

PILN Soundbites - September 2010

Pacific Invasives Learning Network



PILN

Pacific Invasives Learning Network.
Secretariat of the Pacific Regional Environment Programme

PO Box 240, Apia, Samoa
E: sprep@sprep.org
T: +685 21929
F: +685 20231
W: www.sprep.org

PILN Teams:

- American Samoa
- Commonwealth of Northern Mariana Islands
- Fiji
- French Polynesia
- Guam
- Hawaii
- Kiribati
- Kosrae
- Marshall Islands
- New Caledonia
- Niue
- Palau
- Pohnpei
- Samoa
- Yap



CONTENTS:

Network News:

- PILN SOUNDBITES

PILN Teams - Updates:

- Commonwealth of the Northern Mariana Islands - New PILN team / Northern Marianas College - invasive species activities
- Guam - GISAC Meeting; Coconut Rhinoceros Beetle
- Fiji - American Iguanas / Removing feral pigs on Gau Island
- French Polynesia - Committee meeting/Erythrina Gall Wasp
- Hawaii - clarification of August Soundbites on Myrtaceae rust / biocontrol for nettle caterpillar /biocontrol for Erythrina Gall Wasp / Big Island Invasive Species Committee
- Kiribati - Representing Pacific on invasive negotiations at CBD
- Kosrae - Leonard Singrah - New Invasive Species Coordinator
- Samoa - Minister addresses the United Nations General Assembly on Invasive Species and other biodiversity issues / Aleipata Islands Restoration Project update
- Palau - Palau Conservation Society latest newsletter

News from the Pacific Invasives Partnership:

- Developing matrix of invasive species in the Pacific Islands
- IUCN - Islands Database Project Update
- Pacific Invasives Initiative - Equipment & Suppliers Catalog now available
- Birdlife International - Pacific Partnership - Latest e-bulletin out / Important Bird Areas monitoring start
- SPREP's 21st Annual Meeting - a strong message on invasives from the President off New Caledonia
- Protecting Vathe Conservation Area in Vanuatu from Broad-leaf vine
- United States Forest Service - Prevention, detection and management of invasive forest ants in the Pacific region

Meeting, Conference & Training Announcements:

- Biological Control for Nature - 3-7 October 2010
- NZ Biosecurity Institute Conference - July 2011
- Global Resistance Challenge 2013
- Fullbright Scholars NEXUS Program
- 2nd Globalballast Global Project Task Force Meeting 3-4 October / Regional Cooperation on Ballast Water Management (October 5)

Funding Opportunities:

- ACP Forest Law Enforcement, Governance and Trade Support Programme for ACP
- UNESCO Pacific Youth Visioning for Island Living 2010 Small Grants
- Rapid Response Facility
- United Nations Small Grants Programme under the Second Decade
- International Climate Initiative

Marine Invasives News:

- Green crab among world's worst invasive species
- Draft Economic Assessment for Ballast Water Management Guidelines - call for comments

Invasives News and Interesting Links/Websites:

- Into Oblivion: the disappearing native mammals of northern Australia
- National Strategy on Invasive Species for Mexico launched
- New 30 minute video on island invaders impacting seabirds
- You may be carrying more than your laptop!
- Rat Island is officially rat-free
- White-house appoints invasive coordinator for Asian carp
- Alien killer shrimp in UK waters
- Giant African snails seized at Dulles Airport
- Urgent call on EU to stop billion-euro 'alien invasion'
- New Invasive Species Management Strategy for La Reunion
- Alerts for emerging animal pests in Australia

New Publications:

- Economic valuation of invasive alien species in Seychelles
- Index of alien impact
- Favorable climate change response explains non-native species success in Thoreau's woods

- Final report Christmas Island Expert Working Group
- Prioritization of targets for biological control of weeds on Pacific Islands
- Impact of invasive cane toads in Australia
- Invasive rats on tropical islands
- Introductory weed management manual
- Biofuels are the new pathway for invasive species introduction and establishment

NETWORK NEWS:

PILN SOUNDBITES is the monthly newsletter of the Pacific Invasives Learning Network - a participant-driven network, reporting on news of PILN Country Teams and also from the Pacific Invasives Partnership. It focuses on invasive species management and biodiversity conservation issues. Previous issues of the PILN SOUNDBITES are available on the PILN webpage at the SPREP website: www.sprep.org/piln. Please feel free to share this issue of SOUNDBITES with your colleagues and networks. Comments and feedback are welcome, please send them to: posas@sprep.org or piln@sprep.org. Contributions for the October 2010 PILN SOUNDBITES issue are now needed.

Dear PILN teams - I trust this finds you all in good health and that you are still, with great enthusiasm, battling invasive species. It may appear to be an endless fight but it's one that we must not surrender to, for to do so will have repercussions to our well-being, our sustainable development and the integrity of our environment. This edition of Soundbites is significant, as we welcome the Commonwealth State of Northern Mariana Islands to our network. They too, have serious invasive species problems and have requested assistance in tackling them. Please do get in touch with our CNMI team should you wish to offer your expertise and extend your Pacific friendship to them. Next month from October 16-29th will see the world gather in Nagoya, Japan for the Convention on Biological Diversity's 10th Conference of the Parties. A suite of conservation and biodiversity related issues are on the agenda including invasive species. Fourteen Pacific Island Countries are members of this Convention and representatives from their countries will be attending. I will be assisting these countries with their preparation and in the negotiation process. Should you wish to follow important news relating to the Pacific region from the Nagoya meeting - this Bionesian Blogsite, run by SPREP's Media and Publication Officer - Ms Nannette Wooton (www.bionesian.blogspot.com) will have all the latest information.

Please do check out the PILN webpage - <http://www.sprep.org/piln> for more resources to assist you with invasive species management. Your comments and suggestions will improve our services to you, so please keep them coming. New on our PILN Webpage includes the Suppliers and Equipment (link to our partner site - Pacific Invasives Initiative), Conference, Workshop and Training Announcement and Financial Resources.

PILN TEAMS - UPDATES:

Many of you have suggested that this is one of the most interesting and valuable bite of your SOUNDBITES. Yet we don't hear enough from you. Let us make this one of the highlights of our learning network and contribute an item a month.

