



Island Biosecurity Training Suva, 26-28 September, 2012



Report prepared by: Pacific Invasives Initiative

Written by: Bill Nagle and Souad Boudjelas

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26-28 September. Pacific Invasives Initiative.







Introduction:

(see Appendix 5 for a list of abbreviations and acronyms used in this document)
The Pacific Invasives Initiative (PII) was asked by the Pacific Secretariat of BirdLife
International to develop and deliver a 3-day training course on the principles and practices of
Island Biosecurity with particular emphasis on pest risk analysis, surveillance and incursion
response planning and implementation and communicating biosecurity at the community and
national levels. BirdLife also requested an introduction to the PII Project Process and the PII
Resource Kit for Rodent and Cat Eradication.

The training was to support the BirdLife International Pacific Invasive Species Programme (BPISP), a four-year project funded by the European Union. BirdLife Partners in six Pacific island countries are participating in this project. Those that participated in the Biosecurity training are:

Cook Islands: Te Ipukarea Society (TIS - http://ipukarea.blogspot.co.nz/)

Fiji: NatureFiji-MareqetiViti (NFMV - www.naturefiji.org)

New Calédonie: Société Calédonienne d'Ornithologie (SCO - www.sco.asso.nc)

Palau: Palau Conservation Society (PCS - www.palauconservation.org)

BirdLife also invited another NGO with which they are collaborating on projects in the Mamanuca Islands; National Trust of Fiji Islands (NTF - www.nationaltrust.org.fj)

Purpose:

To enable the effective planning and implementation of island biosecurity

Anticipated outcomes:

It was expected that, as a result of the training, participants would:

- 1 Understand the principles and practices underpinning island biosecurity
- 2 Know how to assess risks
- 3 Know how to plan and implement surveillance
- 4 Know how to plan for and implement incursion responses
- 5 Know how to communicate about biosecurity at the community and national level

Target audience:

Project managers—see Appendix 1 for participants

Duration: 3 days (26-28 September) See indicative timetable in Appendix 2

Venue: Pacific Theological College in Suva

Preparation and Facilitation:

Pacific Invasives Initiative (PII - http://pacificinvasivesinitiative.org/pii/index.html)

Subject Matter Experts:

New Zealand Ministry of Primary Industry (MPI - http://www.mpi.govt.nz/)

Resource persons:

Biosecurity Authority of Fiji (BAF - www.biosecurityfiji.com)

Secretariat of the Pacific Community (SPC - http://www.spc.int/)

Pacific Invasives Learning Network (PILN - http://www.sprep.org/PILN)

Pre-Course Preparation:

Participants were asked to prepare a presentation that outlined:

- An introduction to their organization and its work (to provide context for the training)
- Why is their organization involved in biosecurity?
- How their organization is involved in biosecurity?
- What are their organization's biosecurity needs?

Course activity:

Participants were asked to read through case studies in preparation for group discussion and further development of the documents.

Post-course activity:

Participants will complete their Risk Assessments (RA) by mid-November and send them to PII and MPI for review.

Evaluation:

At the conclusion of the course, the training team absented itself from the room while participants discussed and evaluated the course based on four questions; What went well? What should change to improve the next training? What are your future training needs? Did the training meet the expectations expressed at the beginning of the course? The evaluation is in Appendix 3).

The course received a score of 59% in terms of meeting the expectations of participants. Positive comments included "[Good to have] regional agency presence and the contribution from MPI", "Good presentation that included all components of biosecurity". Suggestions to improve the training included "Specific, concrete methods [should be covered]", "More case studies and practical sessions rather than long presentations", "Increase length of workshop to allow time for participants to grasp information". A response to the question about future training needs was "More practical sessions with MPI and BAF to know incursion response".

