Pacific Invasives Partnership (PIP)

Pacific Islands Roundtable on Nature Conservation
Nadi, Fiji 14-15 July 2016

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Monuriki, Mamanuca Is., Fiji

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Overview

- Formed in 2008 as the result of the merger between two regional partnerships: the Pacific Invasives Initiative (PII) and the Pacific Invasives Learning Network (PILN)
- Continued support and guidance to PII and PILN
- Became in 2009 the official Invasive Species Working Group of the Pacific Islands Roundtable for Nature Conservation
- Guiding strategy: the Guidelines for Invasive Species Management in the Pacific

Overview

- Regional coordinating body for invasive species
- Agencies working on invasive species issues in more than one Pacific country or territory
- Coordinated planning and assistance to meet the needs of Pacific Island Countries and Territories
- Charter: functions, membership criteria & commitments, structure and roles, communications & reporting
- 30+ partners and individuals as of July 2016

Active PIP Partners 2016

CROP (Council of Regional Organizations of the Pacific) agencies

Secretariat of the Pacific Community (SPC)

Secretariat of the Pacific Regional Environment Programme (SPREP)

University of the South Pacific (USP)

Regional programmes

Pacific Invasives Initiative (PII)

Pacific Invasives Learning Network (PILN)

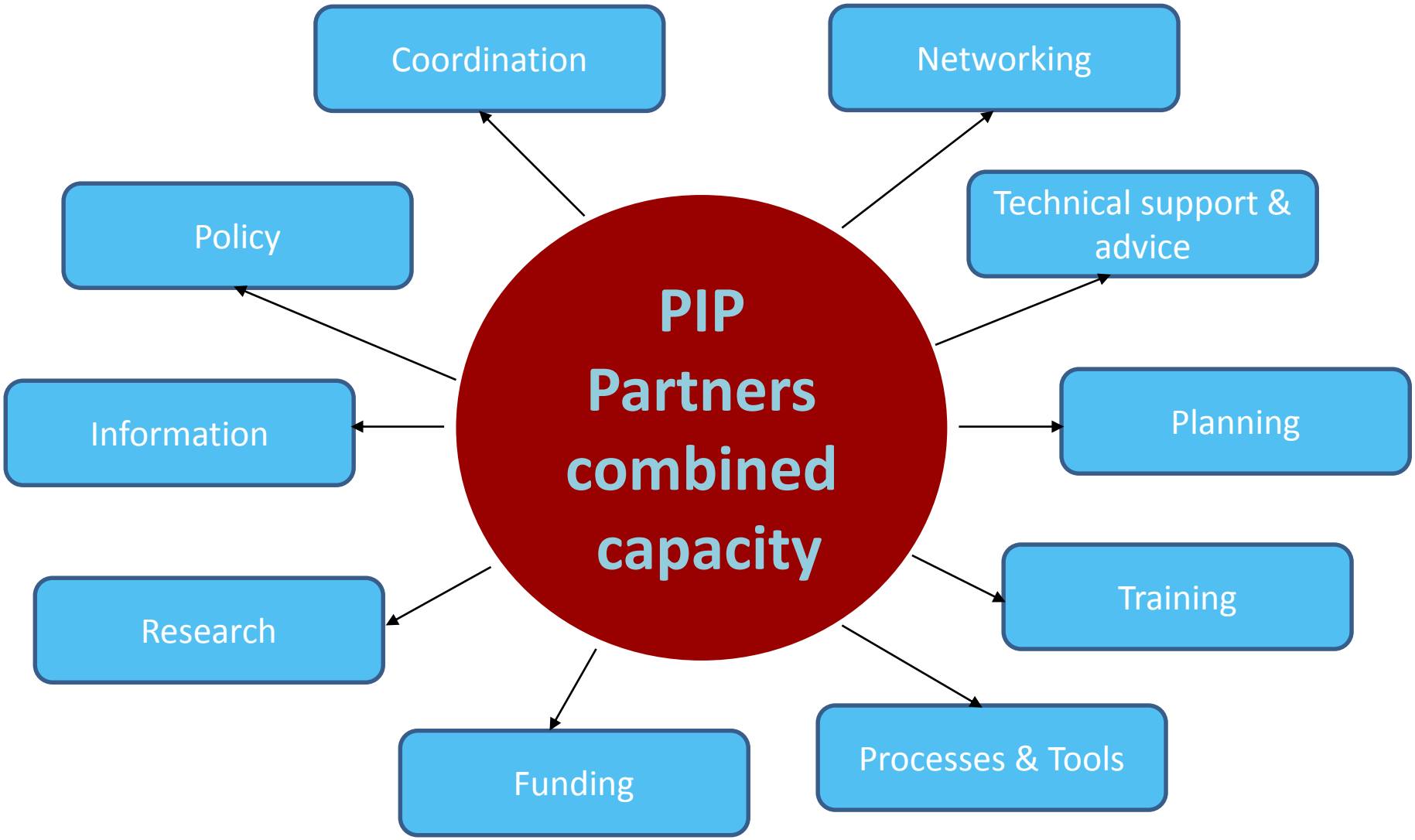
Sub-regional representation

Micronesia Regional Invasive Species Council

Partner NGOs and other Implementation Agencies:

BirdLife International; Island Conservation; IUCN Oceania Regional Office; IUCN/SSC Invasive Species Specialist Group; Global Island Partnership; Hawaii Invasive Species Council; New Zealand Department of Conservation (DOC); Landcare Research, N. Z.; USDA; University of Auckland

Other: Donors, Technical Assistance agencies: New Zealand (MFAT) Aid Programme; Conservation International; United Nations Environment Programme; US Department of State; US National Invasive Species Council; University of Hawaii Cooperative Studies Unit; Univ. of Melbourne/Dept. of Resource Management and Geography, Austral Foundation; CAB International; The Nature Conservancy; Victoria University


PIP Partners combined capacity
Coordination
Networking
Policy
Technical support & advice
Information
Planning
Research
Training
Funding
Processes & Tools

Annual Meeting

- One Annual Meeting. Partners fund their own attendance and contribute to the costs of the meeting.
- Additional meetings as necessary and possible.
- Develop Annual Work Plan,priorities for PIP.
- Last meeting in Auckland

