Invasive Plant Project Management Training Course Report

Sigatoka Sand Dunes National Park
Sigatoka, Republic of Fiji
3 – 12 May, 2011

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SUMMARY

As a result of working in Pacific nations on various invasive species management projects, the Pacific Invasives Initiative (PII) recognised a need to strengthen capability and confidence in the planning of invasive species management projects. In response, PII developed a training course for management of invasive plant projects. PII was asked to deliver this training course for staff of The National Trust of the Fiji Islands at the Ezo Beachfront Resort, near Sigatoka, from 3-12 May, 2011. The design, implementation, monitoring and evaluation of priority invasive plant management projects in protected areas managed by the National Trust were covered during the training.

The course was based on action learning principles and gave attendees the skills necessary to collect and manage data for project planning and implementation for successful and accountable project management. Participants worked in teams to plan their own priority projects. The data collection and management system used in previous courses was further developed. It is easy to use and maintain and adaptable to other invasive species projects across the Pacific.

The National Trust of the Fiji Islands would benefit from follow-up training and recommendations are included in the report. This was the most challenging course yet as participants had not been able to prepare well and the venue posed some difficulties. However, participant evaluations of the course gave scores of 88% to questions about whether or not the course met their expectations and the methods used in the course would help them in their work. Comments offered included " *I am quite confident now to carry out a weed plan and monitor and evaluate the plan.*" and "*Designing a plan using a 'workbook style' is a great way to facilitate a planning workshop and get participants involved.*".

Participants at the end of the PII training course on invasive plant project management for The National Trust of the Fiji Islands.

INTRODUCTION:

Invasive species management projects are usually complex and long-term. Effective project design and implementation is essential to assist managers to monitor and evaluate the effectiveness, efficiency and accountability of a project. Accurate and well-supported evaluations can help funding agencies decide which projects are worthy of ongoing support.

After a successful pilot course in Palau (2008), follow-up training in Palau and Yap (2009) and training courses in the Federated States of Micronesia (2009) and American Samoa (2010) (see reports at http://issg.org/cii/PII/), the Pacific Invasives Initiative (PII) was asked by The National Trust of the Fiji Islands to run a course for staff engaged in protected area management. Participants were from Sigatoka Sand Dunes National Park, Yadua Taba Iguana Sanctuary, Waisali Forest Reserve and Monuriki Island (currently undergoing restoration).

Each session started with an instructor-led presentation covering the stages and technical topics involved. Participants were engaged interactively to apply the information and techniques to build their projects based on what is relevant to their site and achievable in the Fijian context. Questions and discussion were encouraged. Teams then completed the relevant sections of their project plan with the three course instructors assisting as needed.

Course purpose:

The course was designed to -

- Give weed control personnel the skills and confidence necessary to manage invasive plant projects.
- Further develop skills in the collection and management of data for project planning, implementation, monitoring, evaluation and accountability purposes.
- Provide an efficient and effective data collection and management system that is easy to use and maintain and is adaptable to similar projects across the Pacific.

Course partners:

The National Trust of the Fiji Islands (NTF)
Pacific Invasives Initiative (PII)

Course participants:

First Name	Last Name	Designation	E-mail	Telephone
Project: Monuriki Island Restoration				
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Joeli	Vadada	Yanuya Landowner		903 0763
Project: Sigatoka Sand Dunes National Park				
Jason	Tutani	Park Manager	jtutani@nationaltrust.org.fj	927 4731
Paul	Tomasi	Community observer	tomasi_paul@yahoo.com	711 5771
Project: Waisali Forest Reserve				
Rogasiano	Ranuka	Park Ranger		971 3546
Ivereimi	Rogoira	Park Ranger	irogoira@nationaltrust.org.fj	652 0243
Project: Yadua Taba Iguana Sanctuary				
Jone	Niukula	Project Officer	jniukula@nationaltrust.org.fj	330 1807
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Course leaders:
Facilitator: Bill Nagle, Pacific Invasives Initiative
Subject Matter Experts (SMEs):
Glen Coulston (Consultant to Pacific Invasives Initiative),
Tofilau Tavita Togia (Ecologist, National Park of American Samoa)

Participating Agencies:
The National Trust of the Fiji Islands
Laje Rotuma Initiative

Visiting expert:
Shingo Takeda, University of the South Pacific

Participants at the PII invasive plant project management training course in Fiji. (Photo: Bill Nagle).

Course content:
The course was participatory and based on active learning principles. Introductory power-point sessions based on the subject matter experts' practical experiences provided real examples of the component being addressed and participants worked as teams to build up their workbooks as project plans with the instructors providing individual help where required. Participants were encouraged to ask questions and then discuss topics amongst themselves in their own language to conclude each block of learning.

The sections involving human resources, recording, monitoring and evaluation utilised Microsoft Excel spreadsheets and participants created their own human resource chart, work

schedule, weed database, and key performance indicators which they used for monitoring the effectiveness and efficiency of their projects.

The course took the participants through the principal components of planning, implementation, and monitoring and evaluation, initially focusing on one selected invasive plant for each of their sites. Each section built on the previous one and used the results of that section to progress to the next one. In this way implementation resulted from planning, and monitoring and evaluation resulted from implementation.

All sections are inter-connected and that developed a robust, well-designed project built on good decision-making and providing measurable outcomes. This gave confidence and motivation to participants in relation to their invasive plant projects. The tools introduced throughout the course will be useful for other taxa and other projects requiring sound planning and meaningful results.

Two days of field work at Sigatoka Sand Dunes National Park provided participants with the chance to field-test weed treatment and data collection methods (including GPS) for Rivina (RIV), Leucaena (LEL) and African Tulip (AFT) and learn other best practice techniques from the trainers.

The teams focused on priority weeds for their protected areas. Participants worked on planning, implementing, monitoring and evaluating to ensure that success of their projects can be measured. The priority weeds chosen were: Waisali Forest Reserve – African tulip (AFT, *Spathodea campanulata*); Yadua Taba – leucaena (LEL, *Leucaena leucocephala*) and wedelia (TRD, *Sphagneticola trilobata*); Monuriki Island – mikania (MIK, *Mikania micrantha*) and mission grass (PEP, *Pennisetum polystachion*); Sigatoka Sand Dunes National Park - (AFT, *Spathodea campanulata*; LEL, *Leucaena leucocephala*; coral berry RIV, *Rivina humilis*).

Other invasive plants were also discussed: guava (GUA, *Psidium guajava*); lantana (LAN, *Lantana camara*); false kava (PPA, *Piper aduncum*); monkey pod (SMS, *Samanea saman*); soap ginger (ZIN, *Zingiber zerumbet*). A full list of names of plants from all four workshops to date, the country which first discussed them and gave them abbreviations can be found in Appendix 1. The Yadua Taba management plan was reviewed and suggestions for revision were made. The plan will revised by the Yadua Taba team by September this year.

At the end of the course, teams had their own project plan which can be enlarged and updated as capacity is increased or further relevant information is gathered. They had a resource chart, work schedule and weed database they can update and record data into and get performance measures from, and they had a PowerPoint presentation outlining their project to use within their agency or to external funding or other agencies. The participants created all these components for themselves as they worked through the processes.

Local knowledge and experience was combined with specialist experience to strengthen effectiveness, efficiency and accountability through improved project design, data collection, monitoring, evaluation, and reporting. Lessons learned from the course will provide a model for other invasive species management projects in the Pacific. A further outcome of this training course was recognition that further gains can be made with customised training specific to the needs identified for each individual and/or project. These are detailed within the recommendations and proposed actions section.

The training course had three main time components -

1) Prior to the course –

1.1) NTF was sent a pre-course questionnaire (Appendix 2) explaining the commitment required (including an agreement signed by managers to complete a follow-up questionnaire after six months of practicing skills learned in the course) and to obtain background information about current training and equipment used, to be distributed to participants. Only three responses were received and there was wide variation in knowledge and skills.

1.2) a pre-course preparation sheet (Appendix 3) was also sent to NTF to be forwarded to participants to guide them in assembling the project information required for the course. The lack of data supplied was a disadvantage to course progress as there was not sufficient information to allow analysis of current progress and recommend changes to project management.

2) At the course (see Appendix 4 for programme) –

2.1) Introductions:

As the teams had not all met previously and it became apparent that many hadn't worked on weeds at all, or had very limited experience in techniques other than hand removal, it was decided, after introductions, to start the course with a field visit in Sigatoka Sand Dunes National Park to observe and discuss the weed issues present. This gave participants an opportunity to interact and instructors a chance to consider how best to undertake some weed management practice later in the course. The field visit exposed the seriousness of the invasive plant problem in Sigatoka Sand Dunes National Park and the limited knowledge and skills that were available to deal with the problem.

