CRITICAL ECOSYSTEM PARTNERSHIP FUND

Pest Management Plan

April 2012

CEPF Grant 60917

Te Ipukarea Society

Saving Suwarrow's Seabirds: Restoring a Key Biodiversity Area

Suwarrow, Cook Islands

CEPF Grantee Pest Management Plan

Grant Summary

Grantee Organization:	Te Ipukarea Society
Project Title:	Developing Methods to Remove Invasive Macaques from Tropical Forest KBAs in Palau: Angaur, Koror, Peleliu
GEM Number:	60917
Total Project Budget (US $):	$148,530
Funding Request (US $):	$68,095
Start Date:	April 1, 2012
End Date:	March 31, 2013
Country Where Pesticides Will Be Applied:	Cook Islands
Grantee Personnel Responsible For The Pest Management Plan:	Jacqui Evans, Te Ipukarea Society, +21144, Te.Ipukarea.Society.Inc@gmail.com
Date Of Preparation:	26 April 2012

Project Summary

This project is to restore Suwarrow atoll, a wildlife sanctuary in the Cook Islands and an Important Bird Area in the Polynesia-Micronesia hotspot. Suwarrow has globally significant congregations of the Lesser Frigate bird, the Sooty Tern and the Red Tailed Tropic bird. These birds are threatened by rats and this project is to eradicate rats from the atoll and improve biosecurity.

Date of preparation of the pest management plan.
February 2012

Pest Management Approach:

Rats are a known predator of seabirds and while there is little information quantifying their impacts for Suwarrow, an analysis of seabird breeding suggests a significant reduction (if not complete absence) of seabirds for motu with rats (such as Anchorage, Motu Tou and possibly Motu Oneone). The observed reduction in breeding Black Noddys on Motu Tou between the 2000 and 2008 surveys could also be the result of rat predation. While rats remain in Suwarrow so does the potential for them to spread to other motu and negatively impact on seabirds and other native biodiversity.

Current and proposed pest management practices.
It is proposed that rats are eradicated by hand broadcasting pelleted cereal based rat bait (brodifacoum) on affected islets.

Relevant integrated pest management experience within the project area, country or region.
Te Ipukarea Society has undertaken rat eradication in Suwarrow in 2003 and executive members have lead very successful annual rat control efforts in the Takitumu Conservation Area on Rarotonga since 1996. Without any monitoring data following eradication in Suwarrow, it is uncertain if the rats observed there now are the result of a new incursion or if the eradication was unsuccessful. Te Ipukarea Society has learnt much from this experience and will consult with Birdlife International, the Pacific Invasives Initiative, the New Zealand Department of Conservation and put in place an integrated biosecurity plan during the course of this project. A post-eradication monitoring plan will also be implemented by partners and TIS.

Assessment of proposed or current pest management approach and recommendations for adjustment where necessary.
The proposed approach is appropriate and cost-effective for the project site. No adjustments will be made to the approach used.

Pesticide Selection and Use: This section aims to get a comprehensive understanding of the pesticide that will be selected, why it was selected and what efforts were made to assess risk. Note that in this section the applicant will also be required to present information on the potential risk that the selected pesticide will have on non-target species.

Description of present, proposed and/or envisaged pesticide use and assessment of whether such use is in line with best management practices.
No toxins are currently used on Suwarrow. A single anticoagulant application was made in 2003 to eradicate rodents from two islets. The current operation will complete the removal of all remaining rodents from the atoll.

Anticoagulants (and particularly Brodifacoum) are internationally recognized as the most effective tool for eradicating rodents from Islands. A review of global rodent eradications in 2007 identified 284 successful operations (treating 42,687ha) which with the exception of two small islets utlilised anticoagulants. Seventy one percent of these used Brodifacoum which also accounted for 91% of the area treated (Howald etal 2007). For more than 30 years Brodifacoum has been the key tool to successful rodent eradications. These operations have evolved a substantial body of knowledge which is now reflected in planning procedures that ensure the impacts of an operation are understood and significant negative effects prevented. This process of assessing the feasibility of achieving a successful operation identifying potential risks and putting in place preventative or mitigating procedures which are detailed in an operational plan is an internationally recognized process and accepted best practice.

This operation is also adhering to these procedures and attached is the operational assessment (feasibility) which is also undergoing external peer review (Evans and Cranwell, 2012).

Indication of type and quantity of pesticides envisaged to be financed by the project (in volume and dollar value) and/or assessment of increase in pesticide use resulting from the project.
The rodenticide to be used is PestOff 20R applied at a rate of 20kg/ha. Such application rates are consistent with successful operations throughout the tropical Pacific including 11 in Fiji, 6 in New Caledonia and several in Kiribati, and the Seychelles. The minimum volume of bait to be applied will be 580kgs (23.4ha x 20kg/ha +20% contingencies) and the maximum would be 2,250kgs (90ha x 20kg/ha + 20% contingency). The value of the bait is 2300-9000NZD plus shipping. The bait use involves two applications (of 10kg/ha) 7-10 days apart after which there is no further use of the rodenticide.