Lessons learned

- Shared goal with different objectives, priorities and strengths
- Partners contribute differently
- Joint work planning is essential

Highlights/Priorities 2013 - 2016

- Developed and approved **Pacific Invasives Partnership 2016 Action Plan (2016)**
- Gain increased high-level **political support** for **an awareness of IAS** management and improved biosecurity
- Increased technical support and capacity development to PICTS
- **Increased on-the ground action**
- Increased cooperation and coordination between partners
- Completed Capacity Development Strategy for Invasive Species Management in the Pacific (2013)
- Technical Advisory Group for the regional invasive species project (GEF-PAS)
- Technical support and advice to the CEPF (2008 – 2020)
- Support to development of the Regional Biosecurity Plan for Micronesia and Hawaii (RBP)

2016 Priorities/

- **High level-political support**: PSIG & Pacific Biosecurity Plan
- **Implementation of regional efforts**: GEF 6, Reginal Biosecurity Plan
- Re-invigoration and expansion of the **Pacific Ant Prevention Programme** (PAPP)
- Promotion of Pacific-wide biosecurity collaboration and the **Pacific Biocontrol Strategy.**
- Develop programmes to **raise awareness of IAS** and the need for **multi-species multi-ecosystem IAS management and biosecurity**
- Implementation of Guidelines and **learn from/share partner experiences**: research results, IAS management successes and failure.
- Support of IAS at World Conservation Congress (September, 2016 – Hawaii)

Definition of IAS

- Exotic (introduced) organisms (terrestrial, freshwater and marine) that and harm human beings or the things that people value, including wild, often endemic, plants and animals, or even entire ecosystems.

TYPES OF INVASIVE ALIEN ORGANISMS (Vertebrates)

- **HERBIVOROUS MAMMALS** (goats, deer, horse, cattle, camels,etc.)
- **OMNIVOROUS/CARNIVOROUS MAMMALS** (pigs, dogs, cats, rats, mongooses, monkeys, etc.)
- **BIRDS** (mynah, bulbul, cockatoo)
- **AMPHIBIANS** (e.g., cane toad)
- R**EPTILES** (e.g., brown tree snake, monitor lizards, iguanas,)
- **FISHES** (Freshwater and Marine) – tilapia, grass carp, lionfish, pirana, etc.

TYPES OF INVASIVE ALIEN ORGANISMS (invertebrates, plants and diseases)

- **INSECTS/ARTHROPODS** (eg., ANTS (Hymenoptera), social/colonial insects, moths, sand flies, fruit flies, termites, mosquitos, spiders, *Papuana* taro beetle, *kou* leafworm, *Erythrina* gall wasp etc.)

- **OTHER INVERTEBRATES (e.g**., carnivorous snails, flatworms, nematodes,)

- **PLANTS** (e.g., Weeds, agricultural crops, fodder grasses, ornamental plants, silvicultural species, water plants, etc.).

