

GUIDELINE FOR FIELD WORK

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PURPOSE

- These Guidelines are to be used by Project Staff when preparing for and conducting invasive plant management work at Project Sites.
- The Guidelines provide advice on safely and effectively carrying out tasks in the field.
- **'Plan your field work and then work to that plan'.**

1. HEALTH AND SAFETY

- The project team must not put themselves, or anyone else, at risk during field work.
- Particular care should be taken on uneven terrain and near, or on, water.
- The project team must have the equipment (including a First Aid Kit and a reliable communication source) and the necessary training to work safely in the field.

1.1 COMMON HEALTH AND SAFETY ISSUES

Task	Dangers	Examples of safety measures
Terrain/working in the field	Many sites are heavily vegetated, may have large areas that are untracked and can contain hazards such as steep cliffs, sharp rocks, ravines, gullies etc.	<ul style="list-style-type: none"> • Local knowledge essential – ensure your team is familiar with the territory • Work in groups of at least two people wherever possible • Wear suitable clothing and footwear • Carry radios or have some form of emergency contact system • Have a radio schedule time and time of arrivals and departures • Always know where other team members are – e.g. field personnel are expected to work in pairs and to notify the Operation Manager of their departure times, destination, purpose and expected time to return to base.
Heavy lifting	Often a lot of equipment needs to be moved quickly, especially where access is hard or restricted by time or weather	<ul style="list-style-type: none"> • People should not be expected/or pressured to take loads heavier than they can handle • Identify/mark with a waterproof pen all loads that are especially heavy or need to be moved a certain way, e.g. hazardous materials • Wherever possible pack loads to easily movable weights • Make sure sharp objects are well padded
Equipment	Technical equipment can be poorly maintained, e.g. blocked nozzles on spraying equipment, flat batteries in GPS units	<ul style="list-style-type: none"> • Check ALL equipment before it goes into the field • Carry spare batteries that have a full charge • One person should be put in charge of maintaining equipment
Safety equipment		<ul style="list-style-type: none"> • Ensure safety clothing is appropriate for the task • - especially gloves, eye and ear protection • Wear appropriate leg protection when using grubber, chainsaw, weedeater, etc.
Use of hand tools, e.g. machetes, and mechanical/power tools, e.g. weeders	Manual handling. Heavy objects. Flying objects. Extended use (loss of control). Sharp blades/objects. Impacts, entanglement. Public entering the site	<ul style="list-style-type: none"> • Training of users • Ensure physically fit and sufficient quantities of water are available and taken • Take regular breaks • Maintain tools in optimum working condition • A minimum working distance of 5m between staff • Place covers on sharp edged tools

Task	Dangers	Examples of safety measures
		<ul style="list-style-type: none"> Carry tools with cutting edge turned down and out, or covered -not over shoulder
Use of chemicals	Risk of poisoning from carelessly handling materials	<ul style="list-style-type: none"> The team must be trained in safe handling and use Follow all manufacturer's instructions i.e. READ THE LABEL and follow instructions DO NOT SMOKE when preparing or using materials WASH HANDS after use/before eating Purchase and use protective clothing /safety gear – gloves and eye protection are essential. When powder/dust is an issue (e.g. mixing herbicides) use dust masks, overalls Do not use empty containers to store food or drink Have an environmentally safe system for collection and disposal of empty containers Know the symptoms and the treatment for poisoning from the material in use Make sure the First Aid Kit has appropriate material to treat poisoning Can carry water to wash any spills
Vehicles	Road travel can be dangerous and off-road travel is often dangerous	<ul style="list-style-type: none"> Use only experienced drivers with appropriate licences Only use vehicles that are well-maintained Loading to be supervised by experienced person Do not overload vehicles
Boats	Loading and unloading boats and using boats can be hazardous especially if weather changes, or in locations where there are reefs, difficult access	<ul style="list-style-type: none"> Use only experienced boat handlers (must have experience with local conditions) Loading to be supervised by experienced person Do not overload boats Evenly distribute loads as requested by boat handler Life jackets must be worn Only use well maintained boats in good weather and sea conditions. Use marine radio channels

- For detailed information see 'Guideline for Planning and Managing an Operation' Section 3.Managing the health and safety.

1.2 FIRST AID AND EMERGENCIES

- At least one member of the project team should be trained in First Aid. Ideally ALL the team should have First Aid training or refresher training. First Aid Kits are essential – consider all of the likely risks you will encounter on the site and ensure contents of First Aid kits will allow you to deal with most accidents that may occur.
- Identify any health issues within the team (e.g. allergies, asthma) that could become issues when you are at the site. Have procedures to deal with them (e.g. ensuring the individual brings and uses their medication) and back-up supplies in the first aid kit.
- Have a communication procedure for dealing with serious (life-threatening) accidents before you leave. This may be a radio or phone link with the main office that will set in train an evacuation system, or a link to a doctor to provide you with advice. Ensure everyone on the team knows what this procedure is.
- For detailed information see 'Guideline for Planning and Managing an Operation' Section 3.Managing the health and safety.

2. SITE BIOSECURITY

- The purpose of biosecurity is to:
 - Keep project sites free of the target species you are managing (eradication or on-going control).
 - Keep project sites free of new invasive species.
 - Prevent the export of invasive species from the project site to other sites.
- Biosecurity activities involve prevention, surveillance and management of invasive species incursions.
- For detailed information see 'Guidelines for Biosecurity'

3. SITE IDENTIFICATION

3.1 MAPPING - THE MEASUREMENT OF SIZE AND PLACE

1. How will you define your "site"?

- Historical information (e.g. ownership) can be important.
- Each site should be uniquely identified (the unique ID should finish in a number (e.g. AFT007) to aid computer work), so that two sites cannot be confused with one another.

