The PII News, December 2010.

Pacific Invasives Initiative

This summary of invasive species management activities by people and agencies that the Pacific Invasives Initiative (PII) works with is collated and circulated by the PII Team. Contributions are welcomed. Thanks to all those who contributed to this one! Feedback is also welcomed – contact either the PII Team PII@auckland.ac.nz or the people directly involved in projects. Visit our website http://www.issg.org/cii/PII or find us on Facebook for further information.

Inside this issue:

PII ACTIVITES

Invasive species management in the Pacific: a review of national plans and current activities

PII recently released a review of national invasive species management plans and current activities from twelve Pacific island countries (PICs) were reviewed: Cook Islands, Fiji, Federated States of Micronesia, Kiribati, Marshall Islands, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga and Vanuatu. The review assessed the alignment of the invasive species components of National Biodiversity Strategy Action Plans (NBSAPs) and National Invasive Species Action Plans (NISAPs) with the "Guidelines for invasive species management in the Pacific: a Pacific strategy for managing pests, weeds and other invasive species" (SPREP, 2009).

Invasive species management is included as a component in eleven NBSAPs, Marshall Islands being the only country not to include it. Five countries; Federated States of Micronesia (for Kosrae, Pohnpei and Yap), Kiribati (for Kiribati and Line Islands), Marshall Islands, Palau and Samoa, have also developed NISAPs to support their NBSAPs and to provide a framework for invasive species management activities.

It is exciting to see the growing efforts within the Pacific Region to address the threats of invasive species to Pacific islands natural heritage and people's livelihoods. However, post-treatment restoration measures, pre-export control procedures, political support, best practice standards, baseline information gathering, monitoring, prioritization, and research on priority invasives were some common omissions from the strategic plans.

During the international "Helping Islands Adapt Workshop" in April, the Pacific was seen as a global leader for other regions to follow; especially the networks and new partnerships being established to combat invasive species. What has been done to date provides a good foundation, however there is still a lot to be done to strengthen invasive species management capacity and increase successful action on the ground.

PII works with Pacific agencies to further develop their capacity for managing invasive species and can assist countries by:

1. Providing technical support and advice for invasive species management
2. Providing practical training in invasive species management skills
3. Providing invasive species management best practice tools
4. Developing and strengthening linkages and networks

Invasive species management in the Pacific: Continued from page 1

Our team is dedicated to ensuring that the region benefits from the expertise and experience being generated both within and outside Pacific Island Countries and Territories. We leverage significant contributions from research institutions, government agencies and commercial companies in New Zealand and elsewhere as well as assistance from members of the Pacific Invasives Partnership (PIP).

If you would like a copy of "*Invasive species management in the Pacific: a review of national plans and current activities*" please email us at pii@auckland.ac.nz or download it from our website http://www.issg.org/cii/information.html

If you would like a copy of the "*Guidelines for invasive species management in the Pacific: a Pacific strategy for managing pests, weeds and other invasive species*" it can be downloaded from http://www.sprep.org/publication/pub_detail.asp?id=699

SKILLS SHARING : A regional cooperation mission for the Ornithological Society of Polynesia "Manu" (SOP Manu)

In October 2010, the Ornithological Society of Polynesia "Manu" (SOP Manu) obtained funding from Terres et Merrs Ultra Marines, which aims to support regional cooperation initiatives within the French Overseas Territories. As part this, and to share resources between different structures and establish regional programs for bird conservation, Anne Gouni (Executive and Programs Director of SOP Manu) made a visit to New Zealand and Fiji.

In Fiji, Anne met with SOP Manu partners, BirdLife International Fiji Programme (Birdlife Fiji) and forged new links with NatureFiji-MareqetiViti (NFMV). This discussion included a possible re-assessment of current programs by SOP Manu with Mark O'Brien and Steve Cranwell (BirdLife Fiji). Anne also visited Colo-Isuva, a nature reserve near Suva which is renowned as a a site rich in bird life.

During her stay in Auckland, New Zealand, PII provided Anne the opportunity to meet with project managers of NZ Department of Conservation (NZDOC) and Auckland Council conservation areas at Ark in the Park in Waitakere Ranges, Shakespear Regional Park, Rangitoto/Motutapu Islands, and the Kokako Management Area in the Hunua Ranges. These site visits were made for comparative observations and to understand the current limitations of biodiversity conservation and management of protected areas in French Polynesia.

During these meetings, many topics were discussed between SOP Manu, PII and the project managers including the rat eradication plan for Vahanga atoll and islets of Gambier in 2011. PII (Souad Boudjelas and Bill Nagle), and NZDOC (Keith Broome) reaffirmed their support for these projects, and that they will lead on technical support. In Wellington, PII organised a meeting between Anne, Pam Cromarty, Shaun O'Connor and Hugh Robertson of DOC on SOP Manu's conservation programme for the monarchs in Tahiti (*Pomarea nigra*) and Fatu Hiva (*Pomarea whitneti*). They discussed SOP Manu's action plans in 2011-2012 and integrated new ideas to improve the effectiveness of the programmes. PII also facilitated a meeting for Anne with another of SOP Manu's New Zealand partners, Forest and Bird.

As part of their regional collaboration, PII and Anne discussed training requirements to help build SOP Manu's capacity in invasive species management. As a result, PII has facilitated training for Laurent Yan, who is in charge of controlling rats and cats on the territories of Tahiti monarchs, with two PII partners, NZDOC and Auckland Council. Laurent will visit New Zealand in January 2011 as part of PII's Skill Sharing Programme. Additionally, another two team members of SOP Manu will be attending PII's "How to eradicate rodents and cats on islands" Training Course in Fiji in April 2011.

Ark in the Park (Waitakere Ranges, Auckland): entrance to a popular walking track. Footwear are sprayed with disinfectant before entering to prevent disease transference to the native kauri (*Agathis australis*) trees. Photo: Marleen Baling.

More photos on **Anne Gouni's visit in New Zealand** at Facebook

For more information on **PII's Skill Sharing Programme**, please visit PII's website

Workshop on Invasive Species in the Pacific French Territories, Poindimie, New Caledonia, 29 Nov—2 Dec 2010

Souad Boudjelas, PII Programme Manager participated in a workshop titled 'Invasive Species in the Pacific French Territories' convened by the IUCN French Committee in partnership with the North Province and the South Province of New Caledonia, and the territory of Wallis and Futuna. The workshop was held in Poindimie, New Caledonia and brought together government agencies, regional organisations, NGOs, research institutes and the private sector.

In addition, to the Pacific French Territories of New Caledonia, French Polynesia and Wallis and Futuna, there were also representatives from other French Overseas Territories namely, Guadeloupe and Martinique (Caribbean), La Reunion and Mayotte (Indian Ocean) and Saint Pierre and Miquelon (North Atlantic Ocean).