COMMONWEALTH OF THE NORTHERN MARIANA ISLANDS:

We welcome the CNMI team to the PILN family and we take this opportunity to thank Dr Ike Dela Cruz - the Secretary for the Department of Lands and Natural Resources for his leadership in bringing this about. Not surprising on our visit to CNMI, is the amount of on-the-ground actions undertaken by various agencies to address invasive species on islands. These actions would be beneficial to other teams who may be grappling with similar issues. Some of the activities taking place in CNMI include the following submitted by Dr Marisol Quintanilla of the Northern Marianas College:

Nematodes of the Mariana Islands are being identified. The identification of banana nematodes in Guam and the CNMI has been completed, and team is currently working on pineapple, papaya and vegetable crops. An illustrated electronic list of these nematodes with recommended controls will be the result;

- A USDA permit to import soil from other regions and identify nematodes has been obtained. There is a protocol that needs to be followed, and a copy of the permit needs to accompany the soil shipment;

- Biocontrol for *Mimosa diplotrica*, a thorny weed, has been imported from Palau. This work has been done in conjunction with Dr. Reddy;
- A pest identification workshop, that will include nematode identification will be conducted in Saipan on October 27, 2010
- A concern that we mentioned in our meeting, is the Chain-of-Love vine (*Antigonon leptopus*). It seems to be a big problem here and in many other islands, and there is no biocontrol. A search for a solution would be a good project in my opinion.

Joseph Ruak - Public Information Officer of the Department of Lands & Natural Resources advised:

- A pair of female black widow spiders (*Latrodectus* sp.) was intercepted by the Quarantine Section of the Department of Lands & Natural Resources during an inspection of a shipping container. The quick actions of the officers ensured that the container was sealed and fumigated, and CNMI remains free from these unwanted pests. The public are again reminded of the need to follow the Quarantine regulations to stop invasive species from arriving in the country.
- A scare on the possible arrival of the Coconut Rhinoceros Beetle on island proved to be unfounded after a thorough search by the CNMI Department of Lands & Natural Resources, Division of Agriculture, Plant Industry, the Northern Marianas College, and the Cooperative Research Extension and Education Service. Traps were set at the site where the sighting was reported but so far no beetle has been found.

GUAM:

The Guam Invasive Species Advisory Committee (GISAC) met on 30 August and was attended by Dr Alan Tye (SPREP Invasive Species Officer) and the PILN Coordinator. Issues discussed included the need for a Guam Invasive Species Strategic Action Plan (SAP), the need for an Invasive Species Coordinator and the impending completion of the Micronesia Biosecurity Plan (MBP). GISAC proposes to hold a 3-day workshop to develop a SAP, similar to what was accomplished with the Emergency Response Plan. SPREP may be able to help with organizing the workshop. It was noted that the Invasive Species Coordinator should be attached to the Governor's office, like the Guam Biosecurity Taskforce, and be legislated to ensure sustainability. Funding support for the Coordinator's position could include levying a fee for cargo inspections. GISAC recognized with urgency the need to address potential invasive species that are not yet on island and are likely to be brought in via commercial ports. It noted the lack of capacity within countries throughout the region to address the challenges associated with the increased risk of invasives spreading via military and commercial cargo. The current modus operandi in addressing invasive species is dependent on funding and available expertise. The Micronesian Biosecurity Plan (MBP) was discussed noting that many elements of the Plan are similar to a SAP. An 'Implementation Plan' will evolve from the MBP but the details will not be known until the MBP is finalized. The role of the Department of Defense was discussed and was seen as very important in the MBP. Other issues discussed included sustainable financing and the lack of taxonomic capacity and infrastructure to support invasive species work. [source: Diane Vice - dianevic@gmail.com]

FIJI:

American Iguanas breeding on Qamea and Matagi Islands, Fiji

Dr Peter Harlow, Curator of Reptiles, Taronga Park Zoo and Theo Blossom a biologist from London Zoo have been working on Qamea island over the past month to make observations on the introduced American (Green) Iguana, *Iguana iguana*. The onset of some warm weather appears to have stimulated breeding and four adult highly gravid females (one with over 50 eggs) and one which had just laid were captured. Including these, during 7 man weeks of observation only 11 iguanas were observed. The ability of these iguanas, especially the juveniles, to remain effectively invisible in the forest, is extraordinary. Unlike the Fijian iguanas, the American iguana cannot be easily seen at night with a spotlight. Peter Harlow and NatureFiji-MareqetiViti's Nunia Thomas are now drawing up an Eradication Strategy for the Fijian Government. However, the extreme difficulty of locating iguanas except when they are having to move about to find nesting sites will make the eradication of this alien, extremely difficult. Following

the completion of the public awareness work over the past two months in all the affected and nearby communities a workshop was held by NFMV to discuss eradication with the affected communities and this will feed into the Eradication Strategy. The priority, however, needs to be containment to the islands of Oamea and Matagi. [source: Dick Watling - Nature Fiji - MareqetiViti - watling@naturefiji.org]

Removing feral pigs from the forests of Gau

The upland forests of Gau are the only known nesting grounds of the critically endangered Fiji Petrel (*Pseudobulweria macgillivrayi*), of which an estimated 50 breeding pairs remain. Feral pigs are established in Gau's forests in the last decade and the locals have no traditional knowledge of hunting or snaring them. Pigs can be devastating predators of nesting petrels and so they represent a significant threat to the birds. To address this, NatureFiji-MareqetiViti as Species Guardian of the Fiji Petrel and with funding from the BirdLife International Community Conservation Fund organized a 3-day pig workshop in August 2010 to introduce the technique of snaring feral pigs. This was considered to be the simplest and most appropriate method which could be taught to the villagers. Representatives from the 16 Gau villages were trained by two pig snare experts from the neighboring islands of Vanua Levu and Ovalau. Besides learning the pig snaring technique the participants were also exposed to the importance of biodiversity and conservation. Safety issues were also covered but the workshop focused on the details of constructing noose snares. During the workshop participants checked snares that had previously been set by the pig snare experts along the Nukuloa - Levuka ridge and set 25 snares of their own. The attendees were provided with snare making materials to allow them to construct snares in their own village forests. A week later, one of the pig snare experts along with Fiji Petrel project officers, Poasa Qalo and Eleazar O'Connor traveled around Gau to check snares set by workshop participants. Follow up visits will be made over the next few months to evaluate progress with the technique. [source: Eleazar O'Conner - Nature Fiji - MareqetiViti - eleazar@naturefiji.org]

FRENCH POLYNESIA

The French Polynesia Invasive Species Committee held their meeting yesterday (29th September) which included a presentation by Dr Jean-Yves Meyer on the recent introduction and invasion of *Quadrastichus erythrinae* in Tahiti and Moorea (see Jean-Yves web-blog -