Recommendations:

- The course should be 4-5 days long and include practical exercises/hands-on activities and an incursion response simulation on an island.
- More opportunities should be provided for participants to have group or one-on-one discussions about their projects.
- Participation by regional and national agencies is essential.
- Scientific terminology and complex issues need to be presented in everyday language.
- PowerPoint slides should be straightforward and not overloaded with information.
- Case studies/examples should be from the Pacific wherever possible. NZ (or other) examples can be used to fill in gaps.
- The course facilitator should have all presentations one week before the training is delivered to allow for time scheduling.

Acknowledgements:

Many people from several agencies helped get this training up and running. PII would like to thank Mark Bullians for his assistance in engaging MPI staff; MPI managers (Paul Bingham, Lisa Oakley, Brendan Gould, Veronica Herrera) for making their staff available; Dan, Kylee and Rissa for their contribution to the training; Miliana for managing the logistics. The training was funded by BirdLife and PII through grants from the European Union, Critical Ecosystem Partnership Fund and The David & Lucile Packard Foundation.

Key points from the course:

SETTING THE SCENE: PARTICIPANT PRESENTATIONS

NatureFiji-MareqetiViti

NFMV has about 200 members and is new to invasive species management so is moving cautiously. They have been engaged with BAF in the American Iguana issue (believed to have been imported in about 2000). This project is now a control project.

NFMV has also been working on a RA for BTS. They are currently deciding whether to focus on American Iguana or start on a suite of invasive species.

Te Ipukarea Society

TIS is planning another eradication of Suwarrow Atoll, the largest national park of the Cook Islands. The reasons for failure of the earlier project are not clear, but may relate to biosecurity issues as it is a popular destination for recreational boaters.

Société Calédonienne d'Ornithologie

Biosecurity is required for several projects across the country, including mainland islands.

Ungulate management is an issue and getting community engagement is critical.

Palau Conservation Society

A major rodent and cat eradication (4,300 bait stations were used) was implemented on Kayangel Atoll (300 residents) in 2011. There is no inter-island biosecurity in Palau. *Biosecurity Authority of Fiji*

Fiji has new biosecurity legislation. There is some inter-island biosecurity on vessels leaving the port of Suva. Surveillance is carried out in stores. The Turaga-ni-koro in every village is the Government representative and can be contacted over biosecurity matters. Agricultural Extension Officers can be sworn in as temporary Quarantine Officers.

Secretariat of the Pacific Community

Land Resources Division (LRD) has a focus on border protection, with a particular focus on market access. Biosecurity does not hold a high place on the agenda of most countries.

PII PROJECT PROCESS and PII RESOURCE KIT for RODENT & CAT ERADICATION -

Introduction to the project management process and resource kit that PII has developed based on experience of working in ISM in the Pacific. The importance of allowing enough time for preparation and writing was emphasised and a participant commented that one year should have been allowed for planning Suwarrow.

<u>RISK ASSESSMENT (RA)</u> - (see also Appendix 4: Risk Assessment Methodology) Risk = likelihood x consequence

Give yourself time to do the RA.

RA is a component of risk analysis (Hazard Identification, Risk Assessment, Risk Management, Risk Communication).

The sections in the RA reflect the different parts of the invasion biology process.

Conducting a risk analysis requires a team approach (don't do it in isolation - the process helps build relationships to help you with your work):

- skills required are more important than organisational structure
- each hazard must be analysed (i.e. organism specific)
- impacts can be: negligible or non-negligible; direct or indirect

Risk assessment should be iterative and easy to update.

Key elements of RA = Entry, Establishment (of viable population), Spread, Impact

Pathways:

- Shipping vessels, cargo
- Trade cargo, commodities (e.g. commodity = flowers from Fiji)
- People tourist, intentional, hitchhikers
- Other examples e.g. used cars, tyres

Pathway association = likelihood of association of organism with a pathway and the strength of that association.

Organism spread: What are the local pathways? What is the introduction pressure (propagule pressure)?

Will the organism survive in the receiving environment?

Finding information to support the RA, i.e. making the case (need to have a defensible risk assessment).

What values are at risk? What are the impacts/consequences on those values?