Four partners from the Pacific Invasive Partnership (PIP) participated in the workshop namely, PII Pacific Invasives Initiative), ISSG (Invasive Species Specialist Group), IUCN's Regional Office for

Workshop. Continued from page 2

Oceania and SPC (Secretariat of the Pacific Community).

The workshop was designed to address the needs of the Invasive Species Group of New Caledonia. The objective of the group was to identify priorities for action and develop recommendations for enhancing awareness, prevention and management of invasive species in New Caledonia.

The four main themes of the workshop were 1) biosecurity, 2) early detection and rapid response, 3) engaging the private sector in the prevention and management of invasive species and 4) managing conflict species (e.g. in New Caledonia, rusa deer are highly valued as a food source and for recreational purposes (hunting) but they are known to cause severe damage to native forests through browsing and trampling).

Souad found the workshop very productive. It also provided a great opportunity to meet with colleagues, establish new relationships and share information. She also commented on the high level of participation and camaraderie. On a personal level, Souad very much enjoyed the opportunity to speak in French for a whole week!

Site visit to see the spread of Caribbean pine (*Pinus caribaea*) from a planted forest in Province Nord, New Caledonia. Photo by: Souad Boudjelas.

Island Eradication Advisory Group Meeting, Auckland, New Zealand, 15-16 December 2010

This week PII hosted a 2-day meeting of the Island Eradication Advisory Group (IEAG) of the New Zealand Department of Conservation (DOC). The IEAG advises project managers on planning and implementation of invasive mammal species eradications on islands. The group is made up of 7 world leading experts, totalling over 150 years of experience in the field of eradications on islands. To date the group has been involved with many island eradications in New Zealand, the Pacific region and other parts of the world. The quarterly meetings offer a unique opportunity for robust debate and review involving the IEAG members and the project managers; making the most of collective knowledge; challenging assumptions and growing project managers' experience. This approach can be useful in other parts of the world.

What makes the group so successful is their strong customer focus to meet the needs of each project manager; clear separation between advice and decision making; a team approach to each project; and effective communication. Their generosity to share their knowledge and experience is boundless. PII is very grateful to the IEAG for their continuous support to us and our Pacific partners.

Of interest to the Pacific, this week's meeting included reviews of four Pacific projects namely, the draft operational plan for rat eradication on Enderbury and Birnie Islands, Phoenix Island Group, Kiribati; draft operational plan for rat Eradication on Henderson Island, Pitcairn Islands; Update on the planning for rat eradication on Vahanga Atoll, Acteon Group, French Polynesia and the Feasibility Study for eradicating goats on Mouniriki Island, Fiji. PII had the pleasure to facilitate and sponsor Ms Milika Ratu from the National Trust of Fiji to attend the IEAG meeting and participate in the review of the Mouniki project which she manages.

Any Pacific project managers that would like input to their projects from the IEAG should direct requests for help to PII: Souad Boudjelas, PII Programme Manager (s.boudjelas@auckland.ac.nz).

Fijian Crested Iguana Recovery Project

As part of the assistance provided to the National Trust of the Fiji Islands (NTF), PII coordinated and led a feasibility study team to Monuriki to investigate the eradication of goats from Monuriki Island. The island is clothed in a threatened dry forest and is home to a declining population of the critically endangered Fijian Crested Iguana and a small population of wedge-tailed shearwaters. NTF has been working with the community since 2003 on the iguana recovery project.

At the arrival sevusevu, the community said that they were going to remove the goats by mustering and were starting the next day. The feasibility study team then had no option but to accompany the mustering team and assess the work in terms of whether or not mustering could actually achieve eradication. PII and NTF worked together on a report and recommendations and these were reviewed by the NZDOC IEAG on 16 December. Milika Ratu, the NTF project Manager, travelled to Auckland to present the project and participate in the IEAG discussion. Milika then investigated other conservation projects, including goat management, and took the lessons back to Fiji so that NTF can decide on the most suitable way to complete the eradication of goats from Monuriki Island.

Milika Ratu of NTF discusses the Monuriki Project with IEAG members

PACIFIC ISLAND COUNTRIES AND TERRITORIES ACTIONS

FIJI: Island biosecurity training for site support groups in Fiji, from Elenoa Seniloli, BirdLife International Programme

Seabirds are becoming increasingly scarce among the more than 300 islands of the Fijian archipelago. This has been attributed to anthropogenic influences, including the introduction of mammals, fire and wildlife harvesting at the islands. In an effort to protect breeding seabird colonies in Fiji, BirdLife International Fiji Programme has undertaken several island restoration operations by removing invasive species, particularly rats and cats, and is planning several more. However, getting rid of the invasive species is only the first step; preventing the eradicated species from getting back onto the island is an essential measure to ensure full island restoration.

To help develop effective island biosecurity, BirdLife Fiji held a Fundraising and Island Biosecurity Workshop in July 2010 for their Site Support Groups (SSGs) from six sites. SSG representatives are volunteers from the island-owning communities who are dedicated to the conservation of their islands. They play a crucial role in monitoring Important Bird Areas (IBA), implementing biosecurity measures and assisting the restoration of their sites.

Planning the workshop course material was very challenging due to the limited knowledge of participants (education level) and complexity of terms used in Biosecurity. A big 'Vinaka vakalevu' to National Trust of Fiji Islands (NTF) for their timely invitation for two BirdLife officers (Elenoa Seniloli and Sialesi Rasalato) to attend the PII's Island Biosecurity Training Course held in Suva on 28 June - 1 July 2010 and especially to PII (Bill Nagle and Marleen Baling) who developed and delivered the course. The knowledge and lesson gained from the successful, fun and informative PII training was invaluable as the officers were able to incorporate activities and additional information for their workshop.

Elenoa Seniloli (grey t-shirt) and Sialesi Rasalato (red shirt) participating in the biosecurity gear check activity during PII's Island Biosecurity Training Course; held at National Trust of Fiji Islands office, Suva. Photo: Marleen Baling.

FIJI: American iguana (*Iguana iguana*) eradication campaign, from Nunia Thomas, Nature Fiji Mareqeti Viti

The American iguana, commonly known in other parts of the world as Green iguana (*Iguana iguana*) was illegally introduced into Fiji in the year 2000 by an expatriate estate owner on Qamea Island. Native to Central and South America, this popular pet species is considered invasive in areas where feral populations have established themselves: Southern Florida, Hawai`i and Texas.