<http://jymeyer.over-blog.com/article->). Dr Jean-Yves also would like to inform other PILN members regarding the Erythrina Gall Wasp issue in French Polynesia. The wasp was identified in May 2010, but suspected that it was present as early as February 2010. The wasp has infested all of the *Erythrina* species in Tahiti Nui (question mark whether it has made it to Tahiti Iti) and has recently been found on Moorea, at least since August. The rare and endemic *Erythrina tahitensis* (listed as Critically Endangered under the IUCN Red List and protected by French Polynesia legislation) is also affected. Contact has been made with personnel from the Hawaiian Department of Agriculture and discussion will continue with scientists at the next Biocontrol for Nature Conference (<http://biocoontrolfonature.ucr.edu/>), to explore collaborative biocontrol projects in Tahiti, which inevitably would include funding needs. [source & images: Dr Jean-Yves Meyer]

Images showing galls on the petiole (top pic) and the leaves (bottom pic) of the endemic Erythrina tahitensis

HAWAII:

Last month's PILN Soundbites made reference to 'recent DNA information about variations in the Myrtaceae rust'. This research is being undertaken by Rodrigo Neves Graça from the Universidade de Viçosa, Brazil. The summary of his presentation that he delivered at the University of Hawaii (Manoa) and the US Forest Service (Hilo) is given below.

Puccinia psidii causes rust disease of many species in the Myrtaceae family, including guava, eucalyptus, rose apple, and ohia. First reported in 1884 on guava in Brazil, the rust has since been detected in South America (Argentina, Brazil, Colombia, Paraguay, Uruguay, and Venezuela), Central America (Costa Rica, and Panama), Caribbean (Cuba, Dominica, Dominican Republic, Jamaica, Puerto Rico, Trinidad and

Tobago, and Virgin Islands), Mexico, USA (Florida, California, and Hawaii), and most recently Japan. Of present concern is the recent introduction of the pathogen to Hawaii, where it infects an endemic tree species known as ohia (*Metrosideros polymorpha*), the dominant tree species in Hawaii's remnant native forests. Guava rust also poses serious threats to several of the Myrtaceae including *Eucalyptus*, a genus native to Australia and planted extensively in numerous tropical and subtropical countries. Despite the potential threats to many forest ecosystems world-wide and the expanding geographic range of this disease, little is known about the genetic structure of the pathogen populations, migratory routes and sources of introductions. To determine population genetic structure of the pathogen in the putative center of origin, approximately 150 single-pustule isolates of *P. psidii* have been collected from diverse host species and locations in Brazil and scored for variation at 12 microsatellite loci. Additional isolates have been collected from Hawaii, Puerto Rico, California, Paraguay, and Uruguay; and collaborators are currently being sought to sample isolates from other global regions. Collections from these putative introduced populations will facilitate inferences about the spread of this rust pathogen throughout the world. Preliminary results indicate that host species strongly influences population structure; distinct multilocus haplotypes are uniquely associated with specific hosts across diverse geographic locations. This information will help identify rust races that pose threats to global populations of Myrtaceae and help prevent their introduction into new regions.

- The release on some Hawaiian Islands of Biocontrol agents for the nettle caterpillar (parasitoid) and toxic noxious fireweed (*Senecio madagascariensis* - leaf feeder). These agents were well screened and researched for non-target impacts before release.
- Positive impacts noted per Biocontrol agent released last year for Erythrina Gall Wasp. Many of the Hawaiian endemic *wili wili* trees are making a comeback and blooming for the first time in years.
- Thanks to Dr Jan Schipper for providing this summary of the Big Island Invasive Species Committee for the benefit of the PILN Network: Big Island Invasive Species Committee
<http://www.hawaiiinvasivespecies.org/iscs/biisc/>
"We currently have a staff of 10 people and we work on 1) early detection and rapid response, 2) outreach and education and 3) control of established pests. We are woefully under-funded and understaffed for the size of the island, but that's life in conservation here. However my intention is to build up our resources in 2011 so that we can really start to make a difference - Hawai'i Island is over 10,000 km² so it's a real challenge. Our primary island wide established plant targets are *Miconia*, *Rauvolfia vomitoria* (I hope you never get this one), *Bocconia*, *Cryptostegia*, *Buddleja* and *Rhizophora*. We are also working on coqui frogs, little fire ants and starting on some carnivores. In addition we do some work on endangered species recovery across a variety of issues, currently for Hawaiian Coot".

KIRIBATI:

Kiribati has been endorsed by the Pacific Islands to lead the Pacific members of the Convention on Biological Diversity on negotiations on Invasive Species. Support to Ratita Bebe and her delegation to the COP 10 meeting is welcome through the review of the CBD documents and providing feedback to her.

KOSRAE

Perhaps not new to some but I thought it would be appropriate to introduce and belatedly congratulate Leonard Sigrah as the inaugural Invasive Species Coordinator for Kosrae. He is placed at the Kosrae Island Resource Management Authority. The appointment was made a while back and he is keen to learn and receive invasive management tips from the Network and partners. Leon and his team are currently working on implementing legislation to control and prevent the importation and transportation of invasive species into Kosrae. Welcome Leon and look forward to working with you and your team.

SAMOA:

- An official statement by the Samoan minister at the United Nations General Assembly meeting in New York, highlighted invasive species as one of the leading causes of biodiversity loss. He noted that

Samoa is taking active steps to address the loss of biodiversity, in particular controlling invasive pests through programmes to eradicate rats and invasive bird species from a number of islands.

- In August the latest of a series of monitoring activities took place on the Aleipata Islands, following the rat eradication operation there one year ago. An extensive network of rat traps and detection gear was deployed on Nu'utele and Nu'ulua islands, and once again no sign of rats was detected. During this monitoring phase, repeat bird counts and reptile surveys were also carried out, to continue to assess the recovery of these elements of the island ecosystem. Preliminary results are encouraging, with plenty of birds and lizards recorded. The project is managed by a team comprising of Alan Tye, Faleafaga Toni Tipama'a and Dave Butler, with funding from the Critical Ecosystem Partnership Fund.

PALAU:

Yalap from the Palau Conservation Society announces the availability of its latest newsletter. The Newsletter includes expanding outreach programmes such as a weekly conservation update on the Oceania Television. For a copy please contact Yalap on yyalap@palauconservation.org.