2.2) Team projects:

The four teams presented work on their projects. The purpose of this presentation at the start of the course was for all attendees to acknowledge and understand teams' projects as they currently stand and, in sharing this information, broaden participants' experience and knowledge of weed project management. The information provided was to form the building blocks for each team to grow their weed project planning skills in a directly relevant project.

There was a very large range of skill sets, experience levels and roles amongst the participants. This ranged from those who had never done any weed management work to very experienced weed workers. The projects presented were also at very different levels of operation from those not started at all to those having been operating for 10 years.

Teams were not well-balanced with only the Sigatoka Sand Dunes National Park and Yadua Taba teams having the ideal situation of supervisors and rangers both present. This posed problems as the course was designed to focus primarily on project management.

The SMEs presented examples of weed management projects in their own countries. Tofilau Tavita Togia presented information on the weed-led Tamaligi (*Falcataria moluccana* (AFT)) management project in American Samoa. Glen Coulston presented an example of a site-led multi-weed management project in New Zealand. These presentations demonstrated the different approaches that can be used, how and why they are used, how and what information is recorded, how success is measured and how to use that information to improve invasive plant project management.

As a result all attendees became better aware of each other's projects and developed a broader knowledge base of weed management by exposure to new information and examples.

Through these introductory steps, attendees were introduced to the training course content and concepts. This is a valuable, important and enlightening component of the training for both participants and instructors.

The variability in skill sets of individuals and the varying status of the four projects meant that there was a need for the course to be flexible and presenters to be adaptable and revisit topics often to ensure nobody got left behind. Without these preliminary steps the course could easily have been pitched at the wrong level for the participants.

Participants preparing for field work during the PII invasive plant project management training course in Fiji. (Photo: Shingo Takeda).

2.3) Course content:

Participants then revised their team projects by the using the three-pronged modular approach described below (also see Appendix 5) through discussion and 'hands-on' computer sessions guided by the workbook developed for the course:

Planning:	Implementation:	Monitoring and Evaluation:
Objectives	Methods	Success Measures
Target characteristics	Mapping	Evaluation
Project site characteristics	Human Resources	Reporting
Timing	Recording	

Module 1: PLANNING

Following the field trip and presentations each Project Team selected a weed/s in their site on which to focus their particular project plan. It was important to determine how each weed selection could influence the growth of other invasive plants at each project site.

PROJECT GOALS AND OBJECTIVES

The purpose of this session was for teams to determine what their objective was and the reasons why achieving that objective was important. The teams also determined whether their project was achieving site-led or weed-led objectives. The project plan workbook was introduced and each project team discussed and completed this section of the project plan.

Teams determined and justified their objective, to themselves and others, and whether it was suited to either a site-led or weed-led programme. A record of this was captured within their workbook. All teams evaluated their objectives in terms of eradication or the relevant level of control suitable to their projects.

A discussion on the weed risk assessment system (http://www.hear.org/pier/index.html) developed for Hawai`i and an exercise in ranking invasive plants in terms of seriousness, or potential seriousness, of threat was included to assist with prioritising plants within projects.

It is recommended that teams familiarise themselves with the goals and objectives in the primary documents for their sites (e.g. NISAPS, Management Plans, etc.) and plan their projects accordingly.

PLANT CHARACTERISTICS

The purpose of this session was for the teams to determine the important characteristics of their priority plant in relation to managing the species spread and effective management. These included the dispersal vectors, dispersal distance, maturity rate, seasonality, natural inhibitors to growth, maturity and spread, seed viability and whether the plant can be effectively managed in the long-term.

Teams identified the important plant life-cycle events and also the factors that were unknown; dispersal vectors, characteristics of spread and a management method for the species. Each group created a simple spreadsheet to capture the information about their respective species which will form the basis of an invasive plant database.

It was very useful to have participants from throughout Fiji to share each other's experience of particular plants, especially for those groups who had limited knowledge of their species. It was very evident that basic knowledge of plants was not strong and most teams will have much post-course homework to complete to research information about their weed species.

It is recommended that teams continue to search for information which is lacking through networking with each other and using online resources such as PestNet, the Global Invasive Species Database and product manufacturer's websites. They also need to determine the important characteristics for the management of other invasive plants in their area.

PROJECT SITE CHARACTERISTICS

The purpose of this session was for teams to determine the characteristics of the project site, how the site influenced project implementation, where the "front", "stratified" and "long-distance" dispersal zones were and which areas within the site were more favourable to plant spread.

All groups appeared to understand the different parts or zones of an invasion. Different influences affected each project site from islands where access issues made treatment logistics difficult but reinvasion lower, to Sigatoka with habitation, cultural use, fire effects and high risks of reinvasion from neighbouring lands.

A valuable session on changes in the invasive plant composition of Sigatoka Sand Dunes National Park over the last 30 years was presented by Shingo Takeda, a GIS specialist from USP. This was based on his PhD study and clearly showed the progression of weeds since the first survey done in 1978. Shingo's work helped National Park staff decide which of the many weeds present in the park to work on first.

It is recommended that teams continue to investigate and document the characteristics of their project site that influence their weed project design and implementation.

TIMING

The purpose of this session was for teams to determine the important time variables within the life-cycle of the plant while implementing the management strategy and whether management can be implemented faster than the plant can spread. The concept of work scheduling was introduced and groups identified the months that were important in managing each species and used a spreadsheet to track these.

Where time variables were not known by each group, other teams shared their knowledge. This was an excellent outcome and one which will hopefully be repeated now that teams know each other around the region. Some teams doubted whether they could manage some of their invasive plants faster than they could spread given their current resources and changed their objective from eradication to controlling to reduce spread. This showed a certain amount of clear and realistic rationalisation occurring.

It is recommended that teams continue to determine: what significant time variables are important within the life-cycle of other invasive plants while implementing the management strategy for their priority plant; whether management can be implemented faster than the plant can spread.

Module 2: IMPLEMENTATION

It was evident during early discussion that none of the project teams had weed management examples or the necessary data available for progressing through the last stages of the life of a project. It was equally evident that participants had limited experience in weed management treatments. Only Yadua Taba staff had been involved in trials and had conducted extensive manual removal treatments.

The Waisali project had no data other than spatial distribution and had not tried to manage weeds at the site. The Monuriki project will not start until goats have been eradicated from the island, but some of the weeds present are known. Sigatoka has a PhD study available highlighting the severity of weed issues but no active management has occurred to deal with these issues and there was nothing to base their project plan on.

Yadua Taba had undertaken many years of weed management and surveillance results had shown some of this treatment was very successful. Wedelia, or trailing daisy (*Sphagneticola trilobata*, TRD) in particular, has largely been removed from the island with the population

now at zero density. Bark-stripping trials in Leuceana (*Leucaena leucocephala*, LEL) management had proven ineffective at killing the plant with repeated treatments required. Raintree or monkeypod (*Samanea saman*, SMS) management trials had been conducted 10 years prior but were inconclusive. No records of population size and management success had been documented since this work was completed.

Three species, Leuceana, Rivina (*Rivina humilis*, RIV) and African Tulip (*Spathodea campanulata*, AFT) were selected during the field trip to Sigatoka Sand Dunes National Park that had relevance to the majority of project sites and so data could be captured during the field trip and used in the methods, reporting, monitoring and database stages. Demonstration and training in treatment techniques was undertaken for LEL (cut-stump) and RIV (hand-pulling). A trial in herbicide application rates, based on information from other Pacific countries, was conducted for AFT.

It is recommended that participants be given the opportunity to practice implementation techniques either by onsite field-based instruction or development opportunity with other organisations in the Pacific. All participants were in need of intensive training in basic weed management field techniques to improve understanding and availability of effective options. This course simply did not have the time available to cover such basic skills.

It is also recommended that teams investigate how treatment of one species may influence other invasive plants that are determined to be priorities for each site. Course duration did not provide enough time to investigate such relationships and each site will have its own unique set of inter-plant relationships. Theory and techniques were talked through, but there was a clear need for further demonstration and practice by participants.

METHODS

The purpose of this session was for teams to determine: what method(s) of management they would use on the invasive plant to be most effective and efficient, while using a lowest toxicity policy; who would implement the management operations, at what interval and time of year; and what tools and materials would be required.

Instructors provided examples of vine, shrub, tree and groundcover weeds and situations when manual removal, cut-stump, foliar applications or a combination was best suited. A simple spreadsheet to determine who was available to do the implementation was introduced as was a project schedule to determine what parts of the calendar year were most suited to management timing. A primary framework for invasive plant project management was introduced.

Time was spent going through different active ingredients contained in various herbicide brands along with the risks they posed to humans and the environment. No team could tell us what herbicides were available in Fiji and what legislation covered them, which highlighted how little they are used in conservation work. A quick search of the local agricultural supplies store found that Paraquat, Diuron and Glyphosate were the only products available.

An emphasis was placed on the need for teams to research what products were already available in Fiji as and the mechanisms for importing modern ones. This appeared to be quite an eye-opening experience for some and will probably lead to other herbicides being sought for specific tasks.