Since its arrival in Fiji, the original 11 individuals have established breeding populations on the neighbouring island of Matagi. Anecdotal evidence suggests that breeding populations also occur on the island of Laucala and Fiji's biodiversity hotspot, Taveuni Island. Until September 2009, targeted searches for the American iguana in response to reports from villagers, had been unsuccessful. The first successful survey is attributed to the opportunistic capture of the iguanas by villagers of Lovoni and the owners of Niubavu estate.

In February 2010, NatureFiji-MareqetiViti was nominated by the Fiji Iguana Advisory Committee to represent the group to the Fiji government-led, multi-stakeholder, American Iguana Eradication Campaign (AIEC) Task Force. Since the establishment of the AIEC task force, a Biosecurity Emergency Declaration has been put in place for the islands of Qamea, Laucala, Matagi and Taveuni to contain these invasive species; eight temporary biosecurity officers (non Biosecurity Authority personnel) have been appointed to assist the Biosecurity Authority of the Fiji Islands to implement the biosecurity promulgation; and the Fiji government and NatureFiji-MareqetiViti (through the Critical Ecosystems Partnership Fund) have invested FJD203,000 and USD20,000 respectively into the eradication project. In September 2010, the AIEC task force selected Ms Nunia Thomas of NatureFiji-MareqetiViti and Dr. Peter Harlow of the Taronga Zoo, Australia to compile the eradication strategy document.

Five rounds of community awareness workshops in July and August revealed that, despite the implementation of the Biosecurity Emergency Declaration in May 2010, members of the public were still transporting juvenile American iguanas between the islands of Laucala, Matagi, Qamea and Taveuni because:

1. they were not aware of the Biosecurity Emergency Declaration;
2. they did not know the difference between an invasive American iguana and a native Fiji iguana; and did not realise that it was the invasive iguana that they were taking home as pets;
3. they were not aware of the potential environmental damage that American iguanas can do to their villages and island.

Thirty days of observations in September concluded that American iguanas cannot easily be found through targeted search amongst the coastal and inland vegetation. Throughout the 30 days only 11 of the invasive species were observed, all of which were captured opportunistically by villagers and hotel workers. This is consistent with other invasive iguana work on St. Lucia in the Caribbean. One possible nest site was identified on the island of Qamea, based on the tail drag next its entrance

At the end of September 2010, the 3-5 years eradication strategy document was submitted to the AIEC task force. The strategy docu-

FIJI: American iguana Continued from page 4

The eradication strategy document was the basis of further work on the American iguana between October and November 2010:

1. training selected volunteers on how to locate American iguana nesting locations
2. identifying American iguana nesting locations
3. establishing a monitoring system for the American iguana nesting locations
4. conducting consultations for a 'reward' system for the communities participating in the eradication campaign

The greatest challenges for the team were:

1. Identifying invasive iguana nests and being able to differentiate them from land crab holes (Figure 3);
2. Developing a reward system that is not necessarily monetary, which a community based eradication project in Fiji has proven, may add negative complexities to the long term survival of the project.

No invasive iguana nest has been identified since September 2010. This has been attributed to the heavy rain showers prior to and during field work in the months of October and November, which smudged trails and make it difficult to confidently confirm iguana tail drags. In October 2010, the Pacific Invasives Initiative facilitated communication between NatureFiji-MareqetiViti and Matthew Morton of the St. Lucia Iguana Project. Through this communication, the eradication team received very useful technical advice that has helped the team identify four potential nesting beaches based on:

1. Recent sightings of juvenile iguanas;
2. Sites from which gravid females and females which had recently laid eggs were captured.

Monitoring guidelines developed for the St. Lucia Iguana Project have been instrumental in helping the team:

1. Develop a work plan for 2011;
2. Understand that before proposing a reward system with the communities, it is important to have a work plan that clearly outlines the duties required of the volunteers.

The eradication work proper has not commenced, but the awareness campaigns conducted so far and constant reporting have gained the team strong support from the AIEC task force, the Cakaudrove Provincial Council, the Fiji Department of Agriculture and neighbouring villages and islands.

Technical assistance from the Pacific Invasives Initiative, Fiji Iguana Advisory Committee, Matthew Morton and the AIEC task force; community liaison assistance from the Cakaudrove Provincial Office; field work assistance from the Qamea Beach Club, Matagi Island Resort and Laucala Island Resort; monetary assistance from the Fiji government and Critical Ecosystems Partnership Fund; and in-kind assistance from the general public have all helped the research team remain focussed on the objectives of the project despite unfavourable weather conditions and the elusive nature of the invasive American iguanas. The team looks forward to implementing their planned systematic approach to the eradication of this invasive species in 2011.

One possible nest site was identified on the island of Qamea, based on the tail drag next its entrance. Photo by Theodore Blossom.

FIJI: Seabird conservation in the Mamanuca group, from Elenoa Seniloli, BirdLife International Fiji Programme

The BirdLife International Fiji Programme is interested in restoring three islands in the Mamanuca Islands group. Kadomo, Monuriki and Matamanoa host a significant population of wedge-tailed shearwaters (*Puffinus pacificus*) but recent surveys have indicated the presence of feral goats and rats. Feral goats have destroyed the vegetation on the islands resulting in low regeneration of native plants and collapsed shearwater burrows (trapping of chicks and eggs). BirdLife Fiji is assessing the feasibility of removing feral goats and rats from the islands for seabird restoration, and has received technical assistance from PII. This project is in collaboration with the National Trust of Fiji Islands (NTF) that has made major progress in the eradication of goats at Monuriki. The BirdLife Fiji Programme would like to thank Bill Nagle and Glen Coulston from PII for their help with the feasibility assessment for goat eradication on Kadomo.

The critically endangered forest also provides habitat for the wedge-tailed shearwater. Goats have destroyed the forest floor and nesting sites of seabirds on the islands. Photo: Bill Nagle.

KIRIBATI : Biodiversity recovery & capacity building, from Ray Pierce, Eco Oceania.

Biodiversity recovery and capacity building was the focus of further field support provided by Eco Oceania to Government of Kiribati (GoK) staff at Kiritimati in November 2010. The work was focused on the strategic programmes of the MELAD Wildlife Conservation Unit (WCU) and Agriculture/Quarantine Division and included specific tasks relating to Kiritimati and Phoenix Islands invasive species eradications and biosecurity. Tasks included assisting with the ongoing rat eradication programme on small motu at Kiritimati, small motu biosecurity, determining the spread of black rats at Kiritimati and refining biosecurity measures for Kiritimati and PIPA (Phoenix Islands Protected Area).

Outcomes of previous work were generally very encouraging. Surveys on nine of the 28 motu baited in 2009, indicated that WCU had been successful in removing rats. This included three motu that had been targeted by WCU independently. This has more than doubled the previous area of "safe" islets for nesting seabirds on Kiritimati and will significantly enhance the status of many sensitive and threatened seabirds on the island including petrels, storm-petrels, shearwaters, terns and noddies.