Assessment of consequences (Impact Assessment - invasion biology):

- Magnitude (how much, what size?)
- Extent (spatial scale)
- Duration (how long can it last?)
- Reversibility (can any damage be repaired?)

Be specific about every impact (what kinds of things are impacted on and how are they impacted - be specific).

Communicate the findings of the RA!!!

<u>TEAM EXERCISE</u> - participants divided into four teams and worked on RAs for ship rat, BTS, mongoose, American Iguana

SURVEILLANCE -

Surveillance is part of a biosecurity system:

- Passive (general) surveillance:
 - Not necessarily targeted at a specific organism
 - Often takes the form of a reporting system
 - Cost effective and can be highly sensitive
- Active (targeted) surveillance;
 - Usually targeted at a specific organism (or sometimes taxonomic groups)
 - Uses properly structured surveys
- Monitoring; same as surveillance, except targeted at organisms *known to occur* in specified country/region.
- Pathway surveillance; not targeted at specific organism but rather the sites where it is most likely exotic organisms will enter and establish

Passive surveillance only works if community is engaged.

A telephone 'hotline', while not specific to an organism, can enhance passive surveillance without much cost (MPI receives 1,100-2,500 calls/month)

More calls from the public reporting organisms in the summer because people are doing more outdoor activities.

Targeted awareness materials can help add value to passive surveillance without adding much cost

Passive surveillance alone is usually not sufficient to detect an organism early enough to give the chance of eradication. Quality of information can vary and may need further verification and may not be sensitive enough to act as an early warning for some pests

Active surveillance can be costly to implement and maintain - careful planning is required so information gathered is fit for purpose

Usually a combination of both active and passive surveillance methods is employed. Active surveillance for fruit fly (7,500 pheromone lures in target areas)

- for early detection to facilitate eradication
- six incursions all eradicated
- traps checked every 2 weeks.
- fruitflies affect native flora, damage commercial and home crops; generate trade restrictions on horticulture exports; and programmes to control fruit fly cost both in economic and ecological terms

SURVEILLANCE PLANNING -

Fail to plan = Plan to fail

Increase your chances of success by planning and implementing surveillance:

- -What is the information going to be used for? What decisions will this information be used to help make? Will it adequately fulfil the information needs?
- resource and /or time limitations
- prioritisation of information needs ('need to know' vs 'nice to know') be clear what is in scope and what is out of scope
- define the 'unit of interest' what will you be counting (animals, nests, eggs etc)
- define the "area of interest" the geographical area that you are reporting about (an island, a country)
- define and use consistent terminology this will allow surveys to be compared (e.g. between sites or over time).
- use RA info to target organism's characteristics to increase chances of detection. Also consider at what point of its invasion are you trying to detect it e.g. before it establishes?
- identification of the target organism must be accurate

Detected versus not detected – if you have been looking for an organism for 3 years and not detected it, consider how you can be sure it is not there? Depending on the purpose of the surveillance and the information needs consider whether a one-off survey (snapshot in time) is sufficient, or whether an on-going surveillance programme is required.

"Monitor your monitoring" – decide how the programme's success will be measured and reviewed, and how often – especially long term programmes

<u>TEAM EXERCISE</u> - participants divided into four teams and were given scenarios for ship rat, BTS, mongoose, American Iguana. For each scenario, participants were asked to identify the surveillance objective(s), how the information would be communicated and acknowledge any assumptions/uncertainties.

INCURSION RESPONSE -

Principles:

- take time to prepare in advance as the timing from detection to effective response is critical,
- prevent harm or potential harm to the things we care about: economy, environment and people's health,
- reduce the damage from things that are already here,
- everyone participates (putting ownership of biosecurity (duty of reporting) on the community).

Status; organisms can be - unwanted, notifiable, new, pests, risk goods, unauthorised goods (NZ = Biosecurity Act and Hazardous Substance and New Organism (HSNO) Act, WHO/OIE also have categories).

Having a definitive blacklist is impossible.

Biosecurity and Climate Change; future problems may come from an increase in incidence (and change of distribution) of diseases/pests/animals.