Chemical, trade, and common name of pesticide to be used.
Chemical and common name; Brodifacoum
Trade Name; PestOff 20R (containing brodifacoum at a rate of 0.02gms/per kg)

Form in which pesticide will be used (e.g., pellet, spray).
10-12mm diameter, green dyed cereal pellet

Specific geographic description of where the pesticide will be applied: name of province, district, municipality, land owners, or map coordinates (if available); and the total area (hectares) to which the pesticide will be applied.
The pesticide will be applied to the vegetated areas of Anchorage Islet (11.3ha), and Motu Tou (12.1ha). Surveys (May 2012) will confirm the presence of rodents for the remaining islets and if rodents are present these islets will also be treated which could include Motu Oneone (7.7ha). Suwarrrow is an uninhabited atoll and is under the jurisdiction of the Cook Islands Government. The maximum area that may need to be treated is up to 90ha although this is considered unlikely as surveys in 2003 indicate the majority of this area is likely to be rodent-free. However, to achieve eradication it's important that sufficient scope is provided at this stage to target all motu that may have rodents. The minimum area an operation will treat is 23.4ha. Coordinates are: Anchorage: 163.06 W, 13.14 S; Motu Tou: 163.11 W, 13.17 S; Motu Oneone: 163.02 W, 13.16 S.

Assessment of environmental, occupational and public health risks associated with the transport, storage, handling and use of the proposed products under local circumstances, and the disposal of empty containers.
An assessment of environmental effects has been completed for Suwarrow and identifies the potential for some risk to Bristle-thighed curlew as a consequence of foraging on crabs that may have consumed bait. Crabs (and invertebrates as a group) are not affected by the bait due to their metabolic processes and the toxin is excreted within hours-days after consumption. Bristle-thighed curlew are a migratory species over-wintering throughout the South Pacific returning to Northern hemisphere breeding areas in August. The operation will therefore avoid potential impacts on curlews by applying the bait in September. Crabs as a human food source are also a potential source for secondary poisoning. While the possibility for this exists the likelihood is extremely low due to Suwarrow being remote and uninhabited (nearest island is 300kms away), meaning crabs are rarely harvested and that the volume of brodifacoum required for a lethal dose is 15mg for a 60kg man (Eason et al, 1999).

A vast number of crabs would need to be eaten to attain anywhere near this level of exposure. Nevertheless the operation will take a precautionary approach and impose a ban on harvesting crabs for 3 months following bait application. All surrounding island communities and visitors to Suwarrow will be advised of the operation and associated restrictions. A resident caretaker will also control access to Suwarrow and warning signs will be established on all treated islets. For people applying the bait recommended health and safety procedures will be followed which include the use of gloves and appropriate clothing when handling bait. Transportation and disposal of waste material will be made in accordance with the Material Safety Data Sheet Specifications (attached). The Feasibility Study report (Evans and Cranwell, 2012) provides further details for the environmental impact assessment.
Bait will be stored in a locked storage shed at the Takitumu Conservation Area. They will be in plastic containers which will be stored on pallets. The storage shed is well ventilated. Three people have a key to this shed. A log will be maintained to record the arrival and departure from the shed of the bait used for this project.

Description of plans and results for tracking of damage to and/or deaths of non-target species prior to pesticide application and subsequent to pesticide application.
Prior to the application of bait a survey will be made noting the presence of all bristle-thighed curlew. Where possible these will also be captured and colour-marked. All birds will be monitored throughout the operation and any sick or dead birds will be recovered and autopsied (as appropriate). Any other dead wildlife will also be recovered and autopsied for evidence of brodifacoum. The monitoring results will be published on completion of the operation. Monitoring procedures will be described in a peer reviewed monitoring plan.

Pre-requisites and/or measures required to reduce specific risks associated with envisaged pesticide use under the project (e.g., protective gear, training, upgrading of storage facilities, etc.).
A health and safety plan will describe in detail procedures for avoiding hazards to staff in implementing the operation including the use of boats, preparing tracks, and the application of bait. Training will be provided by an experienced eradication specialist in applying bait and the use of health and safety equipment. Bait will be stored and transported in accordance with label instructions and will be held in a secure facility on Rarotonga under the jurisdiction of the Ministry of Agriculture

Basis of selection of pesticides authorized for procurement under the project, taking into consideration WHO and World Bank standards, the above hazards and risks, and availability of newer and less hazardous products and techniques (e.g. bio-pesticides, traps).
Brodifacoum is a second-generation anticoagulant toxicant that has successfully eradicated rodents on many islands around the world (Howald et al., 2007). This has resulted in demonstrable benefits to island ecosystems (Empson and Miskelly, 1999; Dolan et al., 2003; Howald at al., 2007). Trapping is unlikely to achieve an eradication as it fails to fulfil the first principle of eradication which is the need to lethally expose every target animal. While there are a limited number of other toxins (anticoagulants) that could be used to target rodents (ie diphacinone) use in similar situations demonstrate a much lower success rate than brodifacoum (Parkes etal 2011). Given non-target effects for this operation are low and preventable, the choice of using a less effective toxin and increasing the risk of operational failure is not warranted.