Biosecurity outcomes indicated that Quarantine Division has begun addressing the problems of rats and other pests that had been present on local vessels, including the inter-island freighters that travel through the PIPA en route between Tarawa and the Line Islands.

Biosecurity of the small motu in the main lagoon has been effectively addressed by WCU.

Discussions were held with WCU Manager Ratita Bebe and Permanent Secretary Manikaoti of the Ministry of Line and Phoenix Islands Development (MLPID) and the Minister of Environment, Lands and agriculture Development (MELAD) and his secretary and senior managers who visited Kiritimati from Tarawa. Key topics were staff support and accountability, invasive species management and Kiritimati/Kiribati biosecurity, and agreement was reached on key actions.

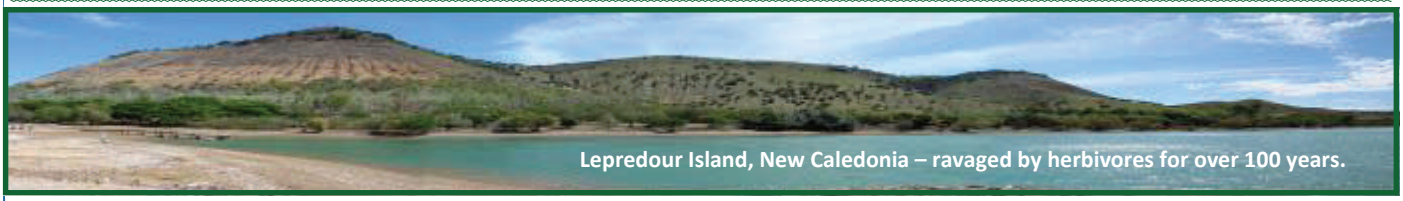
Throughout the visit, other refinements in specific areas of work were recommended, including in staff development and management, but overall there has been significant growth in the effectiveness of tasks being undertaken by GoK staff.

This work is part of a NZODA project managed by NZDOC to consolidate capacity building for invasive species management in Kiribati. PII has been supporting GOK since 2004.

Te ruru, the endangered Phoenix petrel (*Pterodroma alba*)

Photo: Ray Pierce

FRENCH OVERSEAS TERRITORIES—NEW CALEDONIA: An island restoration controversy, from Caroline Groseil, Department of Terrestrial Ecosystems, Province Sud



Lepredour Island, New Caledonia – ravaged by herbivores for over 100 years.

Background

For the last three years, local and regional scientists as well as territorial and provincial natural heritage managers, in close relationship with the local hunting federation, have been working on the development and implementation of an ecological restoration plan for the nature reserve of Lepredour Island in New Caledonia.

The natural heritage of this uninhabited reserve of about 800 ha is unique. It has 30 ha of New Caledonia's most endangered ecosystem, tropical dry sclerophyll forest, which is now found only in remnant patches totalling 5,000 ha around the country. Lepredour Island is also home to other threatened endemic or microendemic plant and animal species. The island is bordered by 200 ha of mangrove, the most extensive mangrove of any islet in New Caledonia.

Lepredour's biodiversity is however, seriously threatened by invasive species, namely Rusa deer (*Rusa timorensis*), rabbit (*Oryctolagus cuniculus*), black (*Rattus rattus*) and Pacific (*R. exulans*) rats as well as several invasive plants (e.g. *Opuntia stricta, Tecoma stans, Cryptostegia grandiflora*). The resulting highly degraded habitats on the island no longer permit the survival of its rare native species.

The management objectives for the reserve are two-fold, preserving its native biodiversity and stopping Lepredour Island from continuing to be the principal source of rabbit infestation for the rest of New Caledonia.

The restoration programme

Management of invasive plants in the reserve is regularly carried out by the local environment authority. Rare native plant species have been propagated off-island to produce stock for restoration planting. However, invasive mammals must be removed prior to re-introducing these species to the island, or the plants will not persist.

To achieve this, the local hunting federation was tasked to remove the Rusa deer from the island. The operation has been on-going for one year now and to date has successfully removed 600 deer. The remaining population is estimated at less than 10 individuals, which is believed to have resulted from a lack of hunting pressure

NEW CALEDONIA: Continued from page 5

Browsing damage from Rusa deer (*Rusa timorensis*) on Lepredour Island.

Grazing by rabbit on Lepredour Island has prevented regeneration of native seedlings

on deer on the island and promote hunting in the neighbouring areas.

The second phase of invasive animal management consists of eradicating rabbits and rats on the island. The most appropriate method, identified by technical studies conducted by experts, consists of aerially spreading toxic bait on the terrestrial part of the island and using bait stations in the mangrove area. These studies were shared with scientists and the local hunting federation.

The challenge

A few days before the launch of the aerial operation, the local hunting federation, which took part in all technical meetings relating to the programme and had been leading the deer eradication

on the island, declared their opposition to the rabbit and rat operation, arguing that they will be able to control rabbits using methods that are "less harmful to humans and the environment". They proposed to hunt and trap rabbits. No solution was proposed for eradicating rats from the island.

This change in their point of view, which was strongly supported by the local media, led to the local population expressing fear about the use of toxic bait. As a result, the politicians decided to abandon the rabbit and rat eradication operation.

Conclusions and future prospects

Based on their experience, the technical group for the programme will prepare a communication plan and information regarding the benefits of the Lepredour Island restoration programme for the community. Despite the urgency of the serious threat of the rabbit population exploding in other parts of New Caledonia, it is essential to build trusting relationships with stakeholders and allow adequate time to generate wider support on the methods to be used to conserve biodiversity.

Comprehensive delimiting surveys to identify the different "pockets of rabbits" present in New Caledonia outside Lepredour Island must be undertaken to help understand the parameters that may trigger rabbit invasion and to better evaluate the risks to New Caledonia from such an invasion (e.g. why have rabbit populations on Grand Terre not exploded as opposed to the population on Lepredour?). This information will be used to raise awareness of the seriousness of the threat of rabbits to New Caledonia, not just to Lepredour Island.

With regards to the proposed management of rabbits by the local hunting federation on Lepredour Island, Province Sud will be negotiating the terms of involvement with the federation. In 2011, it is planned to re-introduce some of the propagated rare plants on the island with sleeves to protect them from rabbits. It is hoped that with enhanced and on-going communication agreement will be reached between all stakeholders and the restoration of the unique biodiversity of Lepredour Island will become reality.