NEWS FROM THE PACIFIC INVASIVES PARTNERSHIPS:

Developing a matrix of invasive species projects in the Pacific Islands

Shyama Pagad (Chair of the IUCN Invasive Species Specialist Group) is currently coordinating a matrix of all invasive projects in the Pacific, on behalf of the Pacific Invasives Partnership. The goal is to provide a valuable instrument encapsulating key invasive species projects in our region. This will allow for, among other things, measuring invasive species management progress, highlighting the gaps and also sharing of information and resources, and reducing duplication of efforts. The matrix is a living document and will be regularly updated to ensure that it remains useful. This requires partners and invasive species managers, researchers and individuals to continually provide update, feedback and regular communication to the Pacific Invasives Partnership.

IUCN - Invasive Species Specialist Group Regional Office for the Pacific - Islands Database Update (source: Shyama Pagad)

The IUCN Invasive Species Specialist Group will soon (by December 2010) launch IBIS- a database on Island Biodiversity and the threat of Invasive Species. IBIS will feature and build information on endangered species that are under threat by invasive species on global islands. Information includes peer reviewed summaries and case studies on the threat of invasive species and management actions. Phase 1 of the Pacific pilot is nearing completion, with funding from the Critical Ecosystems Partnership Fund (Polynesia-Micronesia) and the Pacific Environment Grant (US). Funding is currently being sought for phase 2 of the Pacific component. Work has begun on the endangered species on the Japanese (Ogasawara) group. IBIS will contribute information to the Global Islands Database, a GLISPA-UNEP/WCMC initiative. The key to the success of this initiative is being able to deliver it and being used by those in the front-line of invasive species management including contribution to its content. PILN teams are therefore suitably positioned to be one of the main target audiences and beneficiaries of this initiative. Contact Shyama for further information on s.pagad@auckland.ac.nz.

Pacific Invasives Initiative - Equipment & Suppliers Catalogue now available

Pacific Invasives Initiative would like to thank everyone who contributed to the "Equipment & Suppliers Catalog". The latest version can now be downloaded from PII's website: <http://www.issg.org/cii/tools.html>. The purpose of this resource is to enable invasive species management practitioners to share information on equipment they have used and where it can be purchased. All the information on the catalogue has been provided by practitioners. The future growth of the catalogue is dependent on your continuing to provide up-to-date information. The catalogue has been jointly developed by the Pacific Invasives Initiative (PII) and the Pacific Invasives Learning Network (PILN). PII and PILN are providing the catalogue as a service and cannot endorse any of the products. Adequate investigation and planning is essential before any invasive species management project is undertaken. Technical advice is available from PII. If you would like to add more information to the catalog please send your information to: Natasha Doherty (n.doherty@auckland.ac.nz)

Birdlife International - Pacific Partnership

Birdlife Pacific bulletin

The latest e-bulletin of Birdlife Pacific (July-September 2010) is now available for your reading pleasure (www.birdlife.org). Hot off the e-press is MANU (Société d'Ornithologie de Polynésie) becoming a full member of

Birdlife Pacific Partnership and Cook Islands (Te Ipukerea Society) implementing a Critical Ecosystem Partnership Fund (CEPF) that will be managed by Ms Jacqui Evans. For further information please contact Don Stewart (birds@birdlifepacific.org.fj)

Important Bird Areas Monitoring in Natewa Tunuloa & Nabukelevu, Kadavu

Baseline monitoring of Natewa Tunuloa peninsula and Mount Nabukelevu on the southern island of Kadavu, Fiji is taking place this month and October after four years of establishment. The objective of the monitoring is to collect data on the state of bird populations, their habitats and to vegetation composition. This will assist in evaluating the conservation status of the Important Bird Areas, and review and strengthen existing management measures put in place with the help of local communities. For further information, please contact Miliana Ravuso of Birdlife International (milly@birdlifepacific.org.fj)

SPREP 21st Annual Meeting : a strong message on invasives from the President of New Caledonia

The 21st SPREP Meeting held in Madang, PNG from 6-10 September concluded with invasive species re-affirmed by SPREPs member countries and territories as a primary threat to their livelihoods and ecosystems and encouraged SPREP to search for increased resources and collaborative efforts to address invasive species threat. Thanks to our colleagues from New Caledonia who tabled a Working Paper to mainstream invasive species and biodiversity. This was accompanied by a personal message from the President of New Caledonia in support of giving greater importance and resources to invasive species management in New Caledonia and the Pacific as a whole. The working document noted invasive species impacts on livelihoods and ecosystems. The integrity of ecosystems can assist in mitigating climate change impacts. New Caledonia acknowledged its continued and successful collaboration with the Secretariat when it joined the Pacific Invasives Learning Network in 2006. The Working Paper was strongly supported by FSM, Fiji, French Polynesia, Kiribati, NZ, Niue, PNG, RMI, Samoa and USA. The meeting further requested for the Secretariat to develop social marketing strategy and programmes emphasising political mainstreaming and environmental inspiration for the young. Further details of the meeting including the meeting report and communiqué can be obtained from the Secretariat - please contact sprep@sprep.org

Protecting Vathe Conservation Area in Vanuatu from Broad-leaf Vine (source: Sue Maturin: s.maturin@forestandbird.org.nz)

The Royal Forest and Bird Protection Society of New Zealand working with the landowners of the Vathe Conservation area to control the infestation of pristine forests by the broad-leaf vine, *Merremia peltata*. Vathe Conservation Area has diverse wildlife including the globally endangered Santa Cruz Ground-dove (*Gallicolumba sanctaerucis*) and endemic Vanuatu megapode (*Megapodius layardi*), Blue-faced parrotfinch (*Erythrura trichroa*) and the Chestnut-bellied Kingfisher (*Todiramphus farquhari*). Approximately 92 % of the Vathe forest is invaded by the vine, of which over half are beyond the ability to control, and requiring major re-forestation. Only 200 hectares remain free from the vine and there is hope of effective management in another 800 hectares of the affected area. The initial work funded by Forest and Bird Protection Society, NZ Quakers and the Pacific Development Trust focused on physical removal and use of herbicides. The herbicide trial using vigilant gel killed up to 70% of small stem plants, whereas the larger ones required a bigger application. The method was deemed time-consuming and not feasible over hundreds of hectares. Other herbicides were trialed and the Weedmaster Duo (active ingredient 360g/L glyphosate) was found to be most effective. Weedmaster was also found to be readily available within Vanuatu and cheaper to purchase and apply (requiring only a small amount compared to other herbicides. At the same time as the herbicide trials, vine cutting took place where machetes were used to cut the vines at shoulder height and also at the ground level. Some 50 hectares were cut and the results surpassed everyone's expectations. Forest canopy has recovered, with many previously unhealthy trees regenerating their crowns. Shrubs have taken over the forest-floor and may be limiting the vine from regenerating. Efforts will continue to apply herbicides and re-cutting areas previously cut to create unfavorable conditions for the vine. Trials are continuing as this Soundbites is being released. Continuing funding for this project is provided by UNDP/GEF - Small Grants Program.