The exposure to and the thoroughness and rigidity of the "Hazardous Substances and New Organisms Act" in New Zealand hopefully fostered a greater interest in which herbicides the nation is using and the safety aspects which are important when using these tools. The site visit and application practice with appropriate safety equipment helped encourage this.

It is recommended that teams (and appropriate NTF staff) further explore herbicides and other techniques available that are socially acceptable in Fiji. From this they can improve their decision-making towards what methods and herbicides to use in different situations and for different types of plants.

MAPPING

The purpose of this session was for teams to determine what defines a "site" or how they visualise a "site", how it is best represented spatially as a polygon or a point, how they will reference or fix the site spatially both on the ground and on a map and how they will measure its size.

The concept of "spatial data" and how invasive plants can be mapped by using either polygons or points and given a unique identification was demonstrated. Examples of how this information can be used advantageously were provided including the use of GIS and GPS tracklogs and waypoints, and the use of historical information.

Basic instruction in GPS use including; how a GPS works, how to determine the accuracy of a reading by looking at where satellites are on the screen, how to check the accuracy of a reading, how to turn the tracklogs off/on, how to mark a location waypoint and navigate, etc., was provided and practiced outside.

Although teams showed an understanding of the principles, all individuals were at a very basic level of GPS use. GIS maps of their sites using point locations and polygons were available but it was evident this data was gathered and generated by another individual who was not participating on this course and had not been used to portray any further information except location.

GPS is not new to these islands because they are often used at sea, however this appears to be as a guide to location as opposed to actually getting and using data. While some individuals got to practice GPS use during the field trips, others require more intensive one-on-one training to better grasp GPS application.

It is recommended that teams should map all sites for priority weeds and give each one a unique identification in the form prescribed for consistency, e.g. "AFT001". To do this they should be enabled daily with GPS to record locations of new sites and map GPS to locate all sites. Each individual, or at least the team, needs to be self-sufficient in field GPS use, data collection and basic point data file download. GIS skills for advanced mapping of their projects can be a service provided outside the project team.

HUMAN RESOURCES

The purpose of this session was for teams to determine: what human resources they have for use on an annual basis; how much is required to implement the project at each site or group of sites; what the key skills each employee requires to complete their tasks effectively and safely from basic treatment operations through to managing the project.

Instructors introduced a simple spreadsheet to analyse the different skill sets that personnel needed to complete the project, how well their organisation was equipped with the required skills, or whether they needed to build further capacity. Another spreadsheet was introduced to analyse the amount of human resource they had available to them and what they needed to complete their planned works, how to analyse the results to determine a surplus of resources, or whether they needed to build capacity.

The teams created spreadsheets for scheduling current operations and the skills required. The financial year and seasons were defined and time resource estimates were entered for each site or group of sites. The time resource estimates were compared to actual resources available. A real challenge here was balancing and factoring in other work priorities. In essence, teams didn't focus on what the project tasks required, but what they could fit in within existing resource availability. Consideration was not given to building cases for funding proposals which all these sites warrant as they are in initiation stages.

All teams appeared to not have enough human resource to implement the management of their sites. Capacity would need to be built for projects to progress, or efficiencies in the current programme would need to be increased. It is also noted that these resources have been estimated and that they should be updated as true quantities are recorded upon implementation. The skills required for the projects were similar in all sites.

It is recommended that the operational schedules should be updated by teams following implementation to ensure the estimates are a true measure of time required for each site or group of sites. Increased experience in management methods would reduce the regularity of revisiting that many of the sites on the Yadua Taba project need, allowing further resources to be used on new species. Skills identified as being required but not met should be addressed during customised follow-up training.

RECORDING

The purpose of this session was for teams to determine what measurable site-records they should collect during each management operation, how they would collect the data, what would happen to the data and where it would be stored and backed up.

Keeping it simple was reinforced. Instructors compared examples of expensive monitoring techniques conducted separately to treatment operations with efficient monitoring techniques focused on measuring success while treatment is being implemented through proxy measures. Essential records required to measure success were discussed, along with how they should be recorded on either a flat or relational database.

Common TLA's (three letter abbreviations) were determined for the main invasive species to be used throughout Fiji so data can later be put into one master database and to maintain data simplicity throughout the NTF projects. These were added to the list from previous PII training courses (Appendix 3).

The teams identified key data needed to measure success and created their own flat databases in Microsoft Excel using the worked examples from the field trips for LEL, RIV and AFT. Each project team created an Excel worksheet for recording treatment records, observational information, species information, and site information for their own project. The structure and format allows the database to be very simple and easy to enter data but also allows the data to be easily inserted into a relational database at a later date.

It is recommended that each team uses the database to record daily site visits and add further required attributes are to the site and species record tables as required. Each new site should be added to the database with a unique identification and TLA's should be used consistently throughout Fiji.

Module 3: MONITORING and EVALUATION

As mentioned above three species (Leuceana (*Leucaena leucocephala*, LEL), Rivina (*Rivina humilis*, RIV) and African Tulip (*Spathodea campanulata*, AFT)) were selected during the field visit to Sigatoka Sand Dunes National Park to use as examples to complete this section of the training as teams had no base data for their projects.

MEASURING SUCCESS

The purpose of this session was for teams to focus on determining which "key performance indicators" or "measures of success" they would use, how they would achieve these measures and who would be responsible for ensuring they were completed.

Instructors provided examples of monitoring, from qualitative photopoint techniques to quantitative key performance indicators and statistics. Graphs were prepared to illustrate results from the site visits but, without historical records, their application over time was theoretical. Training course participants discussed what trends the graphs would show over time.

The Waisali, Monuriki and Sigatoka teams had no data on previous treatment effort for their projects. Hopefully now, with new knowledge and skills, they will be capable in the future. The team from Yadua Taba had much data pertaining to their trials but it had already been collected and analysed in a report compiled by others 10 years earlier. However, this gave opportunity for teams to see effectiveness demonstrated from that data.

Teams recorded the particular key performance indicators and measures they would use for their projects in their project plans and these were discussed by the group.

It is recommended that each team continue to use these success measures and the others provided in the training course to evaluate, justify success and identify problems in their projects.

EVALUATION

The purpose of this session was for teams to use their success measures to determine if they were having success towards achieving their objective and if they were not, why not? If they were not successful teams were to determine ways of improving their success.

As there was no treatment history to evaluate, instructors and participants discussed scenarios that graph results may illustrate. Teams were encouraged to think about reasons why upward or downward trends on graphs show levels of success and how they could make changes or improvements to their project to make them more successful.

Workbooks were completed by each team to describe the evaluation techniques their projects would use. These were discussed amongst training course teams. It was impossible for teams to actually evaluate their previous work because they either had not done any work or had not captured data to measure it.

Using the data generated from the field visits, the teams successfully grasped the concepts and value of measuring success from sound data collection. They identified whether or not the follow-up data collection visits will help show whether the characteristics of the invasive plant were understood and whether treatments were successful or not. They also identified improvements they could make in recording data and treatment success/failure.

It is recommended that teams get the opportunity to practice and relearn the application of all these processes within a project life. It is essential that participants regularly identify whether or not they have been successful and constantly look for improvement. Due to the data and time constraints of the course this could not be covered sufficiently.

REPORTING

The purpose of this session was: for teams to compile a report that was clear, concise, accurate, objective, measurable, accountable and containing recommendations towards required changes or further actions to allow the project to be more successful; for teams to create and deliver a presentation to their peers suitable for describing their project and its success. (Note: this is designed to also be presented to stakeholders, but none were present)

Instructors facilitated discussion about what the essential elements of a successful and meaningful report would be. It was encouraging that all of the elements were raised and the awareness that their workbooks, when completed as a single document, would provide the basis of a full report. By utilising their report they can make presentations highlighting their project to stakeholders and interest groups.

The use of computers from the start of the training course had enabled teams to enter the information as the training progressed through the workbook/project plan, but more time on this section would be beneficial.

Unfortunately, with limited weed management work conducted, or data collected, teams could not construct their own reports. But, by discussing the construction of a report and the information required, the number of issues taught during the training course was emphasized and teams realized that they had worked through their project plan in a systematic and thorough manner.

The presentations were delivered to their peers in a confident manner with thorough information about the project plan. Some were conducted by verbal presentation solely and others who had the skill set by PowerPoint display.

It is recommended that teams complete their project plans by September and email them to Bill Nagle to review. In particular, the Yadua Taba plan will need to be completed by September. When all teams have collected a year's worth of weed work data in the manner suggested they can do the same again.

3) After the course –

3.1) participants can contact the instructors for advice as they develop their projects with their new skills and knowledge.

3.2) a follow-up questionnaire will be administered by PII six months after the course to check on application of the skills and knowledge.

3.3) follow-up visits to NTF sites are recommended to institutionalize the learning.

