil society with information being provided to support the most cost-effective control/management options for 5 well-established invasive species (see project approach for the species list). It also begins to fill an information gap identified at the Roundtable and Pacific Invasives Partnership

meetings around the necessity to evaluate the economic impact of invasive species to better inform resource management in the region. This is through both the assessment undertaken for 5 species and also building capacity (through the short-course) in the region to undertake cost-benefit analysis.

Please summarize the overall results/impact of your project.

The village and community surveys have provided the first-ever quantification of the socio-economic impacts of invasive species in Eastern Viti Levu, Fiji. This identified the variation in control and management options within the survey area. While not specifically reported in the final report for the project, the same survey was enumerated in all villages on Tavenui, Fiji to look at the impacts of invasive species.

The professional short-course provided training to 17 professionals in the region on CBA analysis with these professionals undertaking assessments of invasive species of their choice. To underpin their analysis was an excel-based CBA tool developed specifically for this project.

The development of a CBA guide for practitioners was jointly developed by Landcare Research, SPREP, SPC, the Pacific Island Forum Secretariat (PIFS), the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and the Commonwealth Scientific and Industrial Research Organisation (CSIRO). A number of these organizations were in the process of developing their own CBA guidance for their own purpose. However, it quickly became evident that if different organizations were developing their own guidance to undertake CBA analysis then there could be multiple messages in the region in terms of how to apply CBA. To provide a consistent tool and guidance in the region all organizations collaborated to provide a single guidance document for use by practitioners in the region.

Project Approach (500 words)

This project involved a number of activities to assess the cost of 5 invasives species in Fiji and to increase the capacity in the region to undertake cost-benefit analysis (CBA). To accomplish this:

1) we undertook CBAs of managing five well established species on Viti Levu, Fiji: *spathodea campanulata* (African tulip tree), *herpestus javanicus* (small Asian mongoose), *papuana uninodis* (Taro beetle), *pycnonotus cafer* (red-vented bulbul), and *merremia peltata* (merremia vine). These CBAs were informed by primary-source data collected via matched household and community surveys, and the resulting recommendations were subjected to rigorous peer review from regional experts to ensure both accuracy of underlying assumptions and feasibility of implementation.
2) we developed and conducted a comprehensive training course to teach professionals working in invasive species management, methods to develop, conduct, and present economic analyses of invasive species eradication or control. Some 17 professionals (from an applicant pool exceeding 50) representing government agencies, research institutions, and NGOs from seven Pacific island countries and Australia attended a 3-day workshop on conducting CBAs to evaluate management options for 13 invasive species. The training was designed to follow and augment the Global Invasive Species Programme

(GISP)'s Economic Analysis Toolkit. Attendees met with the trainers monthly via skype as they developed CBAs for managing focal species and were invited back to the University of the South Pacific to present their research findings four months after the initial training.

3) In collaboration with SPREP, SPC, the Pacific Island Forum Secretariat (PIFS), the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and the Commonwealth Scientific and Industrial Research Organisation (CSIRO) we developed a step-by-step guide for conducting CBAs in the Pacific. This guide supplements existing guides and manuals by illustrating the CBA steps using case studies from the Pacific. Not only will it serve as a future reference for applying CBAs to natural resource management, but will support future training and capacity development in the region. Importantly, the guide provides a standardized approach to conducting CBAs from key players in the region.
4) We developed a highly customizable tool for evaluating the costs and benefits of invasive species management. User-entered data pertaining to individual species are utilised to automatically aggregate costs and benefits and to calculate net present values of each management option, and simple manipulations such as changing the program duration (i.e., years of organised control) or discount rate facilitate sensitivity analyses to help user evaluates the robustness of policy/management options. The tool was designed in Microsoft Excel to increase accessibility to non-specialist audiences.
5) We developed advocacy material and publicized findings from this project to promote investment in invasive species management. For example, a series of factsheets on CBAs for the five key invasive species completed through this project have been developed and will be distributed at the CEPF end-of-program conference in April 2013, at the 12th Pacific Science Inter-Congress (July 2013), and at the Ninth Pacific Islands Conference on Nature Conservation and Protected Areas (November 2013). Research findings were also presented in the Pacific Resource and Environmental Economics Network newsletter and at the annual conference of the Australian Agricultural and Resource Economics Society (February 2013). They were also featured in a seven-minute interview on Radio Australia (broadcast to 12 Pacific countries) in February 2013.