- FUNGI AND DISEASES (e.g., influenza, measles, smallpox, avian malaria/pox, AIDS, including resistant strains, taro leaf blight, alomoe-bubone taro viral complex, white-nose syndrome),

Islands are “extinction hotspots”

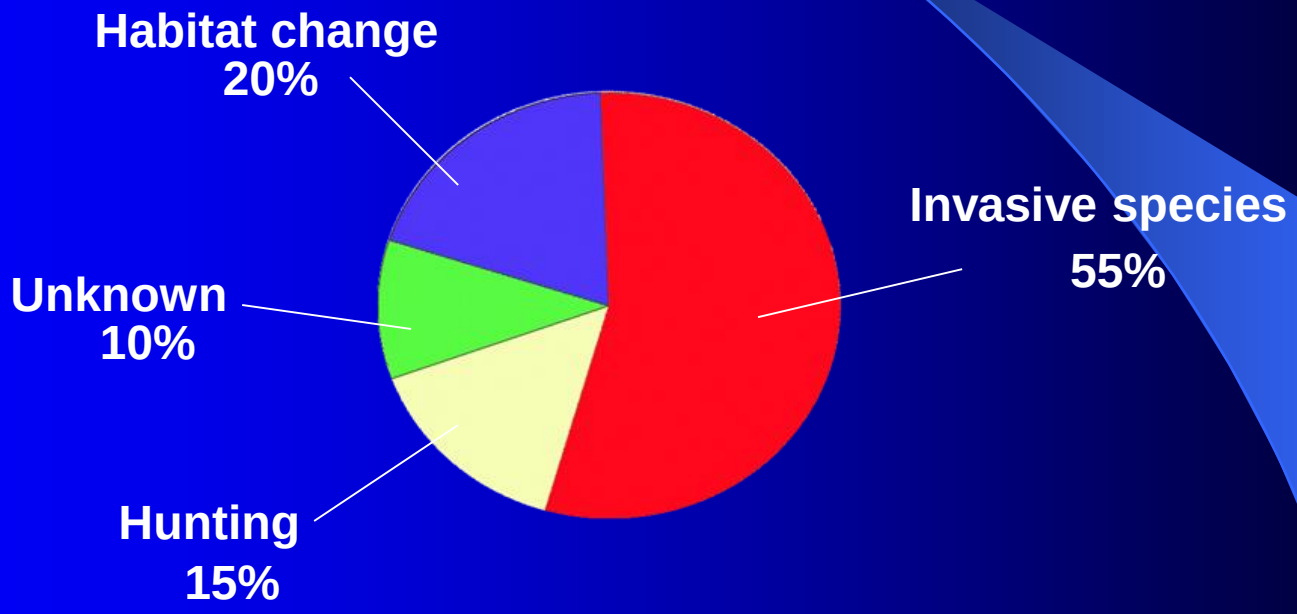
80-90% of reptile extinctions from islands

80-93% of bird extinctions from islands

50-81% of mammal extinctions from islands

Slide – Alan Saunders, Pacific Invasive Initiative

Invasive species are the major cause of bird extinctions on islands (brown tree snake, avian malaria, cats, pigs, rats, mongooses, ants, etc.)



Slide – Alan Saunders, Pacific Invasive Initiative

Nomura's giant jellyfish *Nemopilema nomurai* - largest cnidarian in the world

- Grows up to 2 m (6.6 ft) in diameter and weighs up to 200 kg

- Population explosions appear to be increasing and destroying fishing in Japan – living pollution

- Possible reasons: include climate change, overfishing, nutrient pollution and coastal modification adding substrate for asexually producing polyps







Invasive brown algae (*Sargassum polycystum*) – has invaded Funafuti Lagoon, Tuvalu





"In Tuvalu we have a similar bloom of an invasive species that became a nuisance in 2011. We have limited knowledge on what causes the bloom in the Funafuti lagoon. Hope you can pay a visit shortly to Funafuti and investigate these species. We had about 30 truckloads of algae taken from Funafuti beach in 2011 by volunteers because it gave out a uncomfortable smell. Can you look into this and advise us on how it emerge in the Funafuti lagoon." *Luke Paeniu, Funafuti, posted on the Pacific Solutions Exchange Forum, 2013*

- **•Up to 2 m tall**
- **•Found in Wallis, Fiji, Samoa, Tonga**
- **•Grows fast**
- **•Spreads easily**
- **•Can float on the sea and remain alive for a long time**
- **•Dense forest of *Sargassum* not attractive to fish**