4) Recommendations and proposed actions

The training course as it was implemented was generally well received and much was learnt by participants. The scope was fairly thorough and the system used followed a logical progression. The focus on project management was very useful for the few supervisors present, but made for challenging times for the Rangers as documenting and analysing their work appeared to be something entirely new.

It is vital that data are collected and analysed and results evaluated for a project to be managed properly at all levels. Opportunities to improve and update skills in all areas of project management and implementation are difficult to access and procure and commitment and follow-up is required to maintain the knowledge and skills learned when teams return to their sites.

Given the wide range of knowledge and skills, experience, and the issues to consider, this was always going to be an extremely intense and challenging training course for both participants and instructors. The amount of information for participants with different roles to process and understand and the amount of time available for one-on-one help were not a good match and individuals will need customized training to reinforce the learning from the course.

The pre-training questionnaires were not returned. These would have given better information on participant's knowledge and skill levels and experience prior to the training which would have enabled design of a course targeted to NTF requirements. As a result of this misunderstanding of expectations at the outset, much time was spent on explanations of fundamental knowledge and skills that were presumed would be known by participants.

A course in field skills related to weed management techniques and plant biological responses to weed management may have been of greater benefit for this mix of participants. Such a course would then be a good precursor to weed project management training.

Recommended ways to address this are:

- Participants should return pre-training course questionnaires at least two weeks before the training course.
- The questionnaires should drill into the individual's current weed management skill levels.
- Participants must be fully prepared with historical data, current maps etc. Where this is not always possible (because some teams have no historical information), PII needs to be informed that this is the case.
- Training customised to each individual's/team's further needs should be scheduled.

The first three of these recommendations involve better communication before the training course. The recommendation for further customised training to reinforce the concepts learnt to date is described below.

5) Customised training and follow-up

During the training course it became apparent that each project team required further training if NTF is to become self-sufficient in weed management. All needs for these teams could not be met in the training course. This is because each site has different levels of technical support, skill and technology. These differences in project management experience mean that successful weed management may be difficult or impossible to measure without further training.

The best way to address this situation is to spend time with individuals or teams after they have completed the basic training course. This will address the need to fill in the gaps and iron-out any problems where they have arisen. The optimum time to do this is as soon as possible after the training course so the entire process can be set up and implemented correctly. There is nothing more frustrating for field staff and management than collecting data that is not consistent and which can render results difficult to interpret.

All project teams

Customised follow-up for all the teams should address the following issues:

- Prioritisation of weeds and sites particularly due to the vast extent of weed problems,
- Introduction of alternative herbicides and their use. Research into what is currently available in the Fijian market and what procedure is required to procure more options from overseas,
- Establishment of a weed management GIS layer for their GPS and map creation.

And ensure that:

- training course recommendations are applied on a daily basis,
- a consistent tried and proven method of management is used for each weed species. Where a tried and proven method is unknown, knowledge of how to trial techniques and research new options is required,
- all field staff are capable in using GPS correctly for use in weed projects,
- field staff can accurately delimit weed sites,
- the work schedule is updated following ground operations.

Most of these issues can be addressed by: spending time with NTF staff in their field helping them record and enter data properly; supplying proper GPS units with weed sites mapped on them; using standardised field data collection forms; acquiring some alternative materials and supplies,.

After following up on the last field visit on the course, it became apparent that just being there as a mentor to answer concerns or provide explanations or training where required was very helpful and resulted in more successful projects.

Sigatoka

With the number and extent of weed issues present at this site, prioritisation training is essential to see through the maze of weed issues. Building knowledge and skills of a diverse array of weed management techniques is also essential.

Forest restoration and revegetation starting from bare earth is required in places. Upskilling in selective harvest of introduced species (leucaena for firewood, mahogany for timber) could assist weed management issues by harnessing community power and generating revenue.

Waisali and Monuriki

Further training for these teams is going to be needed once the projects are into the implementation phase. To ensure effort is not wasted, the results of the African Tulip treatment trials need analyzing (and modifying and improving the technique if necessary) before further management is attempted at Waisali. Limitations of herbicide experience and techniques will hamper progress on weeds unless staff receive more focused training.

It is worth noting that regular visits should be made to further upskill these teams in their local sites as conditions allow. Weed management is forever a changing industry and it is important to keep up-to-date with these changes, especially given the limited success of techniques on tropical weeds. This will be especially important once good survey and management effort data has been collected for at least a year.

Yadua Taba

The project plan designed at the training will form a good backbone, but the detail needs fleshing. As this project has been underway for a long time it has some good planning in place and some very experienced field workers. Further training in the use of herbicide techniques would greatly increase weed management progress on Yadua Taba. It faces new directions in that weed species are being targeted which will require different techniques to those used in the past. A major emphasis should be put on biosecurity and surveillance measures.

Rogasiano Ranuka, Waisali Forest Reserve Ranger and Mayor of Waisali Village, attaches an identification tag to an African tulip (AFT) tree during the PII invasive plant project management training course in Fiji. All plots (AFT, LEL, RIV) were given a unique identifier. (Photo: Shingo Takeda)

Overall Weed Management capacity of the National Trust of Fiji

A key observation was that NTF staff have greatly varying knowledge, skill sets and experience, but no one site has the ideal combination and resources to make a real progressive difference to weed issues. Sigatoka with a workforce of supervisor and 3-4 rangers is well placed to make conservation advances once they gain the weed management skills, experience and confidence necessary. Waisali has strengths apparent in its field

rangers, but the absence of the supervisor for the training was a real barrier to learning for this team. Monuriki has a good supervisor but lacks any ranger skill sets.

A major challenge to successful weed management is the labour required. Weed management is labour-intensive in the absence of good tools and sufficient resources. Chainsaws, scrub bars and spray units are essential tools to deal with the extent of weed infestations NTF is facing in its protected areas. These are currently lacking.

It is recommended that those who attended the training course are utilised as a national team that, on specific occasions, work together on the protected areas to gain the best value in weed management from sharing their collective knowledge, skill sets and tools in a prioritized programme that concentrates many hands on a job at once.

Not only would this foster more skill learning but it would provide the resource necessary to make a big difference to weed problems at the sites by being able to deliver concerted and concentrated effort. It would also help with building stronger team relations. It is recommended NTF take as much opportunity to expose its rangers and supervisors to learning experiences in places like New Zealand, Australia, US where extensive weed management projects and techniques can be learnt.

Rangers from Sigatoka Sand Dunes National Park using field methods learnt in the PII IPPMT course. The combination of classroom and field work is a key component of PII training.
(Photo: Bill Nagle)

COURSE EVALUATION

For many agencies, the first forays into invasive species management can be intimidating. Often, people and their institutions do not know what they don't know until faced with the requirements for planning of a long-term project. This makes it hard for both participants and instructors to prepare to a level that is of benefit to all parties. However, despite the lack of information available from participants and the difficulties caused by the venue, this was a successful course in terms of strengthening the capacity of staff of The National Trust of the Fiji Islands to manage invasive plant projects in some of the protected areas they administer.

As not all pre-course questionnaires (Appendix 2) were returned, participants were asked to complete another one at the start of the training. Information from this questionnaire was very revealing and is reported below. The progress of participants was checked informally every day and the course was evaluated by questionnaire on the final day (see below). A discussion, by participants only, on the lessons learned, positive and negative aspects of the course and further training needs was also held on the last day and recommendations for future capacity development were made. A list of the points raised is in Appendix 6 and these were then discussed in open forum with team members.

Pre-training questionnaire

This was self-assessment and each participant was asked to score some questions and to provide a written response to others (Appendix 7). Most participants rated their knowledge, skills and confidence in invasive plant project management as very low (Figure 4, below) with only one person giving a high self-assessment (Ranges = Knowledge 1-8, Skills 1-8, Confidence 1-9).

Of concern was the level of knowledge in important areas such as plant characteristics and site information, the level of experience with basic planning tools such as work timetabling and the level of basic field skills such as use of data recording sheets and mapping (Figure 1).

