

**PALAU NATIONAL INVASIVE
SPECIES COMMITTEE**



NISC



DOSEBELII BELAU

**ANNUAL REPORT
2014**

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EXECUTIVE SUMMARY

The NISC is very appreciative of the strong support from President Remengesau in 2014. This support has included a commitment of a substantial portion, \$1.4 million, of Palau's allocation from the Global Environment Facility (GEF 6) to a project to prevent and manage invasive species, endorsement of the Regional Biosecurity Plan for Micronesia and Hawaii, and strong advocacy for invasive species commitments by the Pacific Islands Forum. With this commitment from the national government, the NISC has felt empowered to move forward with activities to protect Palau's people, economy, and environment from invasive species.

2014 was a year of both successes and disappointments for invasive species work in Palau. The commitment by President Remengesau of \$1.4 million of Palau's GEF 6 allocation was a major morale booster; the challenge now is to develop a successful proposal, hopefully in partnership with other Micronesian countries and territories. Major successes in 2014 include completion of the Regional Biosecurity Plan for Micronesia and Hawaii (RBP) and its endorsement by the Micronesian Chief Executives' Summit in June 2014, and language in the communique of the Pacific Island Forum (PIF) Leaders meeting in July advocating strong efforts to prevent and manage invasive species and creating an Invasive Alien Species Advisory Group for the PIF. In addition to these, a survey by experts from SPC showed that no new plant pests or diseases have entered Palau since the last survey a few years ago, indicating successful preventive efforts by the Plant Protection and Quarantine Service (PPQS).

Our biggest disappointment in 2014 was our lack of real movement toward removal of macaque monkeys from the island of Angaur. We were unable, despite our best efforts, to generate \$100,000 to match a Challenge Grant to complete development of safe, effective, and humane methods of removal. Also, while the long-pending biosecurity bill passed House of Delegates in 2014, it is still awaiting action by the Senate. Our recommendation that the salary of the Invasive Species Coordinator be made part of the annual budget of the BOA was not realized, and the continuity of this position continues to depend on the vagaries of external funding. Support we are currently receiving from Island Conservation for half of the Coordinator's salary will end at the end of February, and a replacement source of funding has not been found.

The NISC made several recommendations in its 2013 annual report. These follow, with their current status.

RECOMMENDATIONS FOR 2014, AND CURRENT STATUS

To protect our economy, environment, and people from the threat of invasive species, the NISC made the following recommendations for 2014:

1. Provide \$100,000 to match the Challenge Grant to complete development of safe, effective, and humane methods to remove macaque monkeys from the Republic;

Current Status: The NISC has been unable to obtain this matching funding, and the grant will lapse at the end of February 2015.

2. Complete filling of the pond at the National Quarry, to complete the eradication of tilapia;

Current status: The pond is nearly, but not completely, full.

3. Adopt the pending Biosecurity Bill, and implement its provisions;

Current status: The bill has been passed in the House of Delegates, and awaits action by the Senate.

4. Include cash co-finance funding for the GEF-PAS Invasive Species Project (\$21,273 per year) in the annual budget of the Bureau of Agriculture for the next 3 years;

Current status: This amount was not included in the BOA budget for FY 2015.

5. Integrate invasive species prevention and management into management plans for protected areas;

Current status: Progress has been made on development of criteria for invasive species management; these should be completed and adopted by the PAN Office in 2015.

6. Develop and implement a Sustainable Finance Mechanism for Quarantine/Biosecurity.

Current status: No progress has been made on this.

RECOMMENDATIONS FOR 2015

To protect our people, economy, and environment from the threat of invasive species, the NISC makes the following recommendations for 2015. Most of these have changed little since last year, because they are still necessary for the Republic to protect itself from the threat of invasive species.

1. Complete and submit the proposal to the GEF for the President's commitment of \$1.4 million for invasive species prevention and control;
2. Complete development of safe, effective, and humane methods to remove macaque monkeys from the Republic;
3. Secure local funding for the position of National Invasive Species Coordinator;
4. Adopt the pending Biosecurity Bill, and implement its provisions;
5. Integrate invasive species prevention and management into management plans for protected areas;
6. Complete filling of the pond at the National Quarry, to complete the eradication of tilapia; and
7. Develop and implement a Sustainable Finance Mechanism for Quarantine/Biosecurity.

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BACKGROUND AND INTRODUCTION

The Palau National Invasive Species Committee (NISC) was created by the National Environmental Protection Council (NEPC) through Resolution #2 on January 21, 2004. This action was taken in response to Presidential Executive Order 219, which directed the NEPC to create such a committee. The NISC role is one of advice, facilitation, and coordination. The member agencies and organizations of the NISC, in cooperation with local and regional partners, implement activities for prevention, management (including control), and eradication of invasive species. The benefits of the NISC are clear: setting of national priorities; review and endorsement of projects and proposals; review and comment on regulations and plans; advice to decision-makers; and cooperation with regional and international efforts to combat invasive species.