Response;

- detect it investigation
- slow it urgent measures (these are controls instituted to limit harm before a response is up and running)
- contain it movement controls (IMO; ships must have Ballast Water Treatment System on board by 2016)
- find it surveillance
- remove it organism management

(these are the terms used in NZ MPI procedures to describe the broad categories of processes used in a response)

Duration of the response and its impact on people

<u>RESPONSE PREPAREDNESS</u> – (What can we do before an incursion?)

Early Detection and Diagnosis is key - and having a Rapid Response Plan ready to go will provide more chance of the response being successful, and cost less overall.

It helps to have a pre-prepared Biosecurity Response System which would include all sectors, all sizes, from the time of an incursion.

Response structure, roles and responsibilities/functions will be understood and applied to the current incursion situation, so the effort can go into the actual response to the organism, not into learning and managing the response system.

Setting the response process and roles; several roles can be done by one person (what is important is that all the things that need to be done are clearly identified, i.e. know how to check there are no more).

4 'Rs': Reduction, Readiness, Response, Recovery (based on NZ Ministry of Civil Defence Emergency Response Plan)

Organism science

know the target species; biology and ecology, history of invasiveness elsewhere, likely entry pathways and spread mechanisms; the likely impacts if the species established, methods of intervention and response tools (how to detect, stop spread, kill, dispose of and prevent reentry).

A well-developed Risk Assessment will be a good base for this.

Response options

Baseline = do nothing: valid management option but what about future consequences? It may be cost-effective not to do anything at this point in time but some time down the line the impact of the species could be much greater.

Allows the cost-benefit comparison of other reponse options;

- eradication;
- sustained control:
- local elimination/protection of high-value areas;
- containment;
- slow the spread.

e.g. reducing iguana populations on Qamea, Laucala and Matagi, and instituting biosecurity controls, would reduce the risk to Taveuni. This example could be a combination of 'protection of a high-value area' (Taveuni) with:

biosecurity controls to prevent entry,

surveillance to detect incursions,

response plan for incursions,

'containment' (on islands with iguanas) with biosecurity controls preventing exit, 'sustained control' (to reduce the populations on islands with the pest).

Response planning to achieve these –

overall categories of actions to take: movement controls, surveillance, organism management

Choosing best response option

Consider:

relative practicality and likelihood of success (feasibility);

the nature and likely duration of response actions;

costs and benefits:

resources required and barriers to success;

likely impacts on people, the environment or the economy.

Response Decision-making

- timely
- transparent
- information-based

RESPONSE INITIATION -

Response prioritisation tool (internal MPI guide)

http://brkb.biosecurity.govt.nz/Portals/1/BRKB/Guidelines/response-prioritisation-tool.xls

Initial Phase (internal? Whether to respond and some of the groundwork necessary before a response).

The initial phase of a response to an incursion involves a number of activities that may occur in parallel or in sequence. This includes making decisions and taking actions relating to:

- Positively identifying the suspect exotic organism.
- An initial determination of the range of likely impacts.
- Clarifying whether it is already an unwanted organism and, if not, determining unwanted status where that is appropriate.
- Determining the lead and assisting agencies.
- Determining the initial level of response, including whether to establish a response team and what form this will take.
- Investigating the means by which the organism was introduced, making any necessary border control or risk-management adjustments and taking enforcement action.
- Consulting and informing key organisations and individuals.
- Considering the need for, and obtaining, expert, industry and community advice.
- Carrying out a delimiting and environmental survey.
- Ensuring appropriate legal instruments are in place.
- Commencing any immediate eradication, containment or other management actions (i.e. urgent measures to prevent further harm before the response is established).

If response preparedness hasn't been done for the organism in question, follow the above processes to formulate the response plan (Risk assessment – Organism science – Response options – Choose response options).

If the planning has been pre-prepared, review and select the response options, then focus the planning on how to carry them out (surveillance, movement controls, organism management).