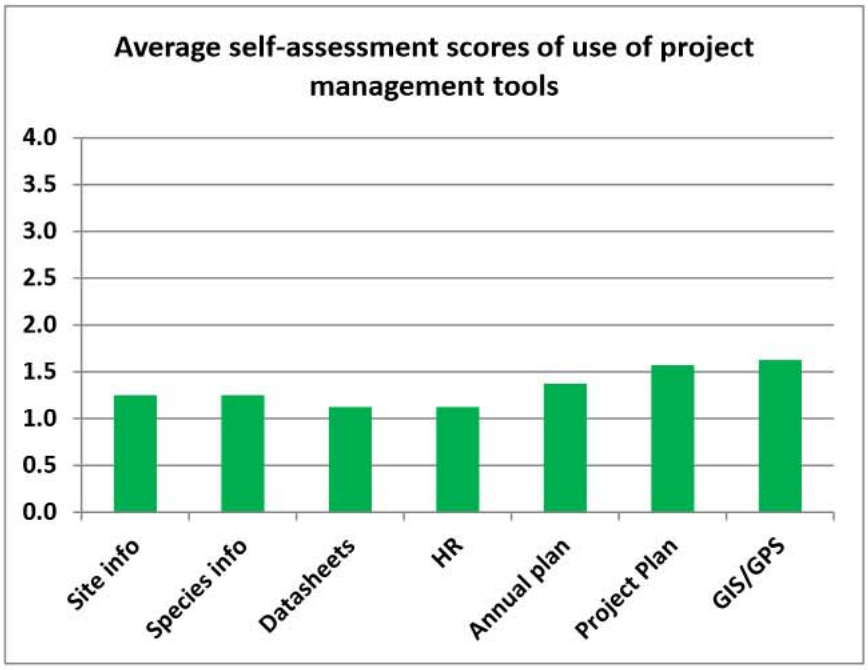


Figure 1: Participant pre-training self-assesment of use of project management tools for invasive plant management.

Even more concerning, was how little experience participants had in the planning, implementation and monitoring and evaluation of invasive plant projects (Figure 3, below). Although experience ranged from 'none' to 'a lot' across all three activities, the average for each area was just over 50%. This indicates a low level of engagement in invasive plant management projects and was unexpected. Had this been known beforehand, a different focus could have been brought to the training. Fortunately, the training course is designed to be adaptable and it was changed as much as possible to accommodate participant capabilities.

A question asking about problems with managing their invasive plant projects provided an opportunity to write in their own problems but most participants used the checklist provided. Seventy-five percent of participants identified "Lack of funding" and "Limited staff" as the major problems (Figure 2) and this result may be important, but needs more investigation.

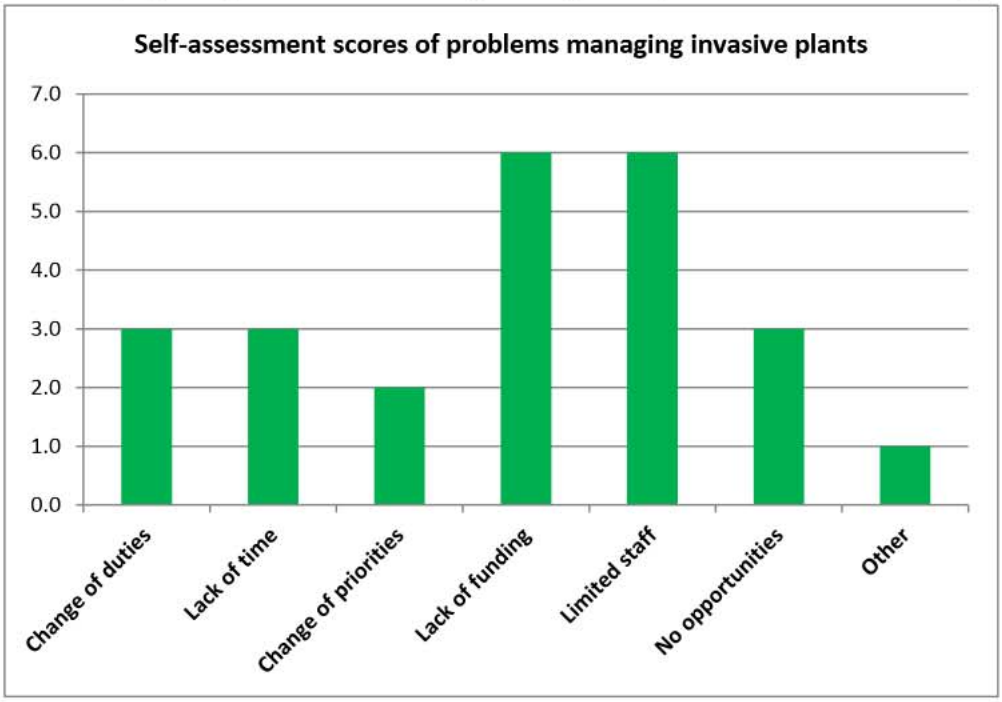


Figure 2: The number of participants identifying issues causing problems with the management of their invasive plant projects.

Post-Training Questionnaire

This was also self-assessment and each participant was asked to score some questions and to provide a written response to others (Appendix 8). In general, participants scored the course highly and the evaluation results show that the course achieved its purpose. Participants gave scores of 88% to the question about whether or not the course met their expectations and 83% to whether the methods used in the course would help them in their work.

Comments offered included "*I learnt a lot of new things – planning, setting goal, chemical application. My expectation was met*", "*I am quite confident now to carry out a weed plan and monitor and evaluate the plan.*" and "*Designing a plan using a 'workbook style' is a great way to facilitate a planning workshop and get participants involved.*".

Most encouraging was the change in participants' perception of their experience in the planning, implementation and monitoring and evaluation of invasive plant projects at the end of the training. Self-assessment scores improved from just over 50% at the start of the course to more than 80% at the end (Figure 3).

Figure 3: Participant pre- and post-training self-assesment of involvement in planning, implementation and monitoring and evaluation of invasive plant projects.

Participants also identified a positive change in their knowledge and skills from the low rating (Average = Knowledge 3.6 (Range 1-8) Skills 3.9 (Range 1-8)) at the start of the course to averages of 7.3 for Knowledge (Range 5-9) and 8 for Skills (Range 7-9) at the end of the training (Figure 4). This further shows the value of the PII Invasive Plant Project Management Training Course.

It is not possible in a short course like this to address the more complex issues of invasive species management, such as decision theory and economic factors involved in deciding when to stop looking for the invasive, but the tools provided to plan, implement and evaluate invasive plant management projects are a major step forward.

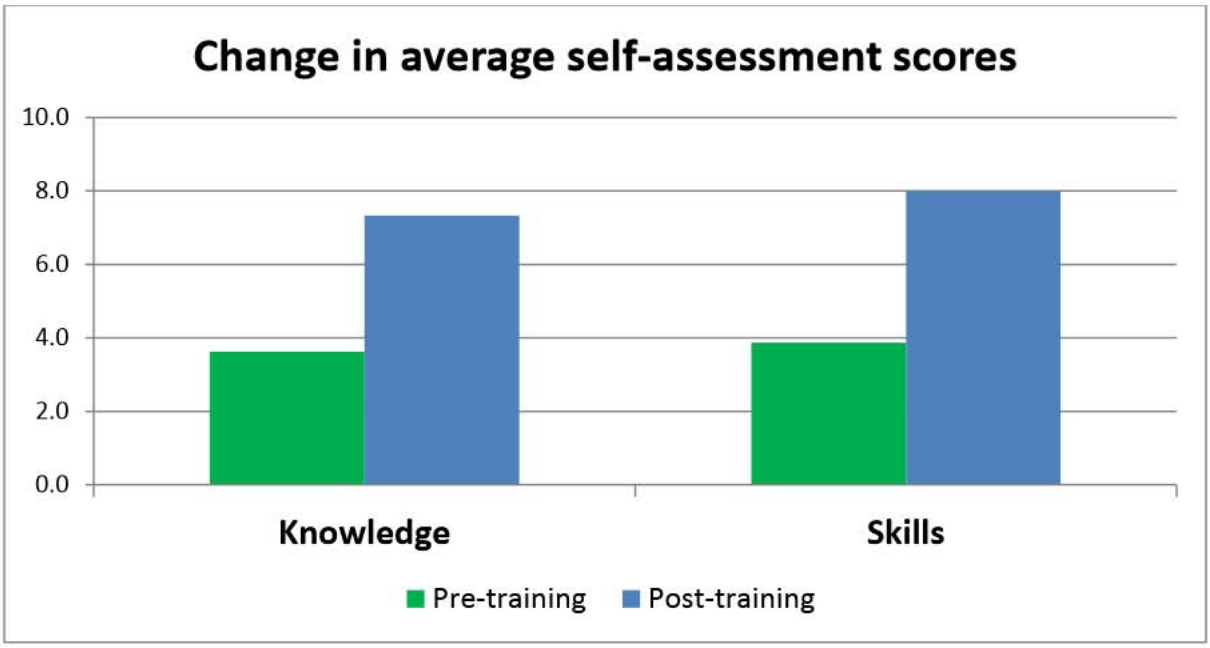


Figure 4: Participant pre- and post-training self-assesment of invasive plant management knowledge and skills.

Achievement of outcomes:

The course was designed to -

- Give weed control personnel the skills and confidence necessary to manage invasive plant projects.
- Further develop skills in the collection and management of data for project planning, implementation, monitoring, evaluation and accountability purposes.
- Provide an efficient and effective data collection and management system that is easy to use and maintain and is adaptable to similar projects across the Pacific.

As described above, participants provided positive evaluation of the course and asked for follow-up training. Usefulness of the system for other Pacific nations was also discussed.