Link to CEPF Investment Strategy

This project contributed to the implementation of CEPF's strategic direction 1: prevent, control, and eradicate invasive species in key biodiversity areas, particularly 1.2 and 1.3.

This project focused on collecting information on the impacts of invasive species (with more detailed information on 5 well-established species (see project approach for the species list)) in Eastern Viti Levu, Fiji. Additional surveys were also undertaken on Tavenui,Fiji. This provided information on the distribution of the species and also the extent of socio-economic impacts. This provided data for use in cost-benefit analyses (CBA) to identify cost-effective management/eradication options for each species and also provided village/community level data that could be used in management/control campaigns. The project also provided training to professionals in the use of CBA to improve decisions around how to prioritize invasive species management options.

Planned Long-term Impacts - 3+ years (as stated in the approved proposal):
Funding for invasive species management is targeting the most costly invasive species incursions (by quantified impact) in the Polynesia Micronesia region. All stakeholders are using the tool for assessing impacts and share their work with Global Invasive Species Program and other relevant agencies and organizations in the region. Strong capacity in the region exists to manage further cost benefit analysis of invasive species.

Actual Progress Towards Long-term Impacts at Completion:
At the completion of the project the capacity within the region to both undertake primary data collection (via survey methods) and conduct CBAs has been increased via hands on survey enumeration and training for this project and through the CBA short-course for professionals. The short-course participants were all given an excel-based tool to conduct CBAs with the tool being made more widely available via websites.

Planned Short-term Impacts - 1 to 3 years (as stated in the approved proposal):
An active list of invasives species in the Pacific is available and there is good information available about the economic impacts of these species. Capacity for ongoing analysis has been built across the relevant stakeholders and a peer network of these representatives is strengthened. Advocacy material is widely disseminated.

Actual Progress Toward Short-term Impacts at Completion:
Paired community and household surveys on the impact of invasive species underpins CBA analyses and fact sheets for 5 invasive species prevalent in Viti Levu, Fiji. Through the short-course, CBA capacity has been increased in the region and a peer network established between short-course participants. Advocacy material has been prepared and will be disseminated at appropriate events in the coming 12 months as well as being available on websites.

Please provide the following information where relevant:

Hectares Protected: Not relevant
Species Conserved: Not relevant
Corridors Created: Not relevant

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

While the capacity for on-going analysis has been developed and findings from the project are being disseminated there has not been sufficient time to assess whether there is an increased use of economic analytic tools or how local governments and organizations have used the project findings.

While the capacity has been increased in the region around the use of CBA to make management decisions, there has not been sufficient time since project completion to assess how people in the region are using the tools and information developed during the project. Much of this will depend on the incentives provided by governments to undertake CBAs and what incentives NGO face to rationalize the methods they use to control invasive species. Again, not sufficient time has passed to assess how much

information is generated within the region is shared with the Global Invasive Species Program and other relevant organizations.

Were there any unexpected impacts (positive or negative)?
The success of the short-course training for economic analysis (Cost-Benefit Analysis (CBA)) on impacts of invasive species has led to another organization (CABI) contracting Landcare Research and PII to undertake CBA training in the Caribbean. This was with GEF funding. This course was also highly successful and we have been asked to run a similar course in Mexico.