COMMUNICATING BIOSECURITY at COMMUNITY and NATIONAL LEVELS -

How can NGOs communicate with Government agencies about (PRA/ERA/ORA/IRA)

- what is the process to follow to get information accepted by Government?

How does cost recovery work; importer pays or Government pays?

- (import permit = cost recovery)

Need to consider all categories when writing import standards

- e.g. commodity + hitchhiker organisms + ships/planes/vehicles (transport)

Is it an NGO's role to go to Quarantine with a PRA?

- BAF can use assistance from NGOs/Universities, but needs early warning of likely threats to prepare workplan
- SPC could assist with research

How can regional agencies help NGOs? Regional agencies should work with those government agencies involved in biosecurity both at the border and inter-island to strengthen legislation, enforcement and implementation to cover threats to biodiversity.

- e.g. Palau quarantine laws are based mainly on health.

<u>TEAM EXERCISE</u> - participants divided into three teams to discuss communicating biosecurity to communities under four headings: What do you do now to communicate biosecurity to your community? How do you know your communication is successful? What communication materials would be most effective for you? What would be your ideal biosecurity communication strategy?

Responses:

What do you do now to communicate biosecurity to your community?

- 1. Community meetings
- 2. Community involvement in conservation work, e.g. catching goats
- 3. Consultation and presentations
 - Landowners
 - Stakeholders (e.g. tour operators)
 - Planners, implementers
 - Neighbouring communities
 - Quarantine agencies
 - Local and Provincial councils
 - Government Departments
- 4. Visits by elders to the conservation site (decision makers)
- 5. Biosecurity training for landowners
- 6. Brief 6-monthly reports (for landowners and provincial administrators)
- 7. Brochures and posters for tour operators
- 8. Weekly radio environment news update
- 9. Quarterly newsletter
- 10. Social media (Facebook/Twitter)
- 11. Word of mouth
- 12. Pride campaigns
- 13. Regular updates on what is happening
- 14. Awareness workshops

How do you know your communication is successful?

- 1. Project is being implemented and there are no new incursions
- 2. Tour operators follow protocols
- 3. Local reports/response show no sightings and incidents
- 4. Locals police themselves and do surveillance
- 5. Locals informally implement biosecurity measures
- 6. Locals participate in monitoring
- 7. Local resistance to consumption of iguanas
- 8. Continuous support
- 9. Approval on next activities of project

What communication materials would be most effective for you?

- 1. Press releases
- 2. Handing out brochures/flyers
- 3. Training locals (biosecurity)
- 4. Radio announcements
- 5. Signage/signboards
- 6. Stickers (cool stickers)
- 7. Posters
- 8. Factsheets

- 9. Songs (inspiring)
- 10. Colouring books
- 11. Online media (i.e. Facebook)
- 12. DVDs
- 13. Face-to-face
- 14. Use of projector to show photos/videos of locals in action and PowerPoints
- 15. Incentives

What would be your ideal communication strategy?

- 1. Open communication with key government agencies, especially Quarantine
- 2. Communities implementing a biosecurity plan (formulated by everyone involved)
- 3. Targeting local community on site (most impact) both locals and residents
- 4. Involvement

Many examples of printed material were available for discussion. Comments were made that school teachers are often looking out for printed information to use in their classrooms. The need to target printed material to a particular audience was emphasised.

Two items which received special attention were the PII "Stop Rats" sticker (left), for its simple, clear message and the <u>Hauraki Islands Field Guide</u> which contains biosecurity messages and images of birds and marine mammals found in the area.



The heavy-duty "Stop Rats" sticker produced by the Pacific Invasives Initiative for use as a biosecurity awareness tool on vessels

A community communication success story:

A local rugby team helped with a goat eradication on Monuriki Island (Fiji) and a team set of rugby jerseys with the endemic iguana embroidered on the sleeve was supplied as payment. Now when the team is playing, their community supporters urge them on with calls of "Vokai, vokai" – the word for iguana.