THREATS OF MAMMALS (RATS, CATS, PIGS, GOATS, MONGOOSES

-



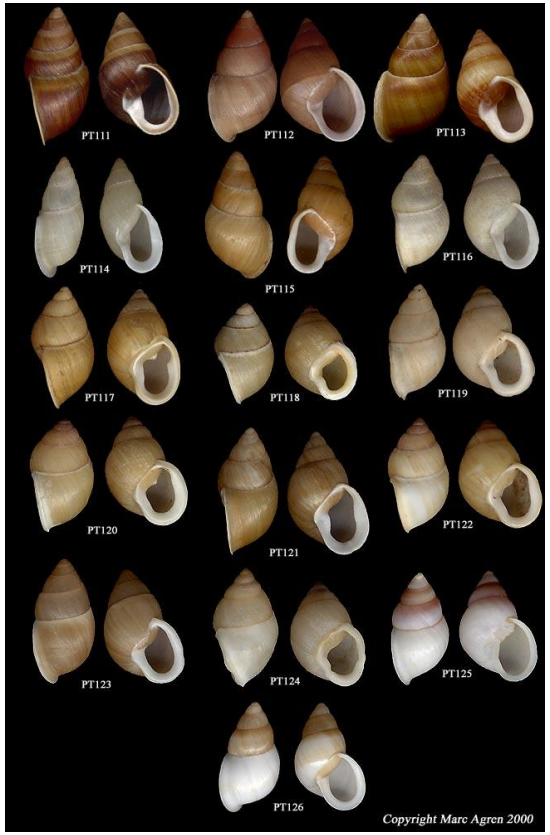







Goats, Kalalau Valley, Kaua’i

Endemic and Extinct *Partula* spp. land Snails from Mo'orea, the giant African snail (*Achatina fulica*) and the predatory rosy wolfsnail (*Euglandina rosea*) introduced as a biological control agent to control GAS. Most spp. Became extinct in about 2 years







PNG Flatworm: *Platydemus manokwari* found in Rotuma 2013 – no living Partulidae found (only a few dead)(Brodie *et al*. 2014)



Sugiura & Yamura (2009)

Biol. Invasions 11: 737-742

Well known invasive species (in GISD top 100)

100's were present – very well established

Voracious predator of snails - follows "snail trails" up trees!

This was first record of this species for Fiji

But now confirmed on Viti Levu …..

Ants as Invasives

- Yellow Crazy Ants (*Anoplolepis gracilipes*) – Christmas Island, also Samoa, Tuvalu and Tokelau!!
- Little fire ant (*Wasmannia auropunctata*) – New Caledonia, Solomon Islands
- Crazy ant (*Paratrchina longicornis*) - Manus
- Tropical fire ant (*Solenopsis gemmata*) – Hawai'i
- *Singapore ant (Monomorium destructor*) – Tobi Atoll and Helen Reef, Palau
- Argentine ant (*Linepithema humile)* – Hawai'I and Fiji

Yellow Crazy Ants (*Anoplolepis gracilipes*)







Christmas Island (ant infested and natural forest; Christmas seahawk, booby and frigatebird







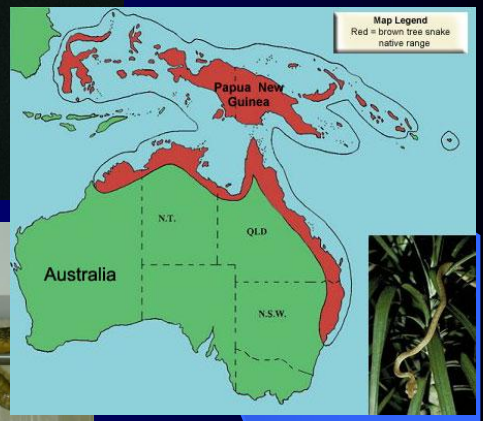




Brown Tree Snake (*Boiga irregularis*)











Our Friend – *Wedelia (Sphagneticola trilobata)* (from tropical America – continental islands and continent! – Early 1970s in Fiji as an ornamental groundcover



TARO LEAF BLIGHT (PLANT PATHOGEN, AN OOMYCOTA

In 1 year in 1992-93,, different than fungus) wiped out a $4 million export business and local food security because of overemphasis on monoculture of one variety, *talo Niue.* Lost all of what used to be about 40 traditional cultivars.