Name and address of source of selected pesticides.
Animal Control Products Ltd
Private Bag 3018

408 Heads Road, Balgownie
Whanganui 4501
New Zealand

Name and address of vendor of selected pesticides.
As for 23

Name and address of facility where pesticides will be stored.
Takitumu Conservation Area, Rarotonga, Cook Islands (where Brodifacoum is currently stored)

Policy, Regulatory Framework, and Institutional Capacity: This section aims to understand the institutional and legal framework under which the pesticide will be applied, with reference to the documentation and standards required under local and national law and international good practice. Where the particular pesticide is not regulated at the target site, the proponent must identify similar pesticides and the applicable regulation, international laws in neighboring countries that could apply, and international good practice. The proponent must also explain why this particular pesticide is necessary even in the absence of national laws.

Policies on plant/animal protection, integrated pest management, and humane treatment of animals.
There is no legislation for the human treatment of animals in the Cook Islands. Secondary poisonings will be avoided through the careful application of bait during the appropriate period.

Description and assessment of national capacity to develop and implement ecologically-based AIS control.
TIS have a history of rodent control from the 2003 operation in Suwarrow and the ongoing control campaign in the Takutimu Conservation Area. For the Suwarrow operation eradication specialists from BL, PII and NZ DOC will provide technical support to TIS in completing the operational planning and its implementation. BirdLife International will provide technical training in the application of bait, and monitoring.

Description and assessment of the country's regulatory framework and institutional capacity for control of the distribution and use of pesticides.
Brodifacoum is an uncontrolled substance in the Cook Islands and is widely available for domestic and commercial rodent control. The importation, regulatory standards including permitting for use is controlled by the Ministry of Agriculture. The Pesticides Act 1987 requires pesticides to be registered with the Pesticides Board. An application must be made to the Registrar appointed under section 5 (2) (e) of the Act for the importation of pesticides.

Proposed project activities to train personnel and strengthen capacity (list # of people and what they are being trained in).
In developing the planning information (feasibility, operational, monitoring, biosecurity, & health and safety plans) for the eradication TIS personnel are being mentored through this process by technical specialists from BirdLife International, PII, and the NZ Department of Conservation.
TIS and supporting operational personnel will also be trained in

- Biological monitoring techniques including autopsy
- The establishment of a ground based baiting operation on Suwarrow
- Baiting techniques and

- Biosecurity procedures

Confirmation that the appropriate authorities were approached (who and when) and that the appropriate licenses and permissions were obtained by the project.
The Registrar at the Ministry of Agriculture, Mr William Wigmore was contacted on 20 February 2012 to determine the requirements for the importation and storage of Brodifacoum. Mr Wigmore confirmed that this rodenticide is already in use in the Takitumu Conservation Area and that the issuance of a permit for importation is likely.

Consultation: This section aims to outline the range of informed consultations that the grantee has had both with experts to optimize the potential for success, and with stakeholders, particularly local communities, who are potentially affected (by proximity, by the use of certain areas for free-ranging livestock or non-timber forest product collection, etc.) by the use of pesticides.

Plans for, dates, and results of expert consultations, if necessary.
Continuous consultation was had with Birdlife International throughout the preparation of the feasibility study for this project. The result was the identification of the preferred method of eradication: hand broadcast of brodifacoum. Further consultation will be had with BLI the Pacific Invasives Initiative and the New Zealand Department of Conservation Eradication Advisory Group in finalizing the operational and other preparatory plans prior to the operations commencement in September 2012.

Plans for, dates, and results of consultations with local communities.
Suwarrow is an uninhabited atoll except for two caretakers who are resident from May to October each year. Each caretaker was consulted, James Mataa in December 2011 and John Trego in January 2012. The result of the consultation was an improved understanding by the caretakers of brodifacoum. The National Environment Service, who are responsible for the management of Suwarrow were also consulted during October- December 2011. The National Environment Service are supportive of the eradication project.

Further consultation will be had with the NES during preparations for the operation. Information will be prepared and advisories provided for communities surrounding Suwarrow and visitors informing them of the operation and the ban on crab harvesting.

Monitoring and Evaluation: This section aims to outline what steps the proponent will take to monitor and evaluate the purchase, storage, application and effects of the pesticide in the target area.

Description of activities related to pest management that require monitoring during implementation.
All wildlife will be monitored on Suwarrow and dead animals will be autopsied for brodifacoum
Treated islets will be monitored for the presence of rodents one year after treatment
A repeat bird census for the Atoll will be made in 2014
Bait degradation will be monitored following each application
Bait volumes will be accounted for and all excess bait returned to Rarotonga for disposal in accordance with Material Safety Data Sheet Standards (attached)

Monitoring and supervision plan, implementation responsibilities, required expertise and cost coverage.

A detailed operational monitoring plan will be prepared which will include all biological and other indicators as identified above. TIS will be responsible for the deployment of the monitoring plan which BirdLife International will support. Birdlife will also support the development of associated technical capacity. All monitoring conducted during the operational phase will be supported by the CEPF project. Funding for post operational monitoring (including biosecurity) has been secured from the European Union.