In December 2008, by Executive Order 251, the NISC was separated from the NEPC and made an advisory body to the President and his Cabinet, and two small changes were made to its membership.

COMMITTEE MEMBERSHIP As noted above, two small changes were made to the NISC membership at the end of 2008: The Office of Environmental Response and Coordination was reduced to one member, and the National Invasive Species Coordinator was made an ex officio member. The Chair of the NISC is Mr. Fred Sengebau, Director of the Bureau of Agriculture.



In the past year the NISC became increasingly aware of its lack of expertise and knowledge in the area of marine invasives. Only one member of the NISC, the Bureau of Marine Resources, has staff with this knowledge. Therefore, in its regular meeting in September, the NISC decided to invite two important organizations in Palau, the Palau International Coral Reef Center (PICRC) and the Coral Reef Research Foundation (CRRF) to become members of the NISC. Happily, both organizations accepted this invitation, the membership of the NISC has increased to 12, and our marine expertise has been tripled. The current agency/organization membership of the NISC is shown in the table below.

Office of Environmental Response & Coordination	1 member	Ms. Charlene Mersai, National Environment Planner
Ministry of Natural Resources, Environment and Tourism	3 members	Mr. Fred Sengebau, Director, Bureau of Agriculture Mr. Percy Rechelluul, Bureau of Marine Resources Dr. Joel Miles, National Invasive Species Coordinator, Bureau of Agriculture
Palau Environmental Quality Protection Board	1 member	Ms. Francesca Sungino, Pesticide Officer
Ministry of Justice	2 members	Ms. Brenda Santos, Sergeant, Division of Fish and Wildlife Protection vacant, Attorney General's Office (EQPB Legal Counsel)
Ministry of Health	1 member	Ms. Eden Ridep, Chief, Division of Environmental Health
Ministry of Finance	1 member	Mr. Williander Ngotel, Senior Customs Officer, Division of Customs
Palau Conservation Society	1 member	Mr. Yalap Yalap, Education Officer, Palau Conservation Society
Palau International Coral Reef Center	1 member	Dr. Yimnang Golbuu, Chief Executive Officer
Coral Reef Research Foundation	1 member	Dr. Patrick Colin

ACTIONS AND ACCOMPLISHMENTS IN 2014

During calendar year 2014 significant progress was made by the National Invasive Species Committee toward achieving the goals of the National Invasive Species Strategy. Much work remains to be done, however, and – since the threat of invasive species is not expected to go away – the work is in a sense never-ending.

The NISC coordinated, supported, and facilitated a number of activities in 2014. Most significant among these activities are the following:

Commitment of GEF 6 Allocation

The commitment by President Remengesau of \$1.4 million of Palau's GEF 6 allocation (the 6th replenishment of the Global Environment Facility) was a major morale booster for the NISC. The funds are to be allocated for implementation of the Regional Biosecurity Plan (RBP), for strengthening prevention and control of invasive species in protected areas, and for targeted control and/or eradication projects in key locations. Minister Sengebau of MNRET has invited his counterparts in the FSM and RMI to join us in this important project, particularly to coordinate implementation of the RBP and to strengthen prevention and control of invasive species in the Micronesia Challenge. The Coordinator is working through the Micronesia Regional Invasive Species Council (RISC) to enlist the cooperation of all RISC member jurisdictions for implementation of the RBP and strengthening the Micronesia Challenge.

The challenge before us now is to develop a successful proposal, hopefully in partnership with other Micronesian countries and territories. Obtaining funding from the Global Environment Facility (GEF) is a difficult challenge: first we must develop a Project Identification Form and get this approved by the GEF Council. Following this, we can get financial assistance to develop a full proposal. We have begun developing the PIF with support from UNDP, and now are awaiting input from our partners in the FSM and RMI.

Progress Toward Removal of Invasive Macaque Monkeys

In 2013, the NISC identified macaque monkeys as the highest priority for action, with complete removal of macaques from Palau as the goal. This continues to be the top priority of the NISC, but unfortunately little progress was made toward this goal in 2014 despite the best efforts of NISC members, the Coordinator, and our NGO partners.

Macaque monkeys (scientific name *Macaca fascicularis*) have made agriculture impossible on the island of Angaur, and have devastated native bird populations; impacts on forest structure and other wildlife have never been assessed. Macaque monkeys are also a threat to human health through the risk of bites and scratches, and because they carry a virus disease (Herpes B-virus) which can cause fatal infections in humans. This is now a national problem: feral macaques have been seen in Peleliu, the Rock Islands, Koror, and at several locations in Babeldaob. Action must be taken before it is too late.

Numerous efforts to control the macaques over the past several years have not been effective, and the NISC has concluded that the only realistic solution to the problem is complete removal of the macaques. The very real likelihood of spread of macaques throughout the islands of the Republic, with the same impacts they have had on the economy and environment of Angaur, makes removal of macaques the highest national priority. An independent feasibility study conducted in 2011 concluded that removal of the macaques is possible, with some work needed to ensure that effective and humane removal methods are developed and implemented.