APPENDIX 1 Participants

BirdLife Partners	Organisation	Role
Steve Cranwell	BirdLife Pacific Secretariat	Programme Manager
Miliana Ravuso	BirdLife Pacific Secretariat	Programme Coordinator
Mere Valu	BirdLife Fiji Programme	Conservation Officer
Sialisi Rasalato	BirdLife Fiji Programme	Conservation Officer
Tuverea Tuamoto	NatureFiji-MareqetiViti (NFMV)	Conservation Officer
Lolita Gibbons-Decherong	Palau Conservation Society (PCS)	Conservation and Protected
		Areas Coordinator
Thomas Duval	Société Calédonienne d'Ornithologie	Project Manager
	(SCO)	
lan Karika	Te Ipukerea Society Inc (TIS)	Project Manager
Observers	Organisation	Role
Jone Niukula	National Trust of Fiji (NTF)	Natural Heritage Officer
Baravi Thaman	National Trust of Fiji (NTF)	Volunteer
Resource persons	Organisation	Role
Ana Tunabuna-Buli	Secretariat of the Pacific Community (SPC)	Project Technician
Kaliova Ravuiwasa	Biosecurity Authority of Fiji	Entomologist
Posa Skelton	Pacific Invasives Learning Network	Coordinator
Training team	Organisation	Role
Bill Nagle	Pacific Invasives Initiative	Project Coordinator
Souad Boudjelas	Pacific Invasives Initiative	Programme Manager
Daniel Kluza	Ministry of Primary Industries, New	Senior Adviser Risk Analysis
	Zealand	(Animals and Aquatic)
Kylee Walker	Ministry of Primary Industries, New	Veterinary Epidemiologist
	Zealand	(Animals and Marine)
Rissa Williams	Ministry of Primary Industries, New	Incursion Investigator
	Zealand	(Marine)

APPENDIX 2

Timetable

Start	Time	Ses	ssions	Activity
Wedne	esday 26	6		
0830	15	1.	Welcome and Opening Prayer	
0845	30	2.	Introductions and expectations	
0915	5	3.	Setting the scene	Ppts from participants
0920	10		NatureFiji-MareqetiViti: Fiji	The state of the s
0930	10		Te Ipukarea Society (TIS): Cook Islands	
0940	10		Société d'Ornithologie de Polynésie (SOP-Manu):	
00.10	.0		French Polynesia	
0950	10		Société Calédonienne d'Ornithologie (SCO): New	
0000	10		Calédonie	
1000	10		Palau Conservation Society (PCS): Palau	
1010	10		National Trust of Fiji (NTF): Fiji	
	g tea 10	20	National Trust of Figi (NTF). Figi	
IVIOITIIII	y iea io		Setting the scene (cont.)	
1040	10	4.		
			Biosecurity Authority of Fiji (BAF): Fiji	
1050	10	_	Secretariat of the Pacific Community (SPC): Regional	
1100	20	5.	Introduction to the PII Project Process and the PII	
4.400			Resource Kit for Rodent and Cat Eradication	Checklist exercise
1120	20	6.	Understanding Biosecurity	
		_	Prevention, Surveillance, Response	
1140	50	7.	PRA Overview - [MPI] process	
Lunch				
1330	120	8.	Undertaking a PRA (cont.)	Working through the
			(species, pathways), [MPI] process	BTS case study
Afterno	on tea 1	1530		
1550	60	9.	Undertaking a PRA (cont.)	BTS case study (cont.)
			(species, pathways) [MPI] process	
1650	10	10.	Case studies (mongoose, rats, green iguana) as	Introduction to case
			homework	studies
Finish	1700			
Thurse	day 27			
0830	15	11.	Recap Day1	
0845	95		Planning and Implementing surveillance	
	g tea 10			
1050	70		Planning and Implementing surveillance (cont'd)	
1200	30		Surveillance (methods for the 4 case studies)	
Lunch		L	Carremance (meaned for the reads statice)	
1330	120	15	Incursion Response Planning for BTS	BTS case study
1000	120	10.	Responses to Incursion (action, tools)	Die case stady
			Incursion response plan,	
Afterno	on tea 1	1530	modioion response plan,	
1550	75		Incursion Response Planning	BTS case study
1330	73	10.	Incursion response plan,	DIO case study
			Agency planning	
1645	15	17		
		17.	Catch up on case studies	
Finish				
Friday		40	Decem of Day 2	l e
0830	15		Recap of Day 2	
0845	75	19.	Feeding into national processes	
			Experiences from:	
			NZ (MPI),	
			Fiji (BAF),	
			region (SPC)	
			and discussion	