Contacts: Environment Directorate, Department of Terrestrial Ecosystems, Province Sud. Tel: 24.32.55 or email: caroline.groseil@province-sud.nc; julika.bourget@province-sud.nc

PALAU: Rodent eradication plan for Kayangel Atoll, Palau Conservation Society

Kayangel Atoll comprises of four islands (Kayangel, Ngeriungs, Ngerebelas & Orak) with a total land area of 1.5 km^2. Most of the islands are confirmed to have ship rats (*Rattus rattus*), Norway rats (*Rattus norvegicus*),and feral cats, and mice (*Mus musculus*) may also be present. The atoll was selected as a site for potential invasive species eradication for several reasons; 1) the atoll is a critical habitat for the endangered Micronesian megapode (*Megapodius laperouse*, or bekai) and at least one island is listed as an Important Bird Area; 2) the islands provide an excellent demonstration location for invasive mammal eradication efforts in Palau; 3) the human population in Kayangel is reliant on natural resources for their livelihood and the impacts of invasive species on these resources is known to be negative (e.g. reduction in papaya harvest and contamination of water supplies); and 4) there is a consortium of national and international groups who are interested in the project and willing to work together to achieve both co-management of the site, as well as capacity building for future implementation efforts in Palau.

A feasibility study for a rodent eradication at Kayangel was conducted in 2006. The report confirmed the feasibility of removing rats using toxic bait, and that the operation would provide great benefit to the islands' biodiversity and the local livelihood. The project's primary objectives are to eradicate the rats, with eradication of mice and feral cat eradications as secondary objectives. A Monitoring and Evaluation Plan has been completed and implemented, and a draft of the Operational Plan is currently under review. PII has provided advice to Palau Conservation Society (PCS)

PALAU: Kayangel Atoll. Continued from page 7

throughout the project process, and they were very influential in helping PCS to develop both the Operational Plan and Monitoring Plan.PII (Souad Boudjelas) also helped identify other partners to provide peer review for the documents and reports.An additionally study was conducted in September 2010 to determine likelihood of bait uptake by the Micronesian megapode. This was conducted by distributing non-toxic bait pellets and observing the frequency of the birds eating the bait. Bait uptake was determined by analysing thousands of pictures taken with motion-sensor infra-red cameras at study sites. The study found that the megapodes took the bait frequently; subsequently a mitigation plan is being discussed to eliminate or reduce this risk for the endangered species.

Information provided by Anu Gupta of PCS.

A Micronesian megapode captured on the motion-triggered camera.

POHNPEI: Awareness campaign, from Bejay Obispo, Francisca Sohl Obispo & Josh Fuder, Conservation Society of Pohnpei

Raising awareness of invasive species issues is an important part of the invasive species management work of the Conservation Society of Pohnpei (CSP). A number of resources like pamphlets, posters and a booklet that highlights the invasive weeds of Pohnpei, have been prepared. Bejay Obispo, who runs the invasive species management component of CSP's terrestrial programme with assistance from consultant Konrad Engelberger, has been training Community Conservation Officers, Pohnpei State stakeholders and College of Micronesia students on how to identify invasive species and their threats to the Pohnpei environment.

A concerted effort on the five main target species (False Sakau *Piper auritum,* Chain-of-Love *Antigonon leptopus,* Mile-a-minute *Mikania micrantha,* Ivy-Gourd *Coccinia grandis,* Octopus tree *Schefflera actinophylla*) has led to chain-of-love and ivy-gourd being eradicated from their known sites and the others are eradicated from over 95% their known sites.

New species have now been added to the target list with three plants (Honolulu rose *Clerodendrum chinense,* Bengal trumpet vine *Thunbergia grandiflora*, Lolot pepper *Piper lolat*) and two birds (Feral pigeon *Columba livia*, Tree sparrow *Passer montanus*) making up the "Top Ten" eradication targets.

Some species, like the African tulip tree (*Spathodea campanulata*), have been ruled out as a possible target for eradication because of their characteristics and cost of management. Two species of fish, Tilapia (*Tilapia* spp.) and Catfish (Order Siluriformes) are also under investigation.

The awareness campaigning has been so successful that CSP is now receiving calls about new sites of invasive species as Pohnpeians are becoming engaged in protecting their natural heritage.

CSP used a bucket truck to reach Bengal trumpet vine in urban areas of Pohnpei (Photo: Konrad Engelberger)

SAMOA: Aleipata Islands Restoration Project, from Czarina Iese, Division of Environment & Conservation, Ministry of Natural Resources & Environment.

Background

Nu'utele and Nu'ulua Islands, Aleipata Group, are priority sites for the conservation of Samoa's indigenous biodiversity. Rats (*Rattus exulans*) and yellow crazy ants (YCA, *Anoplolepis gracilipes*) contribute to low populations of native birds such as the friendly ground-dove (*Gallicolumba stairi*) by attacking nesting birds. The Division of Environment & Conservation (DEC) of the Ministry of Natural Resources and Environment (MNRE) of the Government of Samoa, alongside the Aleipata Marine Protected Area (MPA) committee members and SPREP have been leading this island restoration project since the 1990s. During this time, PII has assisted the project with many study and survey reviews, organised and facilitated the assistance of other expert agencies and conducted **PII's Island Biosecurity Training Course** for the project.

Monitoring and surveillance

Following rat eradication by aerial bait drop in 2009, surveillance was conducted at Nu'utele Island with assistance and technical advice from Dave Butler on 16-20 March 2010. The hard work of setting up surveillance traps and detectors at all possible sites where rats could have survived post-eradication, showed no evidence of rats on the island. Traps and detectors such as tracking

SAMOA: Aleipata Islands Restoration Project. Continued from page 8

tunnels, wax blocks and wax tags were left active as part of the island biosecurity to allow detection of any future rat activity or incursion.

A series of wildlife monitoring surveys have been conducted by the DEC team to assess the results of the operation. However there is a need for more and accurate monitoring to be able to confirm the changes in the environment and biodiversity of the islands.

The DEC team also guided tours of key stakeholder groups including members of the Critical Ecosystem Project Fund Technical Advisory Groups (CEPF TAG) who visited the island post-eradication to observe the changes and the biosecurity measures set in place for the ongoing management of the islands.

Monitoring of YCA infestation

Yellow crazy ants were discovered on both Nu'utele and Nu'ulua Islands during the biodiversity survey in 2003, prior to rat eradication. Due to logistics, the management of YCA was separated from the rat eradication planning. A study on the YCA infestation has recently (November, 2010) been implemented for Nu'utele Island, with CEPF funding. PII assisted a postgraduate student from the University of Auckland, Saronna Auina and an Australian ant invasion expert, Ben Hoffman, conduct an ant survey on Nu'utele Island. Samples of ants collected were sent to New Zealand for laboratory analysis, with the possibility of some rare ants in the collection. Monitoring is expected to take place once every month to detect density over time and at different sites throughout the island so that a management plan can be prepared for DEC/SPREP's work.