Jone Nuikula (L), Project Officer National Trust of the Fiji Islands, receiving his certificate from SME Tofilau Tavita Togia of the National Park of American Samoa at the PII IPPMT course.
(Photo: Ivereimi Rogoira)

Lessons learned by PII:

- This is the first time PII has been able to use a Pacific practitioner as an SME in the invasive plant project management courses. The inclusion of Tofilau Tavita Togia as an SME proved very successful as this strengthened his learning from the course in American Samoa in 2010 and also provided Pacific experience to which participants could relate. A comment made was that "*His work on his own island gave participants some 'ground-truth' on the impacts of invasive plants on natural ecosystems and some of his successes in dealing with invasive plants such as Tamaligi (FAM) trees*".
- All teams appreciated the opportunity to cooperate with other areas. Having several teams at the course provides opportunity for sharing experiences with projects.
- The course content, tailored to each team's project and experience, encouraged maximum engagement from participants.
- The wide variation between teams and individuals in knowledge and skills, particularly in computing proficiency, can be partly addressed with the individualised team approach to training used in this course.
- An important strength of the team approach used in this training is that teams can work on their own project in their own language.

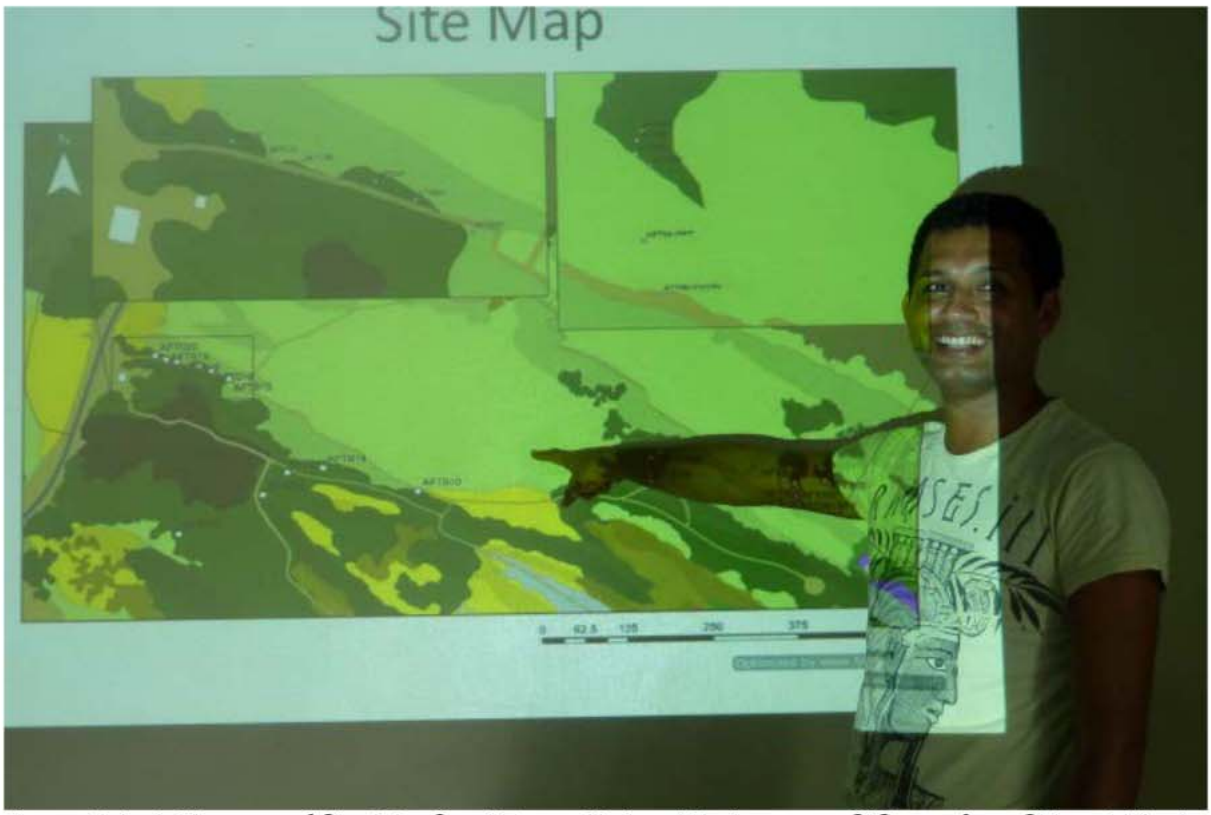
Main lessons learned by participants (Appendix 6):
Data collection is important
Different control methods (including chemical application)
Good planning accompanied with adaptive management
Data analysis and interpretation
Know our native species and weeds
Using time and human resources wisely
Techniques for reforestation

Next steps:
Several participants asked for follow-up action to build on the successful learning accomplished at the course. More instruction in field work was requested, in particular for management of trees such as African Tulip. This would best be done with visits to individual teams in their home territory so that targeted and applied training can be achieved.

The success of the course should be shared with other areas of the Pacific. Courses can be organised if requested.

Coordinated efforts should be made to provide training throughout the Pacific in other aspects of invasive species management which could not be covered in this brief course.

Other training requested by participants:
Monitoring and Evaluation training, Biosecurity, Training on doing Weed Awareness programmes in Community



Jason Tutani, Manager of Sigatoka Sand Dunes National Park, uses a GIS map from Shingo Takeda to show the position of the 80 African tulip (AFT) trees that were treated during the workshop.
(Photo: Bill Nagle)

ACKNOWLEDGEMENTS:

Many people contributed to the success of this course. In particular, PII would like to thank Elizabeth Erasito, the Director of The National Trust of the Fiji Islands for her persistence in the face of a very difficult year for NTF. Special thanks to Jason Tutani of NTF for the organising, re-organising and continual enthusiasm and smiles. Thanks also to:

- the NTF and community participants for the challenges and rewards they presented;
- Natasha Doherty who managed the PII end of logistics;
- the National Park of American Samoa for recognising the benefits to Tavita and allowing him to be available for the training course;
- Shingo Takeda of the University of the South Pacific for sharing his information on the rapid spread of invasive plants at Sigatoka Sand Dunes National Park;
- Chuck Chimera and Patti Clifford, Weed Risk Assessment Specialists with the Hawaii Invasive Species Council, who provided, at very short notice, WRAs for plants identified by Shingo Takeda as problems for Sigatoka Sand Dunes National Park;

The instruction end of the training course was funded by PII and we are grateful to the New Zealand Government's Aid Programme for continued support for invasive species management in the Pacific.

APPENDIX 1

Invasive plants discussed at this and previous PII training courses

TLA*	Country Code**	Common name	Family	Genus	species	PIER WRA
COL	FM	Chain-of-love	Polygonaceae	*Antigonon*	*leptopus*	**19**
RAT	PW	Rattan palm	Arecaceae	*Calamus*	spp.	**?**
PRT	AS	Panama rubber tree	Moraceae	*Castilla*	*elastica*	**7**
CHO	MH	Chromolaena	Asteraceae	*Chromolaena*	*odorata*	**34**
CLQ	FM	Bronze-leaf	Lamiaceae	*Clerodendrum*	*quadriloculare*	**11**
HOR	FM	Honolulu rose	Lamiaceae	*Clerodendrum*	*chinense*	**18**
CLH	FM	Koster's curse	Melastomataceae	*Clidemia*	*hirta*	**27**
IVG	FM	Ivy gourd	Cucurbitaceae	*Coccinia*	*grandis*	**21**
GDD	AS	Golden dodder	Convolvulaceae	*Cuscuta*	*campestris*	**22**
FAM	AS	Kerosene tree	Fabaceae	*Falcataria Albizzia*(old)	*moluccana*	**8**
IMP	PW	Imperata	Poaceae	*Imperata*	*cylindrica*	**22**
LAN	FJ	Lantana	Verbenaceae	*Lantana*	*camara*	**21**
LEL	FM	Leucaena	Fabaceae	*Leucaena*	*leucocephala*	**11**
MEQ	PW	Melaleuca	Myrtaceae	*Melaleuca*	*quinquenervia*	**15**
MEA	PW	Chinaberry	Meliaceae	*Melia*	*azedarach*	**14**
MEP	PW	Merremia	Convolvulaceae	*Merremia*	*peltata*	**18**
MIK	PW	Mile-a-minute	Asteraceae	*Mikania*	*micrantha*	**25**
PEP	FJ	Mission grass	Poaceae	*Pennisetum*	*polystachion*	**11**
FSK	FM	False sakau	Piperaceae	*Piper*	*auritum*	**19**
PPA	FJ	False kava	Piperaceae	*Piper*	*aduncum*	**18**
PRX	PW	Praxelis	Asteraceae	*Praxelis*	*clematidea*	**25**
GUA	FJ	Guava	Myrtaceae	*Psidium*	*guajava*	**21**
RIV	FJ	Coral berry	Phytolaccaceae	*Rivina*	*humilis*	**11**
SMS	FJ	Monkey pod	Fabaceae	*Samanea Albizzia*(old)	*saman*	**4**
OCT	PW	Octopus tree	Araliaceae	*Schefflera*	*actinophylla*	**13**
AFT	FM	African tulip	Bignoniaceae	*Spathodea*	*campanulata*	**14**
TRD	FJ	Trailing Daisy	Asteraceae	*Sphagneticola Wedelia*(old)	*trilobata*	**13**
ZIN	FJ	Shampoo Ginger	Zingiberaceae	*Zingiber*	*zerumbet*	**-1**