United States Forest Service - Prevention, detection and management of invasive forest ants in the Pacific region (source: Cas Vanderwoude - casperv@hawaii.edu)

The Pacific Cooperative Studies United of the University of Hawaii has received a two-year funding from the United States Forest Service (USFS) to undertake a project: 'Prevention, detection management of invasive forest ants in the Pacific region'. The program objectives are to implement a regional ant prevention plan for Hawaii, CNMI, Palau and the Federated States of Micronesia and it is hoped that this will be extended to all US Pacific affiliates. The program is comprised of the following components: i) Early detection through surveys of points of entry and at-risk forest habitats; ii) Training in ant identification and survey techniques utilizing GPS and simple desktop mapping options; iii) Development of island-specific emergency response plans; iv) Continuing development of web-based resources that allow for quick access to relevant resources; v) Ensuring policy and regulatory frameworks are in place to respond to incursions; vi) Incorporation of ant response activities with island invasive species action plans,

and facilitating interagency; vii) cooperation and coordination; viii) Training in management of invasive ants and implementation of management plans in high value forest ecosystems currently impacted by invasive ant species.

MEETING/CONFERENCE & TRAINING ANNOUNCEMENTS

Biological Control for Nature - October 3-7 2010 (source: Dr Jean-Yves Meyer)

Biological control for pests in forests and associated habitats will be held at Northampton, Massachusetts (USA) from 3-7 October. The meeting will explore the benefits of classical biological control for the control of invasive insects and plants in natural forests, and associated habitats such as wetlands, grasslands, and deserts. Applications to island and other natural systems will also be included. The meeting will not address other forms of biological control (e.g. augmentation, conservation, biopesticides) nor will it address use of biological control in plantation forestry. The meeting will appeal to biological control scientists, conservationists, invasion biologists, and land managers. The meeting continues the series started with the 1st International Workshop on Biological Control of Invasive Species of Forests held in 2007 in Beijing. More information on the Meeting from the website: <http://biocontrolfornature.ucr.edu/>

NZ Biosecurity Institute Conference July 2011 (source: Dr Margaret Stanley via Pacific Invasives Initiative)

The annual conference for the NZ Biosecurity Institute will take place in Takapuna on the North Shore of Auckland (July 6-8, 2011). The theme of the conference is: the Northern Gateway: Tomorrow's pests today. It will focus on Northland and Auckland as the gateway to New Zealand for pests. Find out how they are closing the doors on threats to NZ and fighting what is already there. You will hear great speakers and be able to attend field trips that will showcase the innovative/unique programmes going on around the region. For more information and to register for the conference, visit <http://www.biosecurity.org.nz> [Note- registration is not yet available - but proceedings of previous conferences can be viewed]

Global Resistance Challenge 2013

The Global Resistance Challenge 2013 conference offers a multidisciplinary forum focused on all aspects of herbicide resistance in crops and weeds and their impact on global food production. Scientific sessions will range from the molecular basis of herbicide resistance evolution through agro-ecology and agronomy to on-farm resistance management. The **Global Resistance Challenge 2013** conference will provide a stage for young and established private and public sector researchers, crop consultants and others to present their work in front of a welcoming international audience in the beautiful portside city of **Fremantle, Perth, Western Australia**. We welcome everyone who wishes to discover the latest advances in herbicide resistance to **Perth in February 2013**, to experience a magnificent Western Australian late summer. Further information can be obtained from Lisa Mayer (lisa.mayer@uwa.edu.au)

Fullbright Scholars NEXUS Program (source: Mark Bonin)

New Program Announcement: Fulbright NEXUS Regional Program for the Western Hemisphere The Fulbright Regional Network for Applied Research (NEXUS) Program will bring together a network of junior scholars, professionals and mid-career applied researchers from the United States and other Western Hemisphere nations for series of three seminar meetings and a Fulbright exchange experience. Scholars will spend up to one year engaged in collaborative thinking, analysis, problem-solving and multi-disciplinary research in one of three inter-related topics of regional significance: Science, Technology and Innovation, Entrepreneurship and Sustainable energy. Fulbright NEXUS Scholars will conduct individual and team-based research projects, integrating perspectives from multi-sectoral stakeholders, to generate knowledge-based, policy-oriented solutions and implementation models at the national and regional levels. The application deadline for applicants is November 15th, 2010. Applicants must be U.S. citizens or apply through a Fulbright office in the Western Hemisphere. For more information, visit our website at <http://www.cies.org/NEXUS/> or email at FulbrightNEXUS@ije.org.

2nd GloBallast Global Project Task Force Meeting 3-4 October

The 2nd GloBallast Global Project Task Force meeting will be held at the HQS Wellington, Temple Stairs, Victoria Embankment, London. The Global Project Task Force (GPTF) is a global advisory and coordinating body to guide the Project Coordinating Unit (PCU) in the implementation of the GloBallast Partnership Programme. It also provides a forum for consultation and communication between the various international parties involved or with a vital interest in the programme. The meeting will review the activities of the programme and will provide advice to the International Maritime Organisation (IMO) and the United Nations Development Programme (UNDP) on the general directions to be followed. Following this meeting will be the **IMO-UNEP GloBallast Forum on Regional Cooperation on Ballast Water Management** (5 October, 2010). The IMO-UNEP GloBallast Forum on regional cooperation on BWM discuss and identify key strengths, opportunities, threats and weakness in order to develop an action plan to

facilitate and strengthen inter-regional cooperation for harmonized implementation of the BWM Convention. Anthony Talouli - Marine Pollution Advisor will be attending both meetings on behalf of the Pacific community. Please contact Anthony Talouli (anthonyt@sprep.org) should you want more information.