Start	Time	Sessions	Activity
Morning tea 1000			
1030	120	20. How to get the message(s) across	Small group and flip-
		Current practice	chart exercises
		How do you know it is working (M&E)	
Lunch 1230			
1330	90	21. How to get the message(s) across	Small group and flip-
		How to improve it (cont'd)	chart exercises
1500	30	22. Reviews of case study PRAs	Group exchange of
		Discussion	PRAs for review
Afterno	on tea 1	1530	
1550	60	23. Reviews of case study PRAs (cont.)	Groups exchange PRAs
		Discussion	and review for each
		Summary	other.
1650	10	24. Course wrap and next steps	Agree on dates for final
			PRAs and any follow up
Finish	1700 - F	arewells	

APPENDIX 3

Participant Evaluation

- 1. What went well?
- All information for training was there
- Regional agency presence and contribution from MPI
- Timing was OK except of Thursday
- Good presentation that included all components of biosecurity
- Inclusion of regional agencies and MPI provided some clear answers to questions raised by projects
- 2. What should change to improve the next training?
- Explain PII templates
- Specific methods (concrete, specific)
- Shorter case studies
- More from project countries
- Minimise some presentations (include more case studies)
- Increase length of workshop to allow time for participants to grasp information
- More case studies and practical sessions rather than long presentations
- Inclusion of more NGOs and regional agencies on coordinator level to be involved
- 3. Future training needs
- Facilitators and trainees stay in one venue
- Maybe have a longer duration for the training
- More practical sessions with MPI and BAF to know incursion response
- 4. Did the training meet the expectations expressed at the beginning of the course?

1. Have	Fun	**
2. Learn	something from every participant	***
	ations and organisations (and individuals are better equipped to ment biosecurity measures)	*
4. Succe	ssfully deliver the training	**
5. To lea	arn a lot on biosecurity	***
6. Provid	le participants with basic knowledge on risk analysis	***
	cademic training on biosecurity and use this training to train other holders	*
	arn from others on what they do in terms of biosecurity and provide t into what SPC do	**
9. Get m	ore information on pest analysis	*
	as much from this workshop especially mechanisms for biosecurity an be implemented at forest sites	P
11. Partic	ipants are able to practically apply the training back home	*
12. Learn	from MPI team	***
	all that I can and see how we can package it in a way that's users ly that can be done by communities	*

KEY	
Excellent	***
Fair	**
ОК	☆
Bad	¢

Risk Assessment Methodology – Daniel Kluza, MPI

Hazard identification

What is the organism and why is it a potential hazard?

Provide a brief summary of the organism's invasion history or invasion potential.

Are there other hazards potentially associated with the organism, e.g., pathogens and parasites?

Provide a brief summary of the pathogens and parasites associated with the organism. These potential hazards must be evaluated in separate (but complementary) assessments, and it is important to determine if each potential hazard is already present in the country / region / location.

Entry assessment

Pathways – how is an organism transported?

Identify the different pathways by which an organism can be transported.

Which pathways occur in the area of interest?

Identify the potential pathways that link the assessment area (country / region / location) to the location(s) where the organism occurs.

What is the strength of association?

How frequently is the organism found on a given pathway?

How abundant is the organism at the pathway source(s)? Does abundance change over time, e.g., seasonally?

How likely is an organism able to survive transport?

Can the organism tolerate the environmental conditions and the transport duration?

What is the likelihood of entry? Negligible vs. non-negligible

Summarise the key information on pathways, strength of association, and transport survival that supports the conclusion.

