GUIDELINE FOR
MANAGING ENVIRONMENTAL EFFECTS

PURPOSE

- These Guidelines are to be used by Project Staff conducting invasive species management projects based on the PII Project Process.
- The Guidelines help you evaluate the actual or potential effects your proposed operation may have on the environment and the ways in which any adverse or negative effects (often referred to as risks) may be reduced or eliminated.
- These Guidelines are used to prepare an environmental impact assessment (EIA) or an assessment of environmental effects (AEE) as part of the Operational Plan.
- Non-target species are considered a special type of environmental effect.
- Non-target species general information is provided in this guideline – for more detailed information see the Guideline for Non-target Species.

1. WHAT ARE ENVIRONMENTAL EFFECTS?

- Often the main effects are to non-target species (may include people as well as native plants or animals). You need to consider all of the proposed treatment techniques (e.g. herbicide application, hand-pulling weeds, cutting of trees, etc) and the logistical and support systems required (e.g. cutting tracks, water supply, vehicles, helicopters, etc.) to undertake the operation and review the effects of these on the environment.
- Where there are possible adverse effects, (e.g. herbicide drift, leaching into water sources, pulled weeds smothering native plants) this process allows you to identify practical steps to either reduce or eliminate that adverse effect or risk. It's also important to summarise positive effects to show that any adverse affects (e.g. the loss of some non-target species) are quickly outweighed by the recovery of that species after the project is completed.

2. HOW MUCH DETAIL IS REQUIRED?

- The amount of detail included should correspond with the scale and significance of the actual and potential effects your project may have on the environment. For example, an aerial spraying project on a large inhabited site, with livestock and non-target species issues, would require more detail than a hand-pulling project on a small site with no inhabitants and no non-target species.

3. WHAT INFORMATION DO I NEED TO GATHER?

- First you need to know enough about the effects and/or risks the techniques you plan to use may have on the environment. It is helpful to get information from other similar projects and advice from experienced people who have used your intended techniques elsewhere.

(**NOTE:** Environment refers to social/cultural and economic as well as the natural environment).

3.1 TREATMENT TECHNIQUES

- Know what techniques you are using that may have some effect on the environment (e.g. herbicide, chainsaw) and how they work (e.g. for chemicals; how does the active ingredient work, how does it breakdown in the

environment, how toxic is it to various species, what support systems do you need (such as temporary accommodation, storage, disposal).

3.2 SITE USE

- Know whether the site is occupied; permanently, seasonally, or not at all.
- Know how the site is owned and used and any community interests – fishing, agriculture, tourism, cultural, social issues, domestic and feral animals.

3.3 NATIVE SPECIES

- What native species are present and at greatest risk? Know about any characteristics that may put them at risk (e.g. are found only in special habitat (wetlands), feed or live on the ground, use invasive plants as habitat or food). Experience of this species or similar species being affected by treatment techniques elsewhere could be very helpful.

3.4 NON-TARGET SPECIES

- Environmental risks are most commonly associated with impacts on non-target species. Knowledge of characteristics of non-target species that may cause them to be at risk from a particular technique (e.g. ground-dwelling birds can be caught in dead plants, seedlings can be affected by herbicide) allows you to consider ways of reducing that risk by modifying how you use that technique (e.g. dispose of dead plant material, using different herbicides, different rates of herbicide). Some common issues include:
    - What native and non-native plants and animals (including livestock, domestic animals) are potentially at threat?
    - Which techniques pose the highest risk and why?
- Consider people here as well – you need to assess the level of risk to anyone who lives on or visits the site (e.g. do people harvest wild food/cultural materials) including your project team.

4. EVALUATING AND MANAGING RISK

4.1 IS IT REAL?

- It's important to determine the actual level of risk because not all perceived risks are real.
- A real risk has a high chance of occurring while a perceived risk does not.
- Perceived risks can often be resolved by ensuring that discussion with the community includes which techniques are to be used, any concerns people may have and the provision of information and/or actions to alleviate them.
- Perceived risks are often a result of lack of knowledge or poor consultation.

- Consider the following when working on management actions:
    - Is the environmental effect perceived or actual?
        - If it is a perceived effect: what actions can you take to improve understanding and reduce concerns (e.g. provide simple fact sheets, talk to people, take water samples). Do not underestimate the impact of perceived effects – native species are often very important to local people for reasons that are not obvious and the use of new techniques, particularly herbicides, can make people very wary.
    - Is it a short-term or long term effect?
        - For example; perhaps rather than cutting access tracks, you can use GPS points or mark lines with pegs or coloured tape or cloth.
    - What native and non-native species (including livestock, domestic animals) are potentially at risk?
        - Consider people here as well – you need to assess the level of risk to anyone who lives on or visits the site - including your project team.
    - Which techniques pose the highest risk and why?
    - What are the direct effects?
        - For example; native plant regeneration being affected by herbicide.
    - What are the secondary effects?
        - For example; a tree falling onto a garden.
    - Can the effect be eliminated?
        - For example; use a treatment method other than herbicides.
    - Can the effect be reduced?
        - For example: ensure people using chemicals wear gloves and protective clothing, wash hands after handling; reduce non-target effects by undertaking operations outside the times a non-target species is present (e.g. a seabird species breeding on the site), or closing sprayed areas or having warning signs for a set period during and after the operation. Make sure people know why and for how long.
    - Can the effect just be accepted?
        - For example, the cutting of tracks for access.
    - Are the negative effects outweighed by the gains?
        - For example, the loss of income to a tourist operator over the time a site is closed will be outweighed by the eventual increase in native species that his visitors come to see, the loss of a few individuals of a non-target species is outweighed by population recovery in the absence of invasive species.

4.2 IMPLEMENTING THE ACTIONS

- As a general rule, most actions will be undertaken during the operation, but some actions may require work to be undertaken prior to the operation commencing. For example you may have to establish a nursery of native plants for revegetation, or catch some of a particularly threatened non-target species and hold them in captivity.

- For every action make sure that you clearly identify when it is to be done, if there are stages (e.g. a before and after survey, signage or closure of areas) and by whom. Include this information in your Operational Plan

4.3 MONITORING THE EFFECTIVENESS OF THE ACTIONS

- If you identify serious risks to the environment and put in place a management plan, part of that plan should include monitoring the effects so that you can assess the actual impacts. This monitoring should be included in your Monitoring Plan

5. RECORDING THE INFORMATION

- Information on managing environmental and non-target effects is recorded in the Operational Plan. Below is an example of how you could present the information.

Description of effect	**Remedial measures**	**When to act**	**Who is responsible**
Ring-barking of target trees means they die standing and fall in pieces over time	2. Advise community members to avoid forest, or be aware of falling limbs, until trees have completely fallen.	Prior to operation as part of community education to reduce concerns.	Project Manager
	3. Reminders will be necessary.	As part of operation and during surveillance/monitoring visits.	Team Leader and Team member responsible for community liaison
Another effect …	…	…	…