FUNDING OPPORTUNITIES:

ACP Forest Law Enforcement, Governance and Trade Support Programme for African, Caribbean and Pacific Countries

The Food and Agriculture Organisation of the United Nations is issuing a call for proposals through its Forest Law Enforcement, Governance and Trade Support Programme to African, Caribbean and Pacific Countries. The ACP-FLEGT Support Programme provides assistance to ACP Countries for putting the European Union FLEGT Action Plan into practice, and supports the collection, analysis and dissemination of FLEGT-related information and lessons learned among ACP country stakeholder groups. Proposals due before 22 October 2010. Further information can be obtained by emailing: acp-flegt-call-for-proposals@fao.org.

UNESCO: Pacific Youth Visioning for Island Living 2010 Small Grants

Youth Visioning for Island Living is a capacity building initiative that aims to empower young people in small islands to make a difference. The UNESCO Office for the Pacific states encourages young people and or youth organisations from member countries to submit application to support a wide range of projects. If you are a young person or a youth organisation and would like to take part in this opportunity, feel free to contact Natalia Pereira (n.pereira@unesco.org)

Rapid Response Facility

The Rapid Response Facility (RRF) is an emergency small grants programme jointly operated by Fauna & Flora International (FFI), UNESCO World Heritage Centre, and the United Nations Foundation. With a target processing time for grant applications of just 8 working days, the RRF provides rapid support to enable conservation practitioners to tackle emergencies in some of the World's most important sites for biodiversity. To date it has supported 16 rapid interventions in 14 UNESCO designated natural World Heritage sites, responding to the conservation impacts of a range of emergencies such as natural disaster, armed conflict and sudden increases in illegal activity within these protected areas. Those interested in approaching the RRF for emergency funding should see www.rapid-response.org, which provides details on application procedures, funding criteria, and case studies of past RRF grants.

International Climate Initiative (IKI)

Proposals for projects for 2011 are being requested and must be submitted to the Programme Office until 31 December 2010. Funding will be for investment projects and activities in the fields of technology transfer, policy advice, research cooperation, capacity development and training and elaboration of studies and strategies. PILN teams may wish to apply under Area II: Adaptation to climate change and Area III: Preservation and sustainable use of natural carbon sinks/REDD. Further information can be obtained online - <http://www.bmu-klimaschutzinitiative.de/en/application>

MARINE INVASIVES:

Green crab among world's worst invasive species (source: National Invasive Species Information Centre)

The green crab (*Carcinus maenas*) a native of north-east Atlantic Ocean and Baltic Sea is listed among the 100 world's worst alien invasive species. It has invaded Australia, South America, South Africa and the Atlantic and Pacific coasts of North America. It is a predator of many organisms particularly bivalves and crustaceans and has been implicated in the destruction of the soft shell clam (*Mya arenaria*) on the east coast of the USA and Canada. Efforts to control this crab include host specificity testing using a parasitic barnacle as a biological control agent in the US. However, the barnacle was also shown to affect native species, thus thorough consideration needs to be evaluated before it is applied.

Draft Economic Assessment for Ballast Water Management Guideline - call for comments (source: Anthony Talouli - anthonyt@sprep.org)

The draft guidelines for the economic assessment for ballast water management prepared by the UNDP-GloBallast Partnerships and IUCN is now available for review. Frederik Haag, Technical Adviser of the Globallast Partnerships is coordinating this review and wishes to receive comments by 15 October. The guidelines will be published as a GloBallast Monograph towards the end of October. Please contact Fredrik if you would like a copy of the draft Guidelines.

INVASIVE NEWS AND INTERESTING NEWS/LINKS/WEBSITES:

Into Oblivion: the disappearing native mammals of northern Australia (source: David.Peacock@sa.gov.au)

See <http://wildaustralia.org/> for a report on the mammal extinction process that appears to be seemingly underway in northern Australia, somewhat replicating what has previously happened in southern Australia. Primary paper on this is: Woinarski, J. C. Z., Armstrong, M., Brennan, K., Fisher, A., Griffiths, A. D., Hill, B., Milne, D. J., Palmer, C., Ward, S., Watson, M., Winderlich, S. & Young, S. (2010) Monitoring indicates rapid and severe decline of native small mammals in Kakadu National Park, northern Australia. *Wildlife Research* 37: 116-126. All very depressing. Fire, introduced cats (*Felis catus*), disease, grazing and introduced South American cane toads (*Bufo marinus*) are the big concerns, with cane toads a big issue in the severe declines of the northern quoll (*Dasyurus hallucatus*) and large goannas (*Varanus* spp). Cane toads, poisonous to most Australian animals that mouth or eat them, are continuing to spread across northern Australia, having recently crossed the Northern Territory border into Western Australia.

National Strategy on Invasive Species for Mexico launched (source: IUNC-ISSG: www.issg.org and Isabel Gonz lez)

The Comisión Nacional para el Conocimiento y Uso de la Biodiversidad CONABIO is pleased to announce the launch of the National Invasive Species Strategy for Mexico. The document is available online at <http://www.conabio.gob.mx/invasoras/index.php/Portada>.

The National Strategy is oriented towards the preventing, control and eradication of invasive species in Mexico, providing guidance for the coordinated participation and the active and responsible cooperation of all stakeholders involved in the implementation of actions to monitor, detect, control and eradicate invasive species. For further information please contact Isabel Gonz lez (especiesinvasoras@conabio.gob.mx)

New 30 minute video on island invaders impacting seabirds (source: Shyama Pagad)

Shot over a period of three years, the island invaders covers the importance of seabird islands, impacts of predators on seabirds and their islands, predator eradication, island re-colonization and restoration and the importance of community involvement to seabird island conservation. The video was produced by the independent production company Scientific Outreach Media for the SEAPRE Research Coordination Network with support from the National Science Foundation and the Institute of Arctic Biology and the University of Alaska Fairbanks. For a copy of the DVD please contact Dr Christa Mulder, University of Alaska (cpmulder@alaska.edu).