* three-letter-abbreviation (for data recording purposes only – not the standard taxonomic abbreviation/symbol; e.g. http://plants.usda.gov/index.html)

** AS = American Samoa, FJ = Republic of Fiji, FM = Federated States of Micronesia, MH = Republic of the Marshall Islands, PW = Republic of Palau

APPENDIX 2

Pacific Invasives Initiative and National Trust of the Fiji Islands

Invasive Plant Project Management Training Course
Fiji, 3-12 May 2011

PRE-TRAINING QUESTIONNAIRE

(Please return to Elizabeth Erasito OR Natasha Doherty <Email: PII@auckland.ac.nz>*)*

Introduction:

This training course is for people with responsibility for fieldwork, entering/managing data, or making project decisions. The training course will focus on priority weed projects; designing, implementing, monitoring and evaluating to ensure success. It will give weed management personnel the skills and confidence necessary to collect and manage data for project planning, implementing, monitoring, evaluating and accountability purposes.

Expectations:

- You develop further capacity to help NTF reduce threats to the critically endangered Fijian crested iguana from the increased spread of invasive plants.
- PII gets feedback from you after you have had a chance to implement the knowledge and skills from the training. We will contact you to complete a six-month follow-up questionnaire.
- You will develop a spreadsheet/database at the training. It is expected that, after the training, you will maintain it (on computer or paper) by adding project records to assist continuing management efforts.

Questions:

1) What technical resources (e.g. computer, laptop, GPS, software, field notebooks, etc.) do you use to assist with data management? Please list them here and bring any of these to the training, where possible.

2) Please list the major weeds you are working on and the methods and herbicides you currently use. (Please add more rows if needed)

Species name	Management method	Herbicides used

3) What information do you have about the weeds that are of most concern to you?

4) Do you have enough information?

5) Please list previous weed management training you have participated in.

6) What do you most want to gain from this training?

Name and signature .....

Position and Organisation .....

Name and signature of Manager .....

Position and Organisation .....

APPENDIX 3

Pacific Invasives Initiative and National Trust of the Fiji Islands

Invasive Plant Project Management Training Course
Fiji, 3-12 May 2011

Preparation for Training

IMPORTANT NOTE FOR PARTICIPANTS

This training is designed for people actively engaged in weed management - either field based or project managers.

You will need to be punctual and attend all sessions of the training to gain the maximum benefit.

You will need to complete an evaluation form during the training and six months after the training.

The training is hands-on and interactive. You must bring information about the project you wish to work on (historical data, computer files, maps, reports, photographs, etc). The data should be from the start of the project to the present and will form the basis of the training.

Each team must have a laptop on which to complete their project and should have access to a GPS for recording weed locations.

Each team should have a designated person in charge for correspondence and decision-making.

Each team needs to complete this information sheet and bring a 5-10minute presentation about their project. **This will be presented to training participants on the first day.** You may use PowerPoint if you wish. Consider including the following in your presentation:

- Target species,
- Methods used,
- Resources used,
- Any plans you have developed,
- How you implement your plan,
- What information you record,
- What you do with the records,
- How you measure success,
- How you present your results.

Before the training, please try to answer, or collect information for, the questions in this document. A lot of our time together will be based on this document and your preparation will increase the benefits of the training to you.

Please bring this document to the training along with any data, maps, computer files, reports you have written.

WHEN COLLECTING INFORMATION TO ADD TO THIS DOCUMENT, PLEASE USE ONE OR TWO WEED PROJECTS IN YOUR OWN AREA AND RELATE THE QUESTIONS TO THOSE WEEDS AND THE SITE/ENVIRONMENT IN WHICH YOU NEED TO MANAGE THEM. IT WOULD BE HELPFUL IF YOU COULD FILL THIS IN ON A COMPUTER AND BRING THE FILE WITH YOU – BUT A WRITTEN RESPONSE IS FINE.

1) PLANNING

OBJECTIVES

1.1) What are the objectives of your project?

1.2) Why are they important?

1.3) Are they species-led, site-led or a combination of both?

PLANT CHARACTERISTICS

1.4) How does the plant spread?

1.5) How far does it spread?

1.6) How long does it take to grow from germination to maturity?

1.7) Is there anything occurring naturally that affects growth, maturity or spread?

1.8) How long do the seeds survive in the soil?

1.9) Can the plant be killed? If yes, what method is effective?

PROJECT SITE CHARACTERISTICS

1.10) Does the project site have any characteristics that make work easier?

1.11) Does the project site have any characteristics that make work difficult?

1.12) Where is the front of the plant invasion and how large is that front?

1.13) Where is the stratified zone of the plant invasion and how big is it?

1.14) Does the plant spread a long distance from the site? If so, how does it spread, how far and how often?

1.15) Are there areas within the project site that are particularly favourable to spread of the plant?

TIMING

1.16) How fast is the plant spreading? Can you manage it faster than it spreads?

1.17) Is there any time of the year when the plant is dormant, or grows slower or faster?

1.18) How long does the plant take to reach maturity at the project site?

1.19) What time of the year does maturity occur?

2) IMPLEMENTATION

METHODS

2.1) What method, or methods, of management are you going to use to be effective and/or efficient? Are you using the least toxic option?

2.2) Who will do the work?

2.3) When will it be done? (see 1.8,1.18,1.19)

2.4) What tools and materials are required?

MAPPING

2.5) What defines your “site”? How do you visualise and/or display the extent of your “site”?

2.6) How are you going to reference or fix its position in space (both on and off site)?

2.7) How are you going to measure the size of the site?

HUMAN RESOURCES

2.8) What human resources do you have over a year (weeks, hours or days)?

2.9) What is the estimated time to manage each site?

2.10) What are the key skills that personnel need to:

- implement the management method?
- lead a team?
- collect the required data?
- analyse, map and report?
- do other tasks?

RECORDING

2.11) What information do you record?

2.12) What do you record with?

2.13) What happens to the data you record?

2.14) Where is it stored and backed up?

3) MONITORING AND EVALUATION

3.1) What are you monitoring – the invasive plant or the project?

3.2) Are you evaluating the whole project?

SUCCESS MEASURES

3.3) What Key Performance Indicators (KPIs) or other performance measures do you use to show success?

3.4) How do you achieve these performance measures?

3.5) Who is responsible for doing this?

EVALUATION

3.6) Were you successful or partially successful?

3.7) If ‘Yes’, why?

3.8) If ‘No’, why not?

3.9) Can the project be improved? If so, how?

REPORTING

Include the following:

- We were / were not successful
- Graphs and/or tables
- Photos
- Species Lists
- Maps
- Recommendations: actions, changes, further sites

ANY OTHER COMMENTS? (Continue over if necessary)