UK OVERSEAS TERRITORIES—HENDERSON ISLAND: Endangered Henderson Island petrel to be saved, from Jonathan Hall, Royal Society for the Protection of Birds

The Royal Society for the Protection of Birds has made a provisional decision to proceed with the restoration of Henderson Island World Heritage Site in August 2011. This decision is contingent upon raising a further £380,000 by July 2011 and the securing of an appropriate operational vessel. Henderson is part of the Pitcairn Island group, a UK Overseas Territory in the Pacific and is home to over 55 unique species, including four species of endemic landbird.

The proposed rodent eradication operation will save the endangered Henderson petrel (the island is the only known breeding site) from extinction and preserve the island's World Heritage values. £1.32m has so far been pledged towards the £1.7m total cost of the operation. Negotiations are ongoing to secure a charter vessel capable of transporting the helicopters, equipment, bait and project staff required for the eradication. The two helicopters will need to be able to operate from the deck of the vessel.

Contact: JonathanHall, Henderson Island Project Coordinator, *jonathan.hall@rspb.org.uk*

REGIONAL ACTION

ALERT! Mongoose on the loose

Is this 'The Year of the Mongoose'? The small Indian mongoose (*Herpestes javanicus*) is being found in countries other than Hawai`i and Fiji, where populations are well-established. 2010 started with the capture of one male mongoose in Samoa as a result of a combined incursion response from the Division of Environment & Conservation of the Ministry of Natural Resources and Environment, Samoa's National Invasive Task Team, CEPF, CI-Pacific, SPREP and PII.

Further surveillance work in the area has not found any others.

Later in 2010, two male mongooses were caught in the Autonomous Port of Noumea, New Caledonia. The animals had burrowed under stacked containers in the wharf area. Well done and congratulations to both Samoa and New Caledonia on a quick and effective response to an incursion from a dangerous predator.

The fact that such a large predator can travel undetected, perhaps with cargo on a ship, is a concern. Rapid responses to these incursions prevented the predators from establishing but on-going surveillance, coupled with raising awareness will be required because if mongooses have made it once, they can do it again. Pacific Countries and Territories should be very vigilant and invest in raising awareness on the mongoose to increase the chance of early detection.

More information about mongooses can be found at the GISD website

WEED RISK ASSESSMENT: From Jim Space, Pacific Island Ecosystems at Risk

A new edition of the Pacific Island Ecosystems at Risk (PIER) website has been posted at http://www.hear.org/pier/. Major additions include weed risk assessments prepared for Florida (U.S.) that are also applicable to the Pacific, a complete update of French Polynesia based on the Nadeaud database, an update of other French island possessions, new Hawaiian invasives reported by the Hawaii Biological Survey, Pacific voucher data from the National Tropical Botanical Garden, and invasive plants present on Maloelap Atoll, Marshall Islands. As always, there are many new species, locations, common names and other updates.

Coming soon: 160 new weed risk assessments for Hawaii and other Pacific islands. Contact Jim Space, PIER Program Manager (email: pier@hear.org).

EXPERT OPINION

DECLARING SUCCESS OF AN ERADICATION PROJECT: from Keith Broome, Chair, Island Eradication Advisory Group, New Zealand Department of Conservation

Monitoring for the presence of rats after an eradication operation should be done as part of normal biosecurity surveillance. However, extra effort can be deployed to decrease the uncertainty around rat survival if necessary. As a rule of thumb, island managers in NZ normally wait at least two rat breeding seasons before undertaking extra monitoring effort.

Considerations behind declaring a successful eradication

- How long with no detections? - *longer timeframes in theory allow surviving pests to build up to detectable numbers so the productivity and timing of pest breeding has to be considered here. (ie cats might take longer than mice)*
- How hard have you looked? - *this should incorporate a judgement on the quality of detection effort as well as the quantity. (eg we have a rough idea about how sensitive say dogs are vs chew sticks in detecting ship rats)*
- What are the species involved? - include vulnerable native species present in low numbers or previously present that may self introduce if eradication is successful; species proposed to be translocated ; and the species supposed to be eradicated (some are easier to detect than others). - *highly vulnerable native species might actually be good detection devices. (eg the natural return of vulnerable seabirds on some islands with no sign of predation can be a good indication that the predators have gone)*
- How good is the biosecurity? *If this is not up to standard then the successful eradication might only be temporary anyway*.
- What is the urgency for confirmation? Perhaps better expressed as - what management action requires this information and how urgent is it? *If you have a critical species that needs the island sooner rather than later or if confirmation allows you to wind down or defer some other project, then confirmation is more urgent. If it's just so we know the eradication was successful with no urgent management action either way (recognising that for eradication planning elsewhere the confidence of transferring lessons from a confirmed eradication is preferable), what's the rush?*
- What are the consequences of wrongly declaring success? - *if the translocation proposal is to release a relatively robust or common species - then the consequences of being wrong about the eradication outcome are not that serious and perhaps you could afford to take a greater risk.*
- What is the cost? *Extremely remote islands can be very costly to visit so monitoring visits may be more cost effective if combined with other reasons for making the journey.*

To get the same confidence level that nil sign is confirmation of eradication you need to do more effort early, less effort later. Too early and huge effort will still give you little confidence, very late and minimal effort will give you good confidence provided eradication failure can be distinguished from biosecurity failure through DNA samples. Make these judgements on the facts available at the time (*ie what has actually been done/is the situation*) rather than planned work.

1. Use a range of indicators to detect the presence of rats following an eradication.

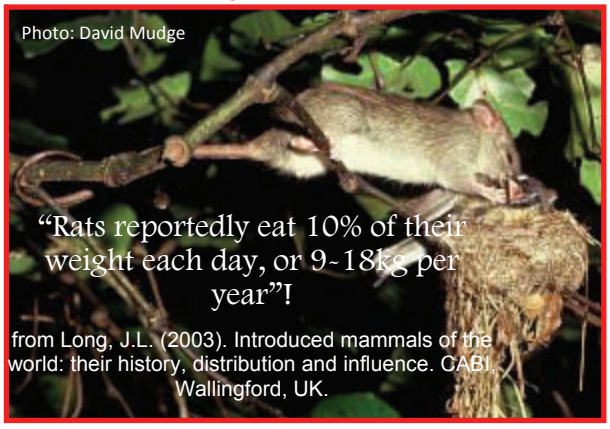
- Deploy a range of detection devices in the most likely places, it doesn't have to be a transect or grid, just try to sample different habitats and choose places most likely to have rats.
- Look for rat sign wherever you go but especially around burrowing seabirds, sandy beaches or soft mud. Beware of sign that pre-dates the eradication which may be still present. *Faeces can often last for years in sheltered sites*.
- Consider some night searches if you have a likely area to look safely.
- A trained rodent detection dog is a useful and relatively sensitive tool.
- If using kill traps result in captures of non-target species, leave the carcass secured in the trap for a few days to see if it gets scavenged by a rat.*

All work should be recorded on GPS and mapped to show the amount of island coverage achieved. Any tangible sign or indication of rat presence should be photographed and if possible retrieved as a labelled sample for expert opinions on identification.