You may be carrying more than your laptop (source: Pacific Invasives Initiative)

Issue 97 of the Biosecurity Magazine from New Zealand contained an important article on unsuspectingly carrying ants inside a laptop computer. The traveler's laptop was inspected in New Zealand and found to contain a nest of *Monomorium* ants (300 worker ants, more than 10 queens and 50 larval forms). The ants were treated and the laptop was released to a relieved owner. The item can be downloaded from <http://www.biosecurity.govt.nz/files/biosec/pubs-media/pubs/biosecurity-magazine/issue-97/biosecurity-97.pdf>

Rat Island is officially rat-free (source: Shyama Pagad)

Restoration for Aleutian seabirds brings new life to refuge island

Biologists who are restoring seabird habitat on a remote island in Alaska Maritime National Wildlife Refuge confirmed today that Rat Island is now rat-free. The report comes after two years of careful field monitoring at Rat Island, where the invasive predator decimated native seabird populations by preying on eggs and chicks. For more information visit: <http://www.islandconservation.org/news/article.php?id=14>

White House appoints invasive coordinator for Asian carp (source: Invasive Species News)

The White House has appointed veteran Indiana wildlife official John Goss to coordinate federal, state and local efforts to combat the invasive Asian carp's threat to the Great Lakes. The announcement was made by Nancy Sutley, Chair of the White House Council on Environmental Quality. The appointment is another example of the historic commitment of the White House to combating invasive species. "We have the opportunity to prevent this invasive species from developing ... and inflicting untold damage on the ecosystem and the economy," Goss said.

Alien killer shrimp in UK waters (source: www.bbc.co.uk/news/science-environment-11246642)

An invasive species of predatory shrimp (*Dikerogammarus villosus*) has been found in the UK for the first time. The UK Environment Agency describes this species as 'particularly vicious and destructive'. The animal was spotted by anglers at the Grafham Water reservoir in Cambridgeshire and sent to the Environment Agency for identification. The shrimp preys on a range of native species, such as freshwater invertebrates - particularly native shrimp - and even young fish. This alters the ecology of habitats it invades, and could cause extinctions. The shrimp is native to

the steppe region between the Black Sea and the Caspian Sea. It is believed to have invaded Western Europe via the Danube. For more on this story see the BBC website: www.bbc.co.uk/news/science-environment-11246642

Giant African snails seized at Dulles Airport (source: Emily Babay - ebabay@wahsingtonexaminer.com)

The U.S. Customs and Border Protection seized 14 giant African land snails from a Ghanaian traveler at Washington Dulles International Airport. The snails are an invasive species that can cause major damage to crops and are illegal to possess in the United States. The traveler declared the snails when asked if he was carrying any agricultural or live products, so he was not charged. The animals, which were about the size of a child's fist, were seized and destroyed.

Urgent call on EU to stop billion-euro 'alien invasion' (source: www.bbc.co.uk/news/science-environment-11286432)

Leading experts on invasive species are demanding Europe-wide legislation be put in place by next year to tackle the threat to native wildlife. The researchers want urgent action from the EU to protect Europe's indigenous species from these "alien invaders". Invasive, non-native animals, plants and microorganisms cause at least 12 billion euros of damage in Europe each year. The scientists are meeting at the Neobiota conference in Copenhagen. They are demanding Europe-wide legislation to be in place by next year to ensure the threat doesn't worsen. Invasive species are defined as those that are introduced accidentally or deliberately into a place where they are not normally found. A European inventory in 2008 found more than 10,000 alien species in Europe, with 1,300 having some kind of impact. This impact was exerted either on the environment, economy or, on human health. And numbers are on the rise. Research published this year in the journal *Science* found alien species in Europe have increased by 76% in the last 30 years alone. Piero Genovesi is chair of the Invasive Species Specialist Group (ISSG), a global network of experts on invasive species. He told BBC News that the figure of 12 billion Euros represents a significant underestimate of the impact of alien species.

New Invasive Species Management Strategy for La Réunion (source: Alan Tye - alant@sprep.org)

La Réunion (Océan indien) a produit une nouvelle stratégie de lutte contre les espèces invasives: (La Réunion has produced a new invasive species management strategy (in French)). http://www.reunion-parcnational.fr/corexerun/IMG/pdf/Strat_Esplnv_Pnrun_web.pdf

Alerts for emerging animal pests in Australia (source: Win Kirkpatrick posted on Alien-L)

The Canada goose, red-whiskered bulbul and Barbary dove are targeted as possible emerging pest species in Australia, in a series of Animal Pest Alert brochures. The alert brochures were produced with support of the Australian Government's Bureau of Rural Sciences and are endorsed by the national Vertebrate Pests Committee and relevant state and territory authorities. The four page colour brochures feature images and detailed descriptions of the pests, and information on their biosecurity, distribution, biology and risk management. The Animal Pest Alerts are available at http://www.agric.wa.gov.au/PC_92849.html (including six previous published alerts on Indian ringneck parakeet, house crow, common myna, rusa deer, ferret and red-eared slider turtle). A further 3 alerts are due for publication in early 2011; on Pacific rat, combined deer on Sambar, White-tailed and Hog deer, and combined squirrel on northern palm squirrel and grey squirrel.

NEW PUBLICATIONS:

Economic Valuation of Invasive Alien Species in Seychelles (source: Alan Tye)

This latest publication compiled a comprehensive economic valuation of the impacts and management of invasive alien mammals (especially rats and feral cats) in the Seychelles (particularly on small offshore islands). Among others, the article reports that tourists indicated a mean willingness to pay (WTP) of US\$52-US\$58 on top of their usual expenditures to fund conservation policy. The full reference for this publication is: Mwebaze P, A. MacLeod, D. Tomlinson, H. Barois, J. Rijpma 2010. Economic valuation of the influence of invasive alien species on the economy of the Seychelles islands. *Ecological Economics*, onlineEarly. (Further information about obtaining a copy - contact PILN Coordinator)

Index of Alien Impact (source: Souad Boudjelas)

Magee, T., Ringold, P., Bollman, M., & Ernst, T. (2010). Index of Alien Impact: A Method for Evaluating Potential Ecological Impact of Alien Plant Species. Alien plant species are stressors to ecosystems and indicators of reduced ecosystem integrity. The magnitude of the stress reflects not only the quantity of aliens present, but also the quality of their interactions with native ecosystems. Teresa Magee and fellow researchers in the United States developed an Index of Alien Impact (IAI) to estimate the collective ecological impact of in situ alien species. Their method is apparently innovative in several ways. First, this method differs from the conventional approach of just measuring

how the common invasive species are at a site, and also assesses their qualities of invasiveness like their ability to grow in different conditions, their dispersal mechanisms, etc. The traditional approaches sometimes miss out on certain warning signs of future problems because they mainly focus on metrics such as abundance of the species that describe the current extent of invasion. The IAI method takes a cumulative approach in which it calculates a combined invasive impact score for an entire site based on the individual scores of all exotic species present in the entire site. Compared to conventional approaches that just look at individual species, this cumulative metric can give resource managers a better perspective for restoration planning and monitoring. The findings of these researchers are published in the journal 'Environmental Management'.