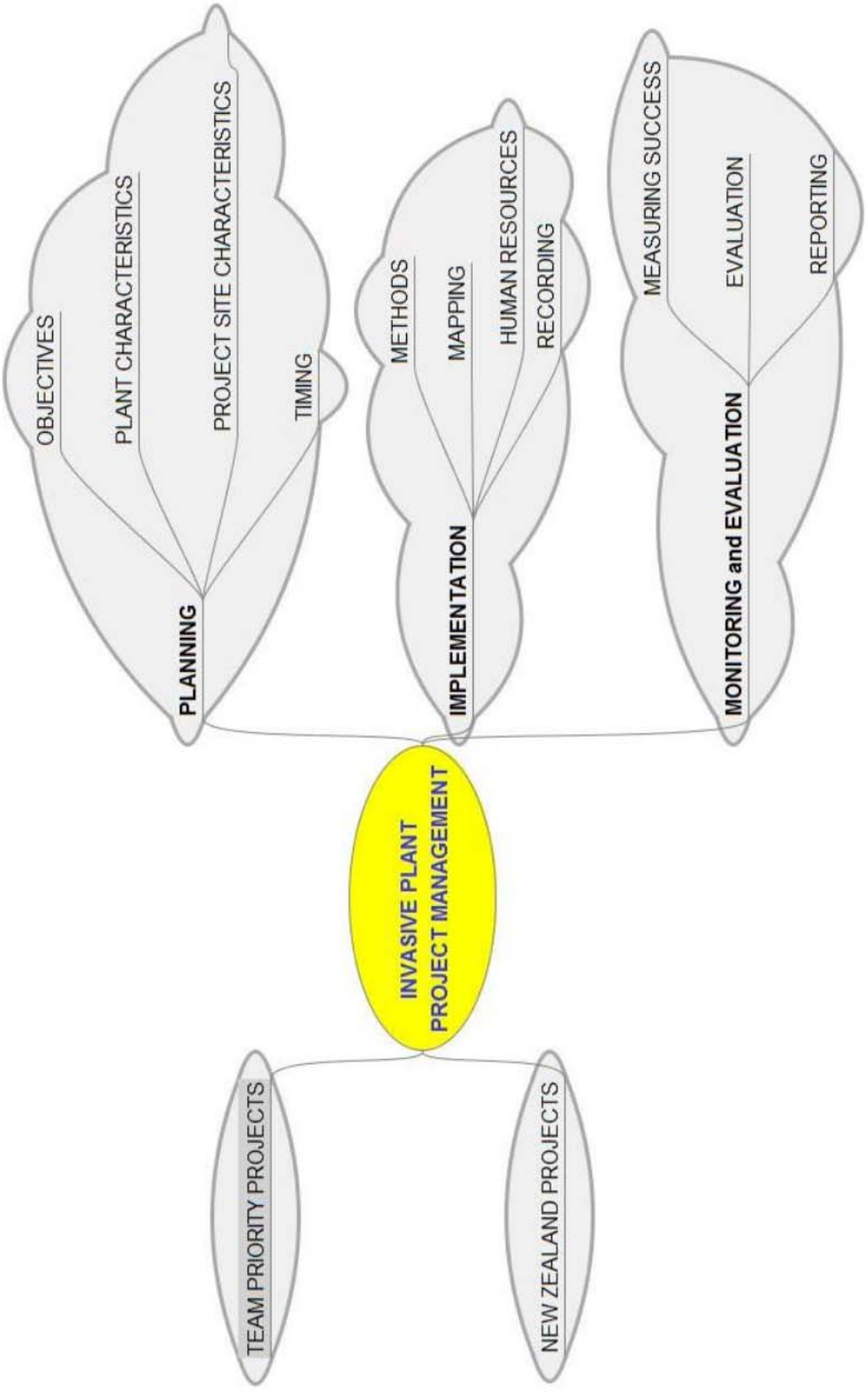
APPENDIX 4

Course programme, 3-12 May 2011:

Tues 03	pm	Introductions/Expectations/Timetable Presentation of all participant projects	Flip Charts Powerpoints
Wed 04	am	New Zealand experiences and workshop overview Site visit to local project	Powerpoints Transport
	pm	Planning (Baseline Information) -Objectives -Plant Characteristics -Project Site Characteristics -Timing	Powerpoints Workbook Computers (1 per team)
Thu 05	am pm	Implementation -Methods -Human Resources -Mapping -Recording	Powerpoints Workbook Computers Implementation equipment GPS
Fri 06	am pm	Implementation -Methods -Human Resources -Mapping -Recording	Powerpoints Workbook Computers Implementation equipment GPS
Sat 07	am pm	Site visit and exercises Review and Revision	Transport Powerpoints Workbook Computers
SUN 08			
Mon 09	am pm	Monitoring and Evaluation -Measuring success -Evaluating	Powerpoints Workbook Computers
Tues 10	am pm	Monitoring and Evaluation -Measuring success -Evaluating	Powerpoints Workbook Computers
Wed 11	am pm	Reporting Prioritisation and review Report writing & PowerPoint production	Powerpoints Workbook Computers
Thu 12	am	Workshop Evaluation Report to Stakeholders	Computers Powerpoints

APPENDIX 5

COURSE DESIGN



APPENDIX 6

Verbal feedback recorded by participants in private discussion

MAIN LESSONS LEARNED
Data collection important
Different control methods (including chemical application)
Good planning accompanied with Adaptive management
Data analysis interpretation
Know our native species and weeds
Using time and human resources wisely
Techniques for reforestation

POSITIVE FEEDBACK
Food was good
Accommodation was good
Experienced facilitators
Really good examples on weed management in New Zealand
Having a Pacific Islander's experience
Good team spirit in the field
Good workshop venue and field site

NEGATIVE FEEDBACK
Better participant time management
Better travel arrangements
Participants and facilitators should have been accommodated together

WHAT OTHER TRAINING DO YOU NEED OR WANT?
Monitoring and Evaluation training
Biosecurity
Training on doing Weed Awareness programmes in Community

APPENDIX 7
Pre-training questionnaire

The information provided here is strictly confidential and will only be used internally by PII.

Chiefly Title, Mr., Miss etc	
First Name	
Surname	
Agency	
Designation	
E-mail	
Telephone	
What do you most want to learn from this training?	

Invasive plant projects involved in (if any):

1 **Please rate your current level of knowledge, skills and, confidence in Invasive Plant Project Management. From 1 (very low) to 10 (very high)**

Knowledge

1	2	3	4	5	6	7	8	9	10
Very low	...	Low	...	Medium	Medium	...	High	...	Very High

Skills

1	2	3	4	5	6	7	8	9	10
Very low	...	Low	...	Medium	Medium	...	High	...	Very High

Confidence

1	2	3	4	5	6	7	8	9	10
Very low	...	Low	...	Medium	Medium	...	High	...	Very High

2 **Are you involved in any of the following activities for your Invasive Plant Project?**

1. **Planning**

1	2	3	4
Not at all	Very little	Quite a lot	Greatly

2. **Implementation**

1	2	3	4
Not at all	Very little	Quite a lot	Greatly

	3. Monitoring and Evaluation 1 Not at all 2 Very little 3 Quite a lot 4 Greatly **4. Other (please specify).**
3	**Do you currently use any of the following tools in your Invasive Plant Project?** **1. Database** Site Information 1 Not at all 2 Very little 3 Quite a lot 4 Greatly Species Information 1 Not at all 2 Very little 3 Quite a lot 4 Greatly Datasheets 1 Not at all 2 Very little 3 Quite a lot 4 Greatly Human Resource Skills Register 1 Not at all 2 Very little 3 Quite a lot 4 Greatly Annual Planning 1 Not at all 2 Very little 3 Quite a lot 4 Greatly **2. Project Plan (Workbook)** 1 Not at all 2 Very little 3 Quite a lot 4 Greatly **3. GIS/GPS mapping** 1 Not at all 2 Very little 3 Quite a lot 4 Greatly **4. Other (please specify).**
4	**Are you facing any problems with managing your Invasive Plant Project? Please tick all that apply and list any others.** ☐ Change of duties ☐ Lack of time ☐ Change of priorities ☐ Lack of funding ☐ Limited staff ☐ No opportunities to apply knowledge and skills ☐ Other (please specify)

Thank you for helping to improve our services!

APPENDIX 8

Post-training questionnaire

We would like you to tell us about the **changes in your invasive plant management project design and implementation knowledge and experience** as a result of the training workshop. Please complete all questions – this questionnaire will help us design better workshops.

1.	What did you expect to gain from this training?
2.	Did the training meet your expectations? 1 Not at all 2 Very little 3 Quite a lot 4 Greatly Please explain your answer
3.	As a result of the training, do you think your Agency is now more able to: **Plan an invasive plant control project?** 1 Not at all 2 Very little 3 Quite a lot 4 Greatly **Implement that project and record information?** 1 Not at all 2 Very little 3 Quite a lot 4 Greatly **Monitor and evaluate the project?** 1 Not at all 2 Very little 3 Quite a lot 4 Greatly Any comments?
4.	What are the main things you learned from this training?

5.	Were you able to contribute your knowledge/skills to the workshop? 1 Not at all 2 Very little 3 Quite a lot 4 Greatly If 'No', what was the reason?
6.	Which invasive species management strategy do you think is the most important? (Please choose one and explain your choice.) □ Prevention □ Eradication □ Control
7.	Was there enough time to cover all the issues in this training? 1 Not at all 2 Very litle 4 Greatly Quite a lot Please explain your answer –
8.	Did the Presenters give clear explanations and instructions for all topics without using too much technical language? 1 Not at all 2 Very little 3 Quite a lot 4 Greatly Any comments?
9.	How useful was this training for improving your knowledge and skills? (Please circle one) **Knowledge:** 1 Very low 2 ... 3 Low 4 ... 5 Medium 6 Medium 7 ... 8 High 9 ... 10 Very High **Skills:** 1 Very low 2 ... 3 Low 4 ... 5 Medium 6 Medium 7 ... 8 High 9 ... 10 Very High
10.	Will the methods used in this training help you personally in your work? 1 Not at all 2 Very little 3 Quite a lot 4 Greatly Please explain your answer –
11.	What invasive plant management actions will you do in the next 6 months?

12.	What ideas do you have for follow-up training in invasive plant project management?
13.	Do you have any further comments or suggestions that may help us improve our support to you? (Continue on extra page if necessary.)

THANK YOU for helping to improve this and future trainings!