2. Detection devices include snap traps, live capture traps, wax tags, inked footprint tracking tunnels, dressed timber stakes soaked in peanut oil, candles, lard, chocolate, wax block rodenticide baits secured in bait stations, wooden boxes providing shelter and wood shavings as nesting material, trail cameras.

*Anna Gsell , John Innes , Pim de Monchy and Dianne Brunton 2010: The success of using trained dogs to locate sparse rodents in pest-free sanctuaries. Wildlife Research 37 (1) pages 39-46.

Did you know???



CONSIDER CRABS: from Richard Griffiths, NZ Department of Conservation

Tropical Pacific islands and forest where land crabs are found are literally transformed by their presence; seeds and seedlings are eaten, burrows are excavated and leaf litter is removed. Reaching densities of up to 60,000 per hectare, land crabs wield absolute control over their environment and their numbers and their voracious appetite can become the rodent eradication project manager's nemesis.

Bait used for rodent eradication is manufactured from cereal and is highly palatable to land crabs (the vertebrate toxicants added to the bait do not affect land crabs). Many different land crab species have been observed eating or caching bait and project managers planning rodent eradications have many questions to address. How much bait can a crab consume? How long will bait be available to rodents? Will crabs cause an eradication to fail?

Crabs have already been blamed for several failed eradication attempts and other operations have yet to be attempted because of the presence of crabs and uncertainty about how to deal with them. Many novel ideas have been put forward in an attempt to mitigate the problem. A range of 'crab proof' bait station designs have been trialled but with variable success. New bait formulations incorporating crab repellents have been recommended, as has rounding up the crabs on an island and storing them temporarily elsewhere.

All of these ideas have potential but all would significantly add to the cost and logistics of an operation and could increase the risk of failure. Supplying bait to rodents while at the same time excluding a creature that can work in a team, climb with agility, smell odours over large distances and crack a coconut in less time than it takes to make a cup of tea is somewhat of a challenge.

In the meantime, managers planning rodent eradication projects on tropical islands are adhering to the low risk alternative, applying more bait. Just like some trees that produce huge quantities of seed in some years to ensure that some seed survives to germinate, eradication project managers aim to saturate crab populations with bait so that some remains for the rodents.

This method will shortly be used on Palmyra Atoll with a proposed bait application rate of 90kg/ha. As a comparison, 12kg/ha is used in temperate climates to eradicate rats. Palmyra, with its abundant crab populations, is a test case. If successful, then lighter application rates could be trialled. Other methods, with some further development, may also prove their worth.

Further information: Preliminary results from a PII-supported research expedition to Vahanga Atoll in French Polynesia (Vahanga Research Report) and a compendium of available information commissioned by PII (Land Crab Interference with Rodent Eradication Projects.pdf) are available on the PII website.

Cereal bait pellets attract hermit crab on Palmyra Atoll

Photo: Island Conservation)

PACIFIC PRACTITIONER PROFILE

This is the first of a series in which PII acknowledges the contribution of practitioners to invasive species management in the Pacific.

Tofilau Tavita Togia is known to invasive species practitioners across the Pacific for his work in controlling *tamaligi*, or kerosene tree (*Falcataria moluccana*) in American Samoa. In ten years, Tavita and his teams have ring-barked 6,200 mature tamaligi trees in more than 800 hectares of native forest on Tutuila Island.

But that is only a part of his work. As a Terrestrial Ecologist with the National Park of American Samoa (NPSA), Tavita has worked with a wide range of invasive species. Red bead tree (*Adenanthera pavonina*), Panama rubber tree (*Castilla elastica*) and mint weed (*Hyptis pectinata*) are some of the other plants receiving attention from Tavita and he also coordinates the feral pig and dog control programmes for NPSA.

Over 100 feral pigs have been removed from NPSA and the pig work involves maintaining two pig exclusion fences, a network of 2,500 snare traps and seven live traps. The feral pig control programme has been so successful that farmers have asked Tavita for assistance to keep pigs out of their crops. Feral dogs are believed to prey on native banded rails in NPSA and a number of them have been eliminated as part of the control programme.

Tavita recognises that engaging the community is essential to successful invasive species management and has worked to build partnerships with mayors and village councils to control *tamaligi* across Tutuila. He has been involved in environmental education outreach programmes and has presented talks on a variety of topics such as native birds and mammals of Samoa, protecting the Samoan forest, coral reef protection, as well as on invasive species management, to a variety of audiences across the Pacific. He has also helped publish more than 40 newspaper articles since 2001 to help raise awareness of invasive plant species in American Samoa and their management.

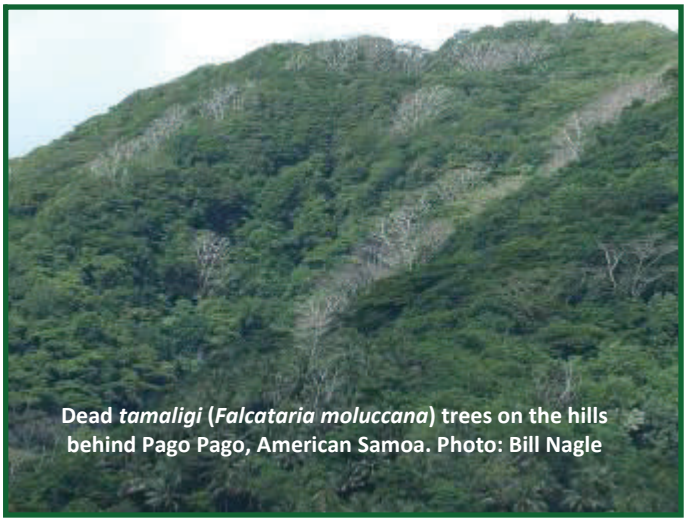
A meeting of village mayors on Tutuila, American Samoa is addressed on National Park concerns by Tavita Togia.

PACIFIC PRACTITIONER PROFILE! Continued from page 11

After completing a first degree at the American Samoa Community College, Tavita graduated from the University of Hawai`i at Hilo with a Bachelor of Science in Tropical Agriculture. He has continued his training in several areas including a Weed Management Course with the New Zealand Department of Conservation and, earlier this year, completed the PII Weed Project Management Workshop. Tavita said the knowledge and skills he learned at the PII workshop made it the "... the best invasive training I have ever attended".