Favourable climate change response explains non-native species success in Thoreau's woods

Charles G. Willis, Brad R. Ruhfel, Richard B. Primack, Abraham J. Miller-Rushing, Jonathan B. Losos, Charles C. Davis. Favorable Climate Change Response Explains Non-Native Species' Success in Thoreau's Woods. <http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0008878>. Changes in climate can make invasive plants more prevalent and destructive. Charles C Davis and colleagues at Harvard University say that non-native plants, especially invasive species, can thrive on climate change by adjusting the annual activities like flowering and fruiting. They analyzed a dataset that began with Henry David Thoreau's cataloguing of plants around Walden Pond in Concord, Massachusetts (USA) in the 1850s. The famed naturalist documented the natural history, occurrence of plant species and flowering times. Since then, the mean annual temperature around Concord has increased by 2.4°C, causing some plants to shift their flowering time by as much as three weeks in response to ever-earlier spring thaws. These results demonstrate for the first time that climate change plays a direct role in promoting non-native plants and also the importance of flowering time as a trait that may facilitate the success of non-native species. They compared various plant traits such as height at maturity to flower diameter to seed weight against species' response to more than a century and a half of climate change. Among all these traits, plants that have fared well share a common phenology, a suite of traits related to the timing of seasonal events such as flowering, leaf growth, germination and migration. The paper showed that some plant families have been hit hardest by climate change at Walden Pond like lilies, orchids, violets, roses and dogwoods. They also reported that some 27% of all species Thoreau recorded from 1851 to 1858 are now locally extinct, and another 36% are so sparse that extinction may be imminent. To summarise, it is evident that non-native and invasive species are climate change winners and they will become more dominant in such situations.

The above two items were taken from the APFISN Newsletter: [Contact PILN Coordinator if you want further information on these articles]

Final report Christmas Island Expert Working Group (source: Ray Nias - GLISPA)

A recent report on invasive species impacts on biodiversity at species and ecosystem level on Australia's Christmas Island. Beeton B., Burbidge A., Grigg G., Harrison P., How R., Humphreys, B., McKenzie N. and Woinarski J. (2010). Final Report Christmas Island Expert Working Group to Minister for Environmental Protection, Heritage and the Arts. Available from URL: <http://www.environment.gov.au/parks/publications/christmas/pubs/final-report.pdf>

Prioritisation of targets for biological control of weeds on Pacific Islands (source: Lynley Hayes: hayesl@landcareresearch.co.nz)

An output as agreed to at the Pacific Biocontrol Workshop in Auckland last November has recently been released. Thanks to the USFS and Conservation International for providing the funds for this project, it is hoped that the findings of the report will stimulate further work to develop biocontrol projects for weeds in the Pacific. The authors and funders have asked that this report be widely shared with others who may be interested (contact Lynley Hayes). Assistance can be acquired to help fine-tune the framework for a country or territory.

Impact of invasive cane toads in Australia

Shine R. (2010) The Ecological Impact of Invasive Cane Toads (*Bufo marinus*) in Australia. The Quarterly Review of Biology, vol. 85 (3) pp. 253-291; DOI: <http://dx.doi.org/10.1086/655116>.

Invasives rats on tropical islands

Varnham, K (2010). Invasive rats on tropical islands: Their history, ecology, impacts and eradication. RSPB Research Report No. 41. Royal Society for the Protection of Birds, Sandy, Bedfordshire, UK. ISBN 978-1-905601-28-8. From their original ranges in Asia, black and brown rats (*R. rattus* and *R. norvegicus*) are now present across much of the world, including many island groups. They are among the most widespread and damaging invasive mammalian species in the world, known to cause significant ecological damage to a wide range of plant and animal species. Whilst their distribution is now global, this report focuses on their occurrence, ecology and impact within the tropics

and reviews key factors relating to the eradication of these species from tropical islands based on both eradication successes and failures.

Introductory weed management manual

Natural Heritage Trust, Department of the Environment and Heritage, Australian Government. This manual has been prepared as a training aid for the use of private landholders, conservation groups, catchment management groups, local, state and territory governments and industry. It is an introductory guide for those with little experience with weed management, particularly environmental weeds. It will be of use to those who wish to develop their weed management knowledge and skills, and as an extension resource for those who need to develop the weed management capacity of others. The manual is presented in four modules:

- Module 1: Developing and implementing a weed management plan
- Module 2: Weed control methods for community groups
- Module 3: Collecting and preparing plant specimens for identification
- Module 4: Presentation of information sessions to small groups

The information presented in this manual is general in nature so that a wide audience can appreciate the principles outlined. The reader is encouraged to use the knowledge and guidance available at local, regional and state levels from natural resource management agencies so that weed management activities can be adapted for local situations. It also needs to be appreciated that regulations relevant to weed control, for example those applying to the use of herbicides, vary over time and from place to place so it is essential to check with relevant agencies before embarking on weed control projects.

Biofuels are the new pathway for invasive species introduction and establishment (source: Dr Chris Buddenhagen - cbuddenhagen@gmail.com)

Compared to a random selection of alien plants, alien species proposed as biofuels were shown 2-3 times more likely to be invasive in both temperate (NZ) and tropical systems (Hawaii) (Chimera et al 2010). A number of studies have shown that species selected as biofuels share more traits with invasive species than non-invasive species, or in the worst case invasive species are cynically selected as potential biofuels. The general call from a number of authors is that national and regional agencies implement screening of all experimental crops, not just biofuels though in the latter case caution is especially warranted (Gordon et al 2010, Davis et al 2010). It is believed that widespread planting of many fuel feed-stocks will create the higher levels of propagule pressure that lead to new invasions even if the species is already introduced and has not yet shown any significant propensity to become invasive. Balancing the value of fuels with the risks will require careful coordination. Implementing polluter pays policies may help to mitigate the risks. *[NB. Should you wish to obtain any of the articles quoted in this bite - please contact piln@sprep.org]*

DISCLAIMER: Efforts are made to ensure that the information presented in the PILN SOUNDBITES is accurate, up-to-date and from reliable sources. Materials within this SOUNDBITES do not necessarily imply the views of SPREP, PILN Country teams or PIP. Please contact the PILN Coordinator should you need further information regarding PILN SOUNDBITES.

Contact for PILN SOUNDBITES: Dr.
Posa A. Skelton, PILN Coordinator
SPREP, Apia, SAMOA
Tel. +685 66276, Fax. +685 20231
posas@sprep.org