The NISC worked closely in 2014 with the Angaur State Government and the NGO Island Conservation to address the macaque problem. Island Conservation is an NGO based in the United States with 20 years of experience removing invasive mammals from islands; their expertise is essential for successful macaque removal. At the end of 2012, the Bureau of Agriculture entered into a Memorandum of Understanding with Island Conservation, whereby IC provided funding for half of the salary of the Coordinator, enabling him to dedicate half his time to this effort. This MOU was extended, but it will expire at the end of February 2015, and the Republic needs to provide this funding if the work of the Coordinator is to continue.

In 2014, the following activities were undertaken to address the macaque problem:

- Challenge Grant: One outcome of the Angaur Governor's visit to Island Conservation headquarters at the end of 2012 was the commitment by one of their donors to provide \$100,000 in funding for the purpose of completing the development of effective and humane removal methods, if Palau can provide the same amount of locally-generated funding. The NISC has been working to get the National Government provide to the necessary match (\$100,000) so that this high priority initiative can move forward. Unfortunately, the project has not received full support from the Angaur leadership, and thus the matching fund has not been provided. The deadline for expiration of this grant has been extended twice, but it will not be extended beyond the end of February 2015.
- Funding Proposals: Two proposals were prepared and submitted with the support of Island Conservation. Unfortunately, neither of these proposals was funded. We intend to continue fundraising efforts in 2015.
- Angaur Visits and Community Meetings: Numerous visits to and meetings with the Angaur community were made by the Coordinator.
- Short-Term Relief Project: In 2013 the President committed \$25,000 to a high-priority invasive species project to provide short-term relief to the Angaur Community while efforts to remove the macaques continue. The Coordinator and the Governor of Angaur prepared a proposal, with support of other stakeholders, which was approved by the President, and the project was initiated in 2014. Components of the project include stronger community engagement and a feeding program to reduce damage to homes and farms. Several engagement activities were undertaken in 2014, along with a socio-economic survey of impacts of the macaques on the Angaur community, but the feeding program had to be delayed because the state government initiated a bounty program; once the bounty program has ended, sometime in 2015, the feeding program can be initiated.
- Awareness Efforts: The Coordinator made numerous presentations on the macaque problem during 2014, including to elementary school students, community groups and other organizations. In addition, press releases were made, a brief presentation was run on ICTV, and macaques were discussed several times on the PCS radio talk show.
- Bounty Program: Angaur State initiated a bounty program, paying \$5 each for dead macaques, in December 2013. This was raised to \$7 in September 2014, and the state is considering increasing it again, to \$10, in 2015. It is not possible to assess the impact of the bounty program on the total population of macaques, which are much too numerous to count (there are over 2,000 macaques on Angaur – compared to a human population of about 100), but residents report that it has somewhat reduced impacts on farms and

homes by targeting those macaques which are raiding farms and homes. The state government has kept a record of the number of macaques killed, but there has been no formal assessment of the bounty program's impacts on macaque damage to homes and farms. The Coordinator and Island Conservation developed methodology and record-keeping forms for such assessments, but the state government was not receptive to this effort.

- New Governor of Angaur: In November, 2014, the voters of Angaur State elected a new Governor, Mr. Marvin Ngirutang. The Coordinator met with one of the co-chairs of Governor Ngirutang's Transition Committee in December and provided a briefing and several background documents on the macaque removal initiative. The NISC is optimistic that its close working relationship with Angaur leadership will continue under the new administration.

Funding is the main obstacle to successful removal of the macaques: a feasibility study conducted in 2011 concluded that removal is possible; now it is a matter of obtaining the necessary funds. Locating funds to complete the development of safe, effective, and humane removal methods is the essential next step in this process; we need approximately \$200,000 for this purpose. This is a large amount of funds, but it is an essential investment in Palau's future, and will demonstrate a national commitment to solve this problem.

Partial Passage of Biosecurity Legislation

Another major challenge for Palau is the adoption and implementation of updated biosecurity legislation, harmonized with biosecurity legislation throughout the Pacific Islands region, and in line with international agreements such as the WTO and the International Plant Protection Convention (IPPC), to which Palau is a signatory. The NISC worked in 2014 for passage of this legislation, and it was passed by the House of Delegates. The bill is now in the Senate, and we have been informed that it will come up for consideration early in 2015.

The NISC supported the effort to draft and introduce new biosecurity legislation, "The Biosecurity Act of 2008," in 2007-2008. Introduction of this legislation into the OEK in 2008 was the culmination of over two years of effort led by the Bureau of Agriculture, with input from several other national government agencies as well as state governments and non-governmental organizations. This new legislation, if enacted, will bring together all of Palau's quarantine and related laws, and will bring Palau into harmony with international laws and agreements. The legislation was introduced to the OEK in 2008, but has yet to be passed.