Tavita also shares his knowledge and skills. As part of the forest research he is involved in, he recently visited the Republic of Palau with USDA Forest Service scientists to conduct demonstrations, outreach, and provide training on various control methods to help initiate the management of *tamaligi* as it is spreading in Palau. He currently leads the American Samoa Invasive Species Team (ASIST), an interagency team of local government and Federal employees from both conservation and agriculture agencies. The work of ASIST is intended, through quick, coordinated, educated efforts, to reduce the number and impact of invasive alien species (IAS) in American Samoa.

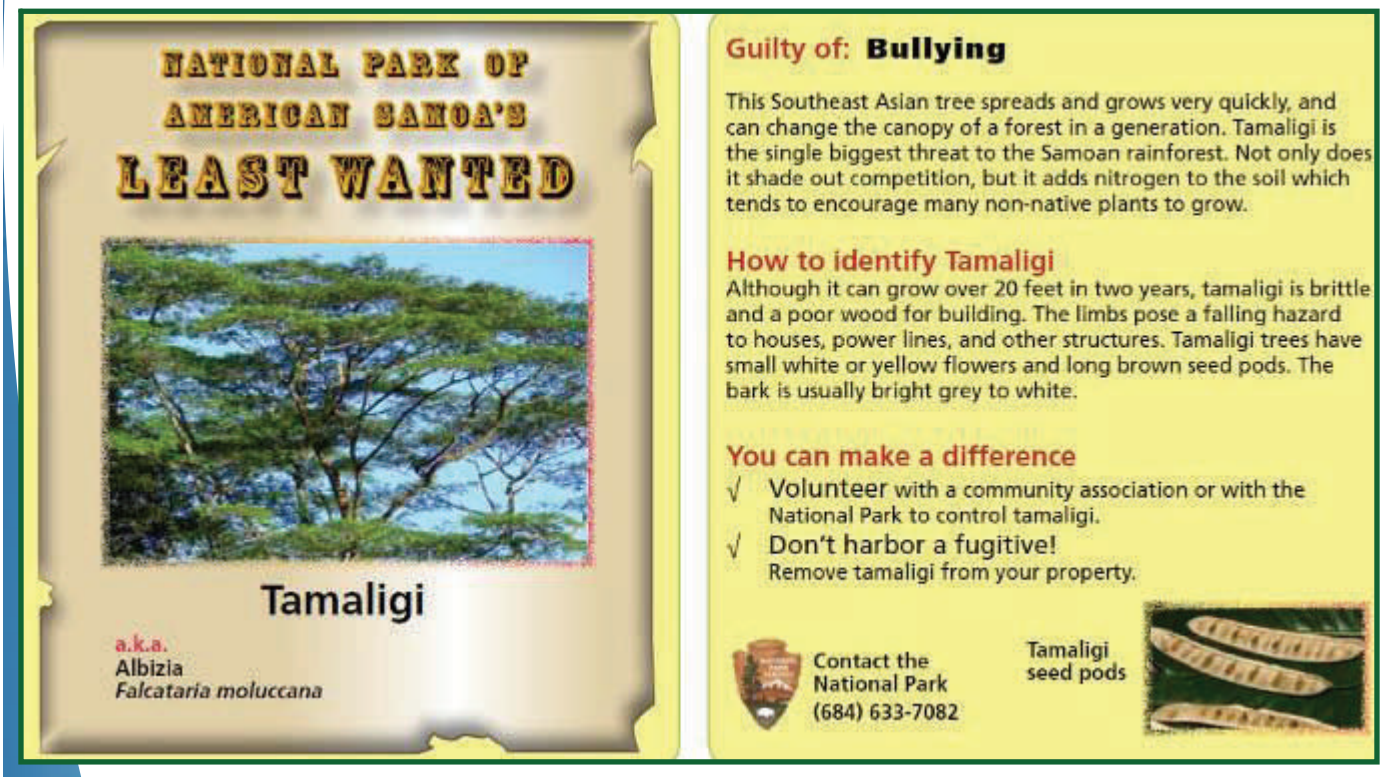
Tavita has received many awards for his work and received acknowledgement from the community with the award of a chiefly title. In 2008, he travelled to Washington, D.C. to receive a Cooperative Conservation Award from the USA Department of the Interior. Part of the citation for that award read "*Mr. Togia distinguishes himself through his leadership and initiative, ability to identify cooperative solutions, hands-on participation in field activities, educational outreach efforts, and especially his work with the local Samoan community. He has created a cooperative model of how to work with villagers to accomplish conservation projects within a Samoan context - a winning combination of listening to, and working with, the traditional village leaders, establishing common goals, engaging active participation by local villagers, and motivating people to action.*"



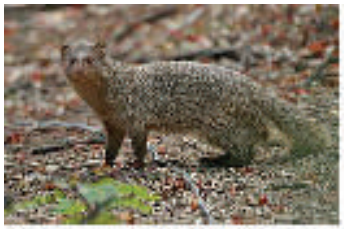
Dead *tamaligi* (*Falcataria moluccana*) trees on the hills behind Pago Pago, American Samoa. Photo: Bill Nagle

Tavita Togia working in a forest research plot in Hawai`i.

Photo: Bill Nagle



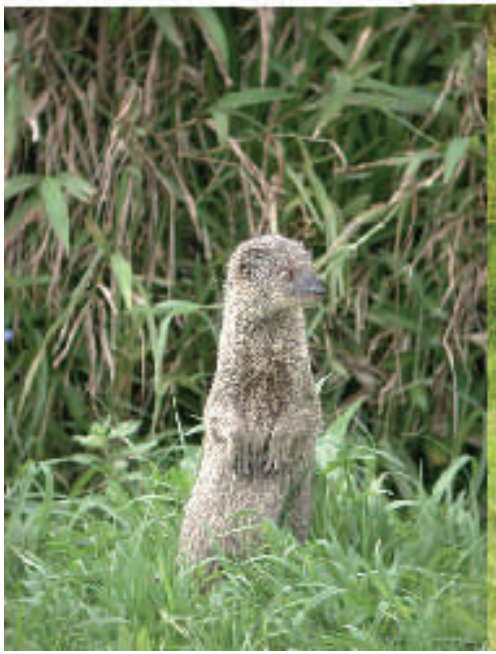
One of the "Least Wanted" cards prepared as part of the invasive species awareness-raising programme in American Samoa.



2 mangoustes ont été capturées sur le port.
Elles sont un danger pour notre pays.

Si vous voyez cet animal merci de prévenir au 78 26 81

GEE



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