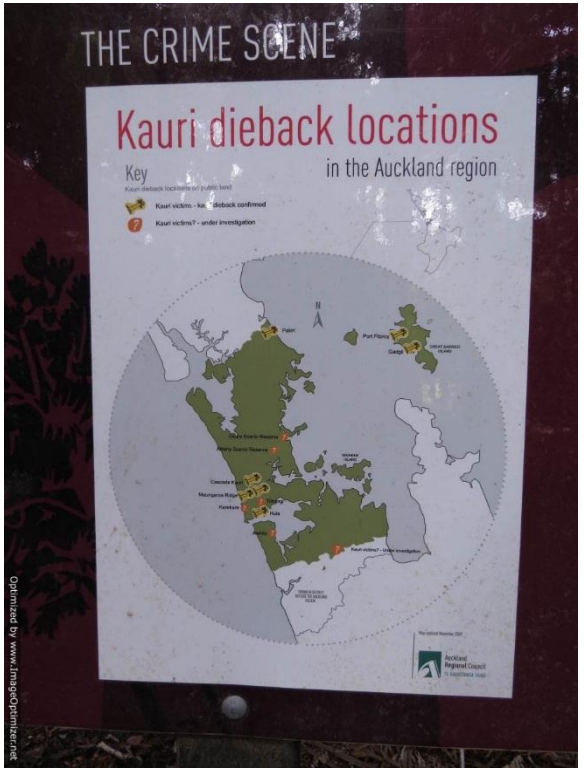




Kauri blight (*Phythophthora* x kauri)







Papuana taro beetle (*Papuana* spp.) – manumanu ni dalo
Solomon Islands (“bongo beetle), Tarawa, Kiribati (1930s), Fiji (1980s?), Gau Fiji (2012?), Taveuni (still free, but when??) and elsewhere (when?)







Bactrocera dorsalis (Hendel) – Oriental Fruit Fly



- **Distribution:** Present in Asia, Hawaii, Tahiti (Cook Is – under eradication)
- **More than 150 hosts** (Mango, Golden apple, Papaya, Chestnut, Avocado, Breadfruit, Banana, Guava, Capsicum Carambola, Orange, Passionfruit etc.
- **Seriousness/Impacts:** Considered a serious pest. Eradicated from California (crop losses $44-176 m if not eradicated), US$32 million eradication cost in Okinawa. Introduced in Cook Is in 2013, already caused approx. NZD$3m losses in export.

The sliperi kabis, bele or shot-hole beetle (*Nisotra* basselae)

Entered Solomon Islands in the 1980s from Papua New Guinea, reportedly by mistake along with the introduction of the weevil (*Elaedibius kameronunicus)* to pollinate oil palms.

Causes year-round damage to all varieties of bush hibiscus spinach (*Ablemoschus manihot*), the most important green vegetable to subsistence farmers, affecting food security of the people.

The use of insecticides is not an options (too expensive and dangerous to health)

Would also be a tragedy if introduced to Fiji





Varroa Mite (*Varroa destructor*)







Probably Native to South Asia. First found in N Z in 2000 (N. Island) and 2006 (S. Island) and in Hawai'i on 'Oahu and Hawai'i in 2007

External mite that attacks honey bees (*Apis cerana* and *A. mellifera* causing the disease **varroosis**. The parasite with the greatest economic impact on the industry

Varroa can only reproduce in a honey bee colony. It attaches to the body of the bee and weakens the bee by sucking hemolymph and spreads RNA viruses such as deformed wing virus (DWV) spread to bees.

A significant mite infestation will lead to the death of a honey bee colony, usually in the late autumn through early spring. Research shows it is the main factor in colony collapse in Hawai'i.

Devastation of *Cordia subcordata* by kou leafworm (*Ethmia nigropicella*) on Nanumea Atoll, Tuvalu (Photo: upper and lower left Kilifi O'Brien, upper right Forest Starr)









Erythrina variegata var. *orientalis*

dadap tree, coral tree

Red List Status: Not Assessed (NA)

Regional Status: Endangered (EN))

National Status: Endangered to Critically Endangered (CE)

Local Status: Critically Endangered (EN) to Extinct (EX)

Summary: Cleared in coastal areas in the past but now critically endangered by an introduced African invasive, the *Erythrina* gall wasp in Fiji, Samoa and some other areas.

Cultural/Environmental importance: (19 uses) One of the Pacific's most useful trees for medicinal purposes, as living fencing and as a nitrogen-fixing agroforestry tree, and a main source of nectar for birds, including the collared lorry (**kula**) in Fiji. Important role in coastal protection in the inner mangroves.

Conservation Need/Restoration potential: Needs urgent protection and is easy to propagate from cuttings.







Thank you!



www.sprep.org/pip/index.htm