This bill is part of an effort by the Secretariat of the Pacific Community (SPC), requested by SPC member countries, to assist the countries in the Pacific Islands region to harmonize biosecurity laws throughout the region. The goal of this project is to improve every Pacific nation's ability to protect itself, while creating a safe environment for trade to thrive among the islands. A model law was drafted for Palau with the support of the SPC, and it was modified to fit our legal and governmental requirements. When this bill becomes law, we can expand our ability to receive produce and other goods safely from our trading partners, and they in turn will be assured that products coming from Palau are safe.

Working for passage of this legislation is a major part of the newly-adopted Strategic Action Plan for invasive species.

Adoption of new biosecurity legislation will enable Palau to meet the challenges of increasing air and sea traffic. As the number of tourists and other visitors increases, the human and financial resources of the Plant Protection and Quarantine Service are being stretched to the breaking point. It is no longer possible to physically check the baggage of all incoming passengers, any one of whom could – intentionally or unintentionally – be carrying an invasive species; there is an urgent need to increase the human resource of PPQS, and to provide modern detection equipment. For example, the use of x-ray machines and detector dogs will expedite and improve the screening process, and ensure that invasive species do not inadvertently enter the Republic. The NISC recommends that a Sustainable Finance Mechanism be developed and implemented for PPQS, to ensure that they provide the best possible protection of our international and internal borders. Legislation adopted by Guam, providing for an earmarked fee on incoming cargo, could be used as a model. Financial support will be needed to hire a consultant to help us develop such a mechanism. A successful proposal to the GEF for implementation of the RBP is the best potential source of such support.

Implementation of the GEF-PAS Invasive Species Project

In October 2012, Palau entered into an agreement with the Secretariat of the Pacific Regional Environment Programme (SPREP) to implement a new invasive species project, funded by the Global Environment Facility (GEF). This project, “Prevention, control and management of invasive alien species in the Pacific Islands,” is being funded under the GEF Pacific Alliance for Sustainability (GEF-PAS), which also includes other projects, such as the Pacific Adaptation to Climate Change (PACC) project. Planning for the GEF-PAS project began in Palau in 2007-08; the project was approved by the GEF in 2011.

Palau is one of ten Pacific Island countries participating in this project, which is being coordinated by SPREP. It was originally intended as a 4-year project, beginning in 2011 and ending in 2015, but due to various delays we were unable to initiate the project until December 2012; in 2014, SPREP was able to extend the project until mid-2016. We are only receiving a small amount of funding for this project, a total of \$61,180 over the four year project period, but this is assisting us to coordinate efforts within Palau to protect Palau from invasive species, and to participate in regional efforts which will assist us in this effort. We are confident that, although the funds provided by the GEF are limited, they will enable us to leverage funding for other projects to combat invasive species. Most of the required co-finance can be in-kind, but two significant portions must be provided in cash.

Specifically, this project has enabled us to fill the position of Invasive Species Coordinator, which was vacant from October 2009 until December 2012. With this position once again filled, we are able to hold regular meetings of the National Invasive Species Committee (NISC). The project funding also enables Palau to participate in meetings of the Micronesia Regional Invasive Species Council (RISC), thus strengthening cooperation with the rest of Micronesia in this critical effort to protect our environment, and to ensure sustainable

livelihoods. Other activities increase outreach, planning, and a biological control project for one of the worst invasive plants in Palau, mikania.

The five activities being undertaken in the project, and their current status as of the end of 2013, are:

- 1. Attend RISC biannual meeting of Micronesian Chief Executives to provide advice about IAS management and resource needs.**
 - a. Current status: Palau has attended four RISC meetings with funding from this project: one in 2012, two in 2013, and one in 2014. Joel Miles, representing Palau, was elected Secretary of the RISC at the December 2013 meeting, and took office in February 2014.
- 2. Increase the outreach effort in schools, led by PCS, in cooperation with BOA**
 - a. Current status: all elementary schools in Palau were visited – most of them twice – in 2013 and 2014, with a presentation in fall semester on invasive species focusing on macaques as the most important invasive species in Palau, and a second presentation on invasive species threats to wetlands in the spring. With layout assistance from SPREP, we prepared a new poster highlighting invasive species which threaten wetlands in December 2013, for distribution in conjunction with World Wetlands Day in February 2014 and 2015.
- 3. Coordinator position filled; coordinator implements the strategy and activities under this project. NISC meets at least once per quarter.**
 - a. Current status: Coordinator (Joel Miles) hired 12/17/13 and immediately began implementing the project. The NISC meets every two months; six NISC meetings were held in 2014. Meeting minutes are available from the Coordinator
- 4. Revise and periodically review NISC Strategic Action Plan;**
 - a. Current status: Revision workshop took place from March 26-28, 2013 with support from SPREP, SPC, and several local agencies and organizations. The workshop products were compiled into a draft plan by the Coordinator; this draft went through two rounds of comments and revisions by the workshop participants and the members of the NISC, and was adopted by the NISC at the end of May 2013. The plan received endorsement by the Minister of Natural Resources, Environment and Tourism and the President in November, 2013; implementation began in 2014. The status of implementation of the plan will be reviewed in mid-2015.
- 5. Collect, test, and release known biological control agents for *Mikania micrantha*.**
 - a. Current status: This project to control the destructive vine Mikania (*Mikania micrantha*) is being implemented in cooperation with the FSM, SPC, SPREP, and others. Contacts have been made for a source of the most effective control agent (a rust fungus), and native plant species have been identified for host-specificity

testing; arrangements are being made to have this testing done in Australia by the scientist who coordinated introduction of the same biocontrol agent into Papua New Guinea, Vanuatu, and Fiji. The Coordinator visited release sites in Fiji with SPC staff in April 2013. Host-specificity testing will be conducted in 2015; if the native plants are not susceptible to the biocontrol agent, it will be introduced into Palau before the end of 2015.

As noted above, Palau is only receiving \$61,180 in total for the GEF-PAS project. The co-finance is also a relatively small amount, but it is essential for successful implementation of the project. We need a total of \$88,820 in cash and in-kind co-finance over the life of the project. While certain activities can be co-financed with in-kind contributions, Activities 1 and 3 (travel and salary) can only be met with cash. Unfortunately, this requirement was not met in 2014. A total of \$42,546 in cash is needed for the 2 remaining years of the project, or \$21,273 per year. Having accepted the funds from the GEF, Palau is now obligated to implement the activities of the project, and to meet our co-finance commitment. (NOTE: in-kind contributions in 2014 totaled over \$40,000).

The position of National Coordinator is essential for the successful implementation of this project, as can be seen in Activity 3 above: “coordinator implements the strategy and activities under this project.” The Coordinator, along with NISC members and other partners, has already begun to look for sources of funds to meet Palau’s co-finance obligations, but it is very difficult to find grants for salaries. It is also very difficult to find grants to fund travel to international meetings (Activity 1). The NISC therefore recommended in 2013 that the cash co-finance funding for Activities 1 and 3 (\$21,273 per year) be included in the annual budget of the Bureau of Agriculture for the next 3 years, beginning with FY 2014. This did not happen, so the NISC is again recommending that local funds be used to support the position of Coordinator. This relatively small amount can be considered an investment, which will pay big returns in protection of the economy and environment, as well as in additional grants to combat invasive species.

SPC Pest and Disease Survey

In April 2014 experts from SPC, accompanied by the Coordinator and BOA staff, visited farms and other sites in Koror and Babeldaob searching for new introductions of plant pests and diseases. They were looking for any new introductions, and in particular for serious pests such as the Little Fire Ant and citrus greening disease (also known as huanglongbing). We were gratified to learn that they found no new introductions. This is an indication that our Plant Protection and Quarantine Service (PPQS) is doing a good job, despite very limited resources.

X-ray Machine Donation

Working with our partners in Guam, the Coordinator was able in 2014 to arrange for the donation of two x-ray machines to the Bureau of Agriculture by USDA-APHIS (Animal and Plant Health Inspection Service) in Honolulu. He is presently working with the USDA office and a representative of the x-ray machine manufacturer in Honolulu to arrange for shipping

and installation of the machines, and training in their operation and maintenance. The Director of BOA is seeking funding for these activities.

Post-Typhoon Haiyan Recovery for Kayangel

The NISC provided input and support to PCS in development of a post-typhoon biosecurity plan for Kayangel State, to prevent reintroduction of rats and the possible introduction of other invasive species, especially ants and weeds, during the relief effort following the devastation caused by Typhoon Haiyan in November 2013. The Coordinator worked with the UN Joint Presence office to develop a Cash for Work plan to minimize invasive species threats and impacts; several visits were made to Kayangel in 2014 to assess the potential for an outbreak of the coconut rhinoceros beetle, to look for other invasive species, and to conduct community meetings.

REGIONAL COOPERATION

Micronesia Regional Invasive Species Council (RISC)

This council was created by the Micronesian Chief Executives at their summit meeting in 2004, and expanded in 2008 to include all political jurisdictions on Micronesia which have affiliation with the United States. The RISC advises the Micronesian Chief Executives' Summit (MCES) on all issues related to invasive species. In 2013, the State of Hawaii accepted an invitation from the MCES to join the RISC as an observer. Fred Sengebau and Joel Miles were nominated by the NISC and appointed by the President to represent Palau on the RISC. Palau has been an active participant in the RISC. In its regular meeting in December 2013, the RISC elected Joel Miles as its Secretary; he took office in February 2014.

The 20th Micronesia Chief Executives' Summit (MCES), held in Yap in June 2014, endorsed the completed Regional Biosecurity Plan for Micronesia and Hawaii (RBP – see below), and made a commitment to its full implementation. The MCES also directed the RISC and the Micronesia Challenge Steering Committee (MCSC) to work closely together to prevent and manage invasive species as we work to attain the goals of the Micronesia Challenge.

Regional Biosecurity Plan

NISC members and partners have participated actively in the development of a regional biosecurity plan known as the Regional Biosecurity Plan for Micronesia and Hawaii (RBP) over the past few years, in partnership with the RISC and other regional organizations. Risk assessments were completed in 2012, and in 2013 work began on a Strategic Implementation Plan for the MBP; this work was led by the University of Guam (UOG). A regional workshop with representatives of all jurisdictions was held at UOG in May 2014, where the participants endorsed the completed plan and recommended its endorsement by the Micronesian Chief Executives and the State of Hawaii. The MCES endorsed the RBP at their 20th Summit in June 2014, and the State of Hawaii endorsed the plan later the same year. The NISC will continue to actively support implementation of the RBP.

Pacific Islands Forum

NISC Members, especially the Coordinator, worked with the RISC and the Pacific Invasives Partnership (PIP) to prepare background information on invasive species for consideration by the Pacific Island Forum Leaders Meeting in Palau in July 2014. In partnership with the RISC and PIP, the NISC co-hosted a high-level side event on invasive species during the PIF meeting with funding support from SPC and SPREP. This effort received very strong support from President Remengesau, and as a result of his support, the leaders adopted language in their communique calling for stronger efforts to combat invasive species, and created an advisory group (PIASAG: the Pacific Invasive Alien Species Advisory Group) to advise the Forum on invasive species issues. We are now working with our regional partners, providing input into the formation of the advisory group, which will be led by SPREP and SPC.

CHALLENGES FOR 2015

Macaque Monkey Removal

The biggest challenge Palau faces in 2015, as in previous years, is removal of invasive macaque monkeys. This will require completion of the methods development phase of the initiative, followed by implementation of the removal project. The first step is to raise \$100,000 in locally-generated funds to match the challenge grant mentioned above. The NISC so far has been unsuccessful in this effort, and time is running out. If this opportunity is missed, the NISC will continue to work with the Angaur leadership to garner their support to complete development of safe, effective, and humane methods to remove the macques from Angaur. In the meantime, the NISC will step up efforts to prevent the spread of the macaques throughout Palau. Once effective and humane removal methods can be demonstrated, we will be able to move forward with raising funds to implement the removal project.

Passage of Biosecurity Legislation

Another major challenge for Palau is the adoption and implementation of updated biosecurity legislation, harmonized with biosecurity legislation throughout the Pacific Islands region, and in line with international agreements such as the WTO and the International Plant Protection Convention (IPPC), of which Palau is a signatory. The NISC worked for passage of this legislation in 2014, and it was passed by the House of Delegates. The bill is now in the Senate, and we have been informed that it will come up for consideration early in 2015.

Working for passage of this legislation is a major part of the Strategic Action Plan for invasive species, and will be an important task for the NISC in 2015.

Development of GEF 6 Proposal

The process of developing a proposal for the Global Environment Facility (GEF) is difficult and time consuming. We welcome the support of the UN Joint Presence Office in Palau and the UNDP Bangkok Office in the first stage of the process, the drafting of a Project Identification Form (PIF). A first draft PIF has been prepared and is being shared with partners in the FSM and RMI. The Minister of Natural Resources, Environment and Tourism, Umiich Sengebau, has sent a letter to his counterparts in these two countries,

inviting them to join Palau in a joint regional effort to 1) implement the RBP; 2) integrate invasive species into management of the Micronesia Challenge; and 3) implement targeted control/eradication projects in our respective countries. We are also working through the RISC to enlist the CNMI, Guam, and Hawaii – which are not eligible for GEF funding – to join this regional effort using other sources of funding.

It is our goal to be able to submit the PIF to the GEF Secretariat for approval before the middle of 2015.

Implementation of the Strategic Action Plan

Adoption and endorsement of a new Strategic Action Plan (SAP) for invasive species was a major accomplishment in 2013. Implementation of the SAP began in 2014; the SAP will guide the work of the NISC and its members and partners for the next five years. The six goals of the SAP are:

GOAL 1: To build resilience of communities and ecosystems by increasing capacity and providing the framework (policies and enabling conditions) for ongoing management of invasive species at national, state, and community levels.

GOAL 2: To prevent the introduction and establishment of invasive species.

GOAL 3: Reduce negative impacts of existing invasive species.

GOAL 4: Develop and implement more effective collaboration, coordination and participation in efforts and initiatives for invasive species prevention and management among state, national, regional, and international partners.

GOAL 5: To increase public awareness and community participation so that all sectors of society actively support efforts to minimize the risk and negative impacts of invasive species on the economy, society, and the environment.

GOAL 6: To sustain a comprehensive and systematic effort to effectively address invasive species over the long term.

Tilapia Eradication

This highly destructive fish species may still survive in one pond at the National Quarry, despite three attempts at eradication using rotenone. The fish were able to survive these treatments because there is a source of fresh water entering the bottom of the pond. The operator of the Quarry has begun to fill the pond, and the work is nearly complete. We are confident that this will finally rid Palau of this serious threat to our waters and wetlands. As of the end of 2014, the pond had already been more than half-filled; it should be completely filled early in 2015.

Invasive Species Threats to Protected Areas

The NISC is concerned that invasive species are not being adequately addressed in management plans for Palau's protected areas, and for the Protected Areas Network (PAN) as a whole. According to information from the UN Convention on Biological Diversity (CBD), invasive species are the second greatest threat to biodiversity worldwide, following habitat loss, and the greatest threat on many islands. The creation of protected areas prevents habitat loss; invasive species are therefore possibly the greatest threat to biodiversity in

Palau's protected areas. To address this threat, the NISC recommended in 2013 that criteria and guidelines be developed and adopted for prevention and management of invasive species in protected areas. The NISC Coordinator has been working with the PAN Office and the Micronesia Challenge Regional Coordinator to develop criteria and guidelines – the criteria are nearing completion; once they have been adopted we will move forward with developing guidelines for their implementation.

FUTURE DIRECTIONS

While considerable progress has been made, major efforts are still needed in several areas, as indicated below.

Prevention

The need for additional staff and resources within the Plant Protection & Quarantine Service (PPQS) of the Bureau of Agriculture cannot be overemphasized. PPQS provides our first line of defense, and as the old saying goes: “an ounce of prevention is worth a pound of cure.” We are pleased that the USDA has offered to donate two x-ray machines for use at the international airport, and we are working with them to arrange shipping, installation, and training. The NISC will continue work with PPQS in 2015 to clearly delineate their human, physical, and financial resource needs, and to seek the necessary support from the national government to ensure that these needs are met, through development of a sustainable finance system.

Early Detection and Rapid Response

Prevention, through strong quarantine inspections and active public awareness activities, is the most cost-effective way to protect our islands from invasive species. However, even the best prevention programs cannot catch everything, and it is therefore essential to be able to detect new invasions early and to respond to them rapidly. We are at risk of invasions of species which can reproduce and spread rapidly. The development and adoption of a rapid response plan in 2013 will enable us to respond to invasive ants. At present, we also have the capacity to respond rapidly to reports of Brown Treesnake (BTS), with support of the US Federal Government, but our capacity to prevent, or to detect new BTS invasions is very limited. Palau has a generic rapid response plan for invasive species, but no funding has been allocated for its implementation. Additionally, the plan needs updating and specific responsibilities should be assigned, similar to those used for any other national emergency. Once this has been accomplished, this generic plan can also become part of the national emergency response framework. The NISC will work during the coming years to update our rapid response plan, to improve monitoring and public awareness activities for early detection, and seek funding for rapid response.

Public Awareness

Great progress has been made in raising public awareness of the threat of invasive species, and public support for efforts to prevent and combat invasive species. However, there is an ongoing need for greater public awareness, support, and cooperation. In particular a project to work with overseas workers, especially from our close neighbor the Philippines, would

greatly help to prevent new introductions of invasive species. The NISC will continue its efforts to raise public awareness through various means.

The NISC is planning to observe Invasive Species Awareness Day on February 25, 2015, with awards, an essay contest, and a Presidential Proclamation declaring the day. We are doing this in partnership with the Hawaii Invasive Species Council, which will be holding a week of activities at the same time. The United States will also observe National Invasive Species Awareness Week this week. We hope to be able to expand Palau's activities to a week-long observation in 2016.

Addressing Threats

Several serious invasive species threats remain unaddressed, or only partially addressed. These include macaque monkeys, rats, feral pigs, marine invasives, and several species of invasive plants. Resources are not adequate to address all of these at once. The NISC is pleased that we have been able to facilitate the provision of assistance for removal of macaques in Angaur, and rats in Fanna and Kayangel, as well as control of invasive plants throughout Palau. Member agencies and organizations continue to seek support for other projects.

Marine Invasives and Aquaculture

The NISC had hoped to conduct a full survey of high-risk areas for marine invasive species in 2008, with the assistance of our colleagues from Australia, but this was not possible, and this remains to be done. The NISC must also act on the recommendations from the 2007 survey training.

Palau does not have the capacity to detect and/or identify potential invasive species growing on the hulls of vessels entering the Republic, nor do we have laws/regulations controlling such organisms. Development of this capacity is a major challenge, requiring international support. The NISC will continue to seek assistance from regional partners such as SPREP and SPC, and other members of the Pacific Invasives Partnership.

Challenges also remain in the area of aquaculture, due to pressures to import aquaculture organisms without adequate safeguards to prevent introduction of pathogens and/or other invasive marine and aquatic organisms. In 2006 a shipment of white shrimp was allowed to enter, and was later found to be infected with a serious virus disease which could infect Palau's native species of shrimp. The ponds were disinfected, and new safeguards were put into place, requiring that shrimp imports for aquaculture be certified free of specified diseases prior to import. A risk assessment still needs to be carried out, at the expense of proposed importers, of the potential of white shrimp to become invasive. White shrimp are not native to Palau, and they have been shown to be capable of inhabiting mangrove and river ecosystems. Palau also now requires that milkfish fry imported into the Republic must be from ponds certified to be free of tilapia, since it is not possible to distinguish the two species at this stage of their life. Continued vigilance is required to ensure that this very destructive species of fish is not reintroduced, and that other invasive species associated with aquaculture are also prevented. The NISC needs to increase its awareness and educational activities in this area. Leadership is needed from key government agencies to inform

potential importers and aquaculture practitioners of the risks associated with importation of aquaculture species, and the measures needed to prevent introduction of pathogens.

Regional and International Cooperation

The NISC and its members will continue to participate actively in regional organizations such as RISC, PILN, and PIP, as well as global efforts to combat invasive species. We plan to send our representatives to two RISC meetings in 2015, and will also send a representative to the PIP meeting, if funding is available.

RECOMMENDATIONS FOR 2015

To protect our people, economy, and environment from the threat of invasive species, the NISC makes the following recommendations for 2015. Most of these have changed little since last year, because they are still necessary for the Republic to protect itself from the threat of invasive species.

1. Complete and submit the proposal to the GEF for the President's commitment of \$1.4 million for invasive species prevention and control;
2. Complete development of safe, effective, and humane methods to remove macaque monkeys from the Republic;
3. Secure local funding for the position of National Invasive Species Coordinator;
4. Adopt the pending Biosecurity Bill, and implement its provisions;
5. Integrate invasive species prevention and management into management plans for protected areas;
6. Complete filling of the pond at the National Quarry, to complete the eradication of tilapia; and
7. Develop and implement a Sustainable Finance Mechanism for Quarantine/Biosecurity.

CONCLUSIONS

The NISC role, as stated in the introduction to this report, is one of advice, facilitation, and coordination. The member agencies and organizations of the NISC and its partners implement activities for prevention, detection, control, and eradication of invasive species. The benefits of the NISC are clear: setting of national priorities; review and endorsement of projects and proposals; review and comment on regulations and plans; provision of advice to decision-makers; and cooperation with regional and international efforts to combat invasive species. In 2014 the NISC played a key role in facilitation of communication and information sharing among agencies; this helped prevent duplication of efforts, and also ensured that priority issues were not overlooked – nothing “falls through the cracks.” The NISC looks forward to continuing to facilitate and coordinate invasive species efforts in the Republic.

Work still remains to be done to develop a full emergency-response capability, and prioritization processes are also still underway. We also need to complete the survey of marine invasives, and to update the status of invasive animals. Projects for eradication and control of several invasive species are ongoing. The NISC and its member agencies are increasingly moving into implementation of plans and management (control and eradication) activities. The NISC plays

an important coordinating role, both within Palau, and between Palau and its neighbors and the international community, but it is up to its member agencies and cooperators to implement activities on the ground. While much progress has been made, much remains to be done, and many of the challenges noted in previous reports still remain. We still need to:

- Raise funds to remove invasive macaque monkeys;
- Adopt harmonized biosecurity legislation;
- Strengthen our capability to detect and respond to new invasions;
- Improve coordination of activities and policies;
- Improve prevention by strengthening Quarantine, through increased staffing, staff training, improved equipment and facilities, and sustainable financing;
- Prevent inter-island spread of invasive species; and
- Mobilize communities to prevent and combat invasive species.

We are pleased to report to the President that we have begun to address these challenges, as illustrated by the activities reported above. The efforts of the National Coordinator since the creation and filling of this position in 2006 have enabled us to improve coordination and communication and to make progress on several specific projects. At present, the Bureau of Agriculture has taken responsibility for implementation of projects for invasive plants, and is also leading the efforts to combat the Singapore ant and macaque monkeys. Palau Conservation Society (PCS) has shown great initiative in rodent eradication projects, and in biosecurity and public awareness activities. The support of non-member agencies, such as the Belau National Museum, Coral Reef Research Foundation, Koror State's Animal Shelter and Department of Conservation and Law Enforcement, and the Palau Animal Welfare Society has also been very important. Lead agencies need to be identified for projects for marine invasives, and several other invasive species needing attention. The NISC will continue to explore ways to delegate project implementation to member agencies and other stakeholders. The challenges listed above will continue to face us, and much remains to be accomplished. However, we are confident that with full cooperation of NISC member agencies and partners, with support from elected and traditional leaders and all the people of Palau, we will be able to meet these challenges.

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