Project Components

Project Components*: Please report on results by project component. Reporting should reference specific products/deliverables from the approved project design and other relevant information.*

Component 1 Planned:
An excel-based assessment system is developed to support the economic assessment of the impact of invasive species.

Component 1 Actual at Completion:

Completed, with CBA tool provided to CEPF

Component 2 Planned:
Human capacity in Polynesia Micronesia is enhanced in Cost Benefit Analysis of invasive species.

Component 2 Actual at Completion:

Completed. Short-course on conducting CBA was undertaken and completed (see separate final report for further details). This has led to a request for a similar course on invasive species being undertaken in the Caribbean.

Component 3 Planned:
Advocacy material to generate political support for invasive species management.

Component 3 Actual at Completion:

Completed. See the separate final report for copies of the material prepared.

Were any components unrealized? If so, how has this affected the overall impact of the project?

No, all components were completed.

Please describe and submit (electronically if possible) any tools, products, or methodologies that resulted from this project or contributed to the results.

There were a number of products that were developed during this project. This included:

- Excel-based CBA tool
- Guidance for conducting a CBA in the Pacific
- A series of fact sheets on 5 invasive species.

The Guidance and factsheets were provided to CEPF in a separate final report with the excel-based CBA tool as an accompanying file.

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.

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

Some of the points below relate to project design but fitted better in project implementation,

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

Surveys

- Collecting survey data at both the community level and household level proved to be crucial. The former provided a clear understanding of current management practices while the latter provided much greater insight on attitudes toward invasive species and costs expended to control them.
- The capacity for survey research in Fiji is generally quite low. Our three-day training for enumerators went a long way toward ensuring that high quality data were obtained, but the enumerators and/or data entry personnel nevertheless recorded numerous questionable values. Based on this experience, subsequent survey work in the Pacific will use electronic enumeration methods allowing quality checks to be programmed into the survey itself.
- The dearth of biological data on the five key invasive species made CBA extraordinarily challenging. To fill this void, we have undertaken an extensive literature review and have reached out to many regional and international experts through direct contact and internet list-serves. Nevertheless, we have had to make assumptions about rate of population growth and effectiveness of management options in some cases.

Short course

- Classroom exercises were important to ensuring that participant's grasped key economic terms (e.g., discounting and net present value) and case studies from the Pacific proved to be invaluable for facilitating experiential learning.
- Excel represented a familiar platform through which participants could undertake their analytical analyses.
- Participants were eager to learn more about techniques that can be used to estimate non-market values such as species protection and clean water. Some methods such as stated and revealed preference survey questionnaires were touched upon during the classroom session, but a longer course period would be required to adequately train participants on non-market valuation techniques.
- Participants that had specific projects to manage found particular value in the hands-on training and follow-on mentoring. However, even the most enthusiastic participants found it difficult to undertake comprehensive CBAs in the four-month timeframe, largely due to limitations in existing biophysical and social data.
- Based on these lessons, the initial workshop in the Caribbean will last four days, including a full day devoted to ecosystem services. In addition, participants will have 12 months to complete their CBAs, with opportunities to follow up and ask questions through monthly video-conferences with the instructors.

Manual development

- There is a strong demand for CBA training in the Pacific, especially regarding environmental management. Over the last year, trainings have been conducted by Landcare Research, SOPAC, SPC, SPREP, and others.
- The CBA manual had to be simple. Most of the concepts were new to practitioners, so we purposefully chose to keep the manual concise.
- Adding specific examples from the Pacific Islands region is a key component of the CBA manual.
- The toolkit was well-received at the training course and most participants could complete the case study examples using the excel spreadsheet.

Fact sheets and outreach

- Findings have to be clear and concise so that they can be understood by a diverse audience.
- Results of our study were anticipated from several key stakeholders. These included local, national, and international government and non-government organisations.
- Results should be presented using a variety of media.
- A mix of qualitative and quantitiative findings should be used to express key points.