2. How are you going to measure the size of the site?

- A point with associated search area?
- A polygon or defined area?

3. How will you display the extent of your "site" on a map?

- Hand-drawn sketch map?
- Use GPS tracklogs for a GIS overlay?

4. How will you reference, or fix, its position in space (both on the ground and on a map) so that you, or somebody else can find the exact place again?

- Maps
- Site marking (see below)

3.2 MARKING

- What permanent, cheap and easy to use materials (e.g. plastic ice-cream containers) are available?
- Permanent marking (plastic triangles, stakes, etc.) is required for places where long-term work (e.g. outcome monitoring, photopoints) is required.
- Temporary marking (e.g. flagging tape) can be used for plots that are used for a short period (e.g. trial work).



Trees to be removed can be used as temporary markers. Aluminium tags (below elbow) can be used in permanent markers. (Photo: Liz Kerstin)



Plastic triangles are commonly used for permanent markers. They can be made cheaply from ice-cream containers. (Photo: Bill Nagle)



Flagging tape used as a temporary marker. (Photo: Liz Kerstin)



Flagging tape used to mark a transect line. (Photo: Liz Kerstin)

3.3 GPS & GIS INFORMATION

Geographic Information Systems (GIS) allow you to perform complex geographic analysis by using “layers”, or maps, of specific types of spatial or geographic information. Each layer contains a unique type of information; one layer might contain information about roads, another one rivers, another one topography, another one forest cover, etc., but they all contribute to the whole map. GIS lets you display one, two or many layers at once.

Key GIS layers for helping plan and monitor invasive plant management projects include contours at 10m or 20m intervals, rivers, roads, land tenure boundaries, forest types or vegetation cover and aerial photography or satellite imagery. Together such layers can be used to help plan the most cost-effective and efficient management approach and monitor the progress of the project.

Data gathered in the field using a Global Positioning System (GPS) unit can be transferred to a computer for project analysis. By collecting project data (such as location and size of invasive plant areas) with your GPS unit, a GIS layer can be added which visually describes your project site and shows the location of treatment areas. Waypoints can be used to record the location of specific features of interest such as the location of the start or end of a survey transect, or even of individual trees.

If the ‘Tracklog’ function on the GPS unit is enabled during field work, an accurate record of area covered, search patterns, time, etc., can be incorporated into the GIS information. The GPS can be used to monitor your invasive plant management effort by, for example, mapping zones that have been treated and changes in the

distribution of an invasive plant infestation over time. This information can be used to update the GIS map as the project progresses and will help plan further field work.

For more information on GIS and GPS you can check out the following websites:

- o GIS < <http://www.gis.com/>>
- o ESRI < <http://www.esri.com/what-is-gis/index.html>>
- o Garmin < <http://www8.garmin.com/aboutGPS/>>
- o Aerospace < <http://www.aero.org/education/primers/gps/whatisgps.html>>
- o Case Study Winning the War on Weeds < http://www.gim-international.com/download/whitepaper_uploadfile_17.pdf>
- o GPS/GIS Technology a tool for strategic invasive weed management < <http://landscape4u.wordpress.com/invasive-weed-management-and-gpsgis-technology/>>
- o A Weed Manager's Guide to Remote Sensing and GIS <<http://www.fs.fed.us/eng/rsac/invasivespecies/>>

4. DATA RECORDING

(NOTE: the data collected must relate to the goals/objectives/indicators of the project.)

- Remember to complete datasheets as field work progresses, rather than wait until the end of the day.
- Information such as the length of time a task takes, what materials are used for the task, how many people it takes to complete the task, weather conditions, etc. is important.

4.1 WHAT INFORMATION WILL YOU NEED TO RECORD?

- Collect data that will help you measure success. Make sure you know what site-records are important.
- Consider collecting data during each operation, rather than on a separate visit.
- Remember that photopoints (see Guideline for Monitoring, Evaluating and Reporting) can be invaluable in showing outcomes.

4.2 WHAT WILL YOU RECORD THE INFORMATION WITH?

- Design data sheets: for collecting data easily in the field; entering data easily into computer programs; storing data in a usable format.
- It is important to collect operational data consistently.
- Decide who will collect the data.

4.3 HOW WILL YOU USE THE DATA YOU RECORD?

- Data is essential to check the progress and success of projects.
- Spreadsheets and databases are important project management tools and will help you analyse your project.

4.4 WHERE WILL YOU STORE THE DATA AND HOW WILL IT BE BACKED UP?

- Information from field datasheets should be entered into the computer at the end of each day.
- Datasheets can be filed in a safe place from where they can be easily retrieved.
- Make sure that data entered into computer files (flat database/spreadsheet) is backed up.

(NOTE: PII hopes to establish a Pacific Invasive Plant Management Database and information can be stored to that.)

5. LOGISTICS

- Health and safety of the team is always paramount when undertaking work in remote and dangerous locations or with dangerous tools or materials.
- Make sure you have an external method of communication for emergency purposes.
- 'Plan your field work and then work to that plan'. Put time and thought into the plan and task schedule before field work begins. Any changes, once the work is underway, should be made only after careful consideration of any possible effects.
- Checklists are a good way of tracking which tasks have been completed, which are in progress and which are yet to start. Go through the checklists the day before field work starts.
- Before commencing any field work, ensure those taking part understand the why, what, who and how of the work. The project manager is responsible for making sure that the team understands all aspects of the work.
- The team must be kept informed of progress throughout the work.
- Any changes to the planned work must be communicated widely within the team.
- Make sure all the equipment/tools/materials required for the field work are available and in good working condition.
- Check in advance that transport, food and drink for the field team is well organized.