Document uncertainty

Note any uncertainties about pathways, strength of association, and transport survival

Establishment assessment

Environmental conditions

Is there a match between the local climate and the climate(s) in the organism's geographic distribution?

Is there appropriate habitat in the assessment area?

Is there appropriate habitat near potential points of entry?

Organism biology

Summarise key aspects of an organism's biology.

<u>Reproduction</u> (e.g., fecundity, breeding season, age of sexual maturity, gestation length)

Diet

Longevity

History of invasiveness

Receiving environment

Based on the organism's biology, indicate the suitability of the receiving environment.

Food resources

Breeding habitat

Predators, competitors, pathogens, parasites

Propagule pressure (Introduction pressure)

How frequently is the organism being translocated?

How many individuals are being released?

What size, age, and gender are being released?

What is the likelihood of establishment? Negligible vs. non-negligible

Summarise the key information on environmental conditions, organism biology, receiving environment and propagule pressure that supports the conclusion.

Document uncertainty

Note any uncertainties about environmental conditions, organism biology, receiving environment and propagule pressure.

Spread assessment

Habitat availability

Is there appropriate habitat?

Pathways

Consider the local (domestic) pathways

Transportation

Shipping

Travel

Tourism

Living industries

Natural dispersal

Intentional release/translocation

Consider the strength of association with local (domestic) pathways

What is the likelihood of spread? Negligible vs. non-negligible

Do pathways link to appropriate habitat?

Document uncertainty

Note any uncertainties about habitat availability and pathways.

Impact assessment

Values at risk

Identify the key subcomponents of core values

Environmental, e.g., endemic species, species and habitats of conservation concern, biodiversity

Economic, e.g., tourism, trade

Social and Cultural, e.g., human health and well-being, aesthetics, recreation

Impacts on values

Identify the different types of impacts, and explain how they are caused by the introduced species. Estimate the magnitude, extent, duration, and reversibility of impacts

Magnitude – the size or amount of an impact, e.g., the number of native bird species vulnerable to an introduced predator; local

extinction of an endemic species due to competition; % loss of a habitat due to an invasive plant.

Extent – the full area over which the impact occurs.

Duration – the time over which the impact is expected to last.

Reversibility – is the impact permanent or temporary? If temporary, how long is the recovery period?

What are the likelihood of impacts? Negligible vs. non-negligible Summarise the key information on potential impacts. Document uncertainty

Note any uncertainties about impacts on values.

Risk estimation

Integrate the entry, establishment and spread, and consequence assessments to give an overall measure of the risk associated with the hazard

Risk is comprised of **likelihood** and **consequence**, and is often represented as $Risk = Likelihood \times Consequence.$

The risk estimation should cover each of the values at risk, the likelihood of impact, and the consequence(s) of that impact.

APPENDIX 5

Abbreviations and Acronyms

PII	Pacific Invasives Initiative
BPISP	
_	BirdLife International Pacific Invasive Species Programme
TIS	Te Ipukarea Society
NFMV	NatureFiji-MareqetiViti
SCO	Société Calédonienne d'Ornithologie
NGO	Non-Government Organisation
PCS	Palau Conservation Society
NTF	National Trust of Fiji Islands
BTS	Brown tree snake
NZ	New Zealand
MPI	Ministry of Primary Industry (NZ)
BAF	Biosecurity Authority (Fiji)
PILN	Pacific Invasives Learning Network
SPC	Secretariat of the Pacific Community
RA	Risk Assessment (also PRA, ERA, IRA – see below)
LRD	Land Resources Division (SPC)
HSNO	Hazardous Substance and New Organism Act (NZ)
WHO	World Health Authority
OIE	World Organisation for Animal Health (Office International des Epizooties)
IMO	International Maritime Authority
PRA	Pest Risk Assessment
ERA	Environmental Risk Assessment
ORA	Organism Risk Assessment
IRA	Import Risk Assessment
M&E	Monitoring and Evaluation