Other lessons learned relevant to conservation community:

Additional Funding

Provide details of any additional funding that supported this project and any funding secured for the project, organization, or the region, as a result of the CEPF investment in this project.

Donor	Type of Funding*	Amount	Notes
CDKN	Not applicable		This funding was to undertake CBA analyses on disaster risk reduction due to climate change in Fiji. While not directly related to CEPF, it did allow us to share travel costs between projects. Given the unfavorable exchange rate fluctuations this meant that we could still spend the staff hours originally planned for the project, and have additional staff available for those components of the project where we underestimated the amount of time needed (e.g., surveys)

****Additional funding should be reported using the following categories:***

A *Project co-financing (Other donors or your organization contribute to the direct costs of this project)*

B *Grantee and Partner leveraging (Other donors contribute to your organization or a partner organization as a direct result of successes with this CEPF funded project.)*

C *Regional/Portfolio leveraging (Other donors make large investments in a region because of CEPF investment or successes related to this project.)*

Sustainability/Replicability

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

There were a number of components considered for the sustainability and replicablity of this project including:

- Building of capacity within USP. Through enumerator training the project has improved the capacity within the region to undertaken community/household

surveys. The high quality enumerators have since been used in a subsequent project to undertake survey around the responses to disaster risk related to climate change.
- Development of tools for use by local government agencies and organizations. While an excel-based CBA tool and guidance has been developed it is too early to assess the uptake of these tools.

Summarize any unplanned sustainability or replicability achieved.

CBA training for professionals was considered a means to enable CBA to be undertaken more widely in the Pacific. We had envisioned that this would happen within the region. Unexpectedly though professionals in the Caribbean have contracted our trainers to undertake a similar short course for professionals in the Caribbean. Based on learning from the Pacific, this course has been extended to a 4-day initial training period and allows 12 months for participants to undertake their own analyses.

Safeguard Policy Assessment

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

This section was not applicable to our project.

Additional Comments/Recommendations

A full final grantee report has been provided separately to CEPF.

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 Web site, www.cepf.net, and publicized in our newsletter and other communications.

Please include your full contact details below:

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*****If your grant has an end date other than JUNE 30, please complete the tables on the following pages*****

Performance Tracking Report Addendum

CEPF Global Targets				
(Enter Grant Term) **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	**Is this question relevant?**	**If yes, 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 from July 1, 2007 to June 30, 2008. (Attach annexes if necessary)**
1. Did your project strengthen management of a protected area guided by a sustainable management plan? Please indicate number of hectares improved.	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			
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			
4. Did your project effectively introduce or strengthen biodiversity conservation in management practices outside protected areas? If so, please indicate how	N/A			

many hectares.				
5. If your project promotes the sustainable use of natural resources, how many local communities accrued tangible socioeconomic benefits? Please complete Table 1below.	N/A			

If you answered yes to question 5, please complete the following table

Table 1. Socioeconomic Benefits to Target Communities

Please complete this table if your project provided concrete socioeconomic benefits to local communities. List the name of each community in column one. In the subsequent columns under Community Characteristics and Nature of Socioeconomic Benefit, place an X in all relevant boxes. In the bottom row, provide the totals of the Xs for each column.

Name of Community	Community Characteristics								Nature of Socioeconomic Benefit												
									Increased Income due to:												
	Small landowners	Subsistence economy	Indigenous/ ethnic peoples	Pastoralists/nomadic peoples	Recent migrants	Urban communities	Communities falling below the poverty rate	Other	sustainable natural resources management	Ecotourism revenues	Park management	Payment for environmental services	security due to the adoption of sustainable fishing, hunting, or	More secure access to water resources	or other natural resource due to titling, reduction of	natural disasters (fires, landslides,	More secure sources of energy	public services, such as education, health,	traditional knowledge for environmental	decision-making due to strengthened civil society and	Other
Total																					

If you marked "Other", please provide detail on the nature of the Community Characteristic and Socioeconomic Benefit: