Rivers to Ranges Network

Environmental Works Toolkit

Contractor Reporting Procedure

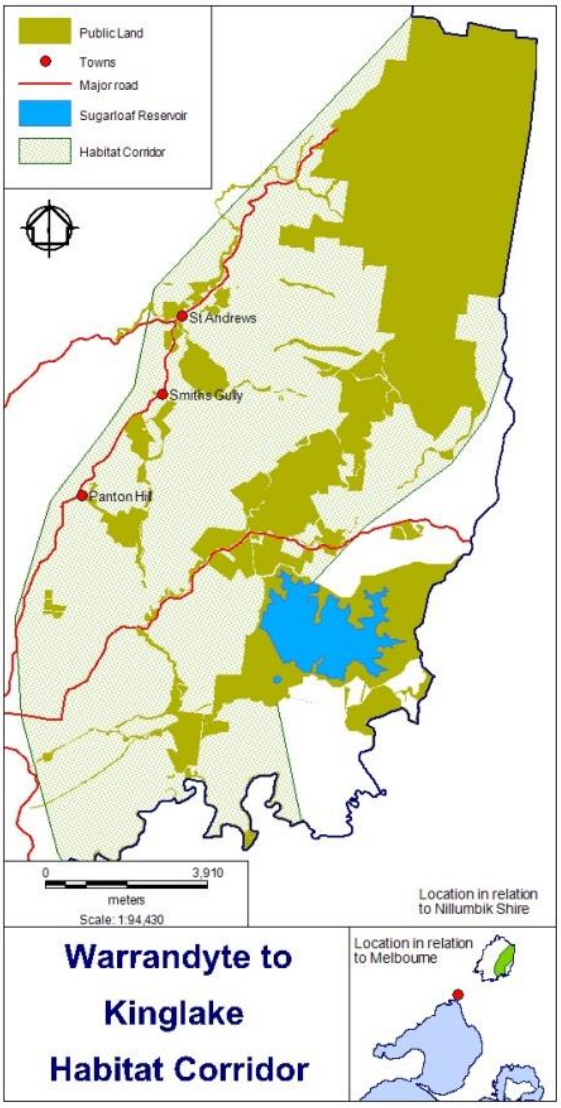
Revised
24 January 2018

Parks VICTORIA

Melbourne Water

VICTORIA State Government | Environment, Land, Water and Planning

NILLUMBIK THE GREEN WEDGE SHIRE



Acknowledgements

This document is part of the Environmental Works Toolkit. The toolkit was developed by the *Warrandyte to Kinglake Habitat Corridor Network* (now *Rivers to Ranges Network*) enabled by State Government funding. The toolkit is free to use and adapt. If you do please acknowledge the *Rivers to Ranges Network* and the project partners (Nillumbik Shire Council, Parks Victoria, Melbourne Water and the Department of Environment, Land, Water and Planning).

Further information

For further information on the Rivers to Ranges Project or the Environmental Works Toolkit, visit the Nillumbik Shire Council Website at www.nillumbik.vic.gov.au or contact the project coordinator, Stacey Warmuth at Nillumbik Shire Council on 9433 3184 or stacey.warmuth@nillumbik.vic.gov.au.

Disclaimer

Table of contents

1 Overview

This document contains reporting and data management procedures for Environmental Works Contractors (Figure 1 and Table 1). These procedures allow contractors to collect meaningful information easily, helping land managers and contractors to:

- plan works
- report achievements
- invoice works
- justify expenditure
- keep a history of reserves

Figure 1: Works planning, mapping and reporting procedure for contractors

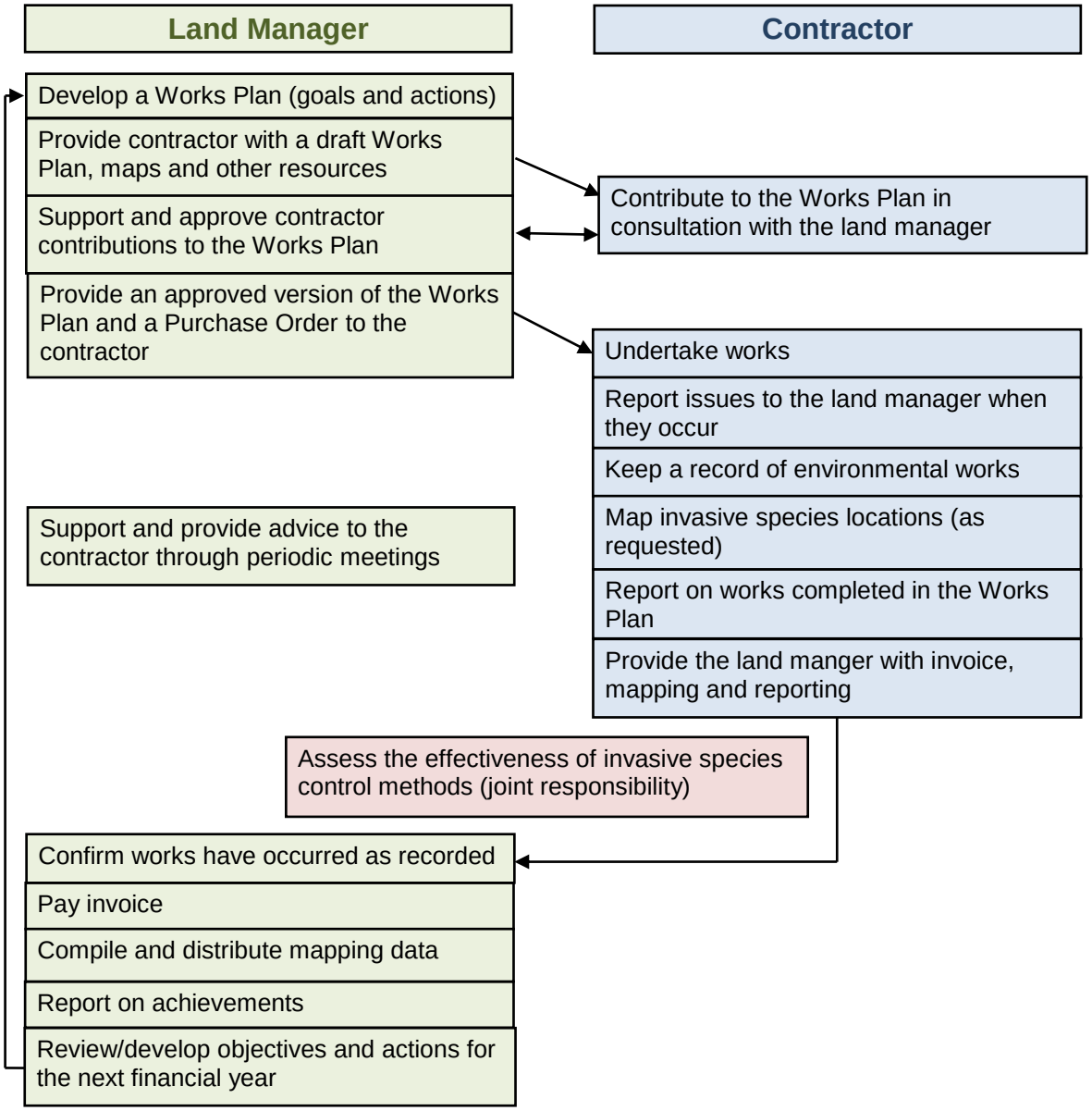


Table 1: Contractor data management requirements

Works Planning	1. Prior to starting on-ground works, work with the land manager to develop a Works Plan for the year (Section 2.1). You are required to provide estimated timing, hours and costs. 2. Return the Works Plan to the land manager for approval. Note: You are authorised to start works once the land manager provides you with the approved Works Plan and a purchase order.
Implementation	3. Record and map locations of weed & rabbit control works and (when requested in the Works Plan) uncontrolled weed infestations (Section 3). 4. Report against the Works Plan (Section 2.2).
Invoicing and Reporting	5. With each invoice, send the land manager the most up-to-date Works Plan with a record of completed on-ground works.
Final Reporting and Data Submission	6. With the final invoice for the current financial year's budget, send the land manager the completed Works Plan, any records of weed and rabbit control works/locations and all associated mapping data.

1.1 Resources

The land manager will provide you with the following resources:

- Works Plan (excel spreadsheet) – including the following worksheets:
    - Overview of management zones and goals
    - Works Plan for works planning and reporting (may include works plans for multiple years to show history of works and future direction)
    - Weed Record for recording mapping and control works
    - Rabbit Record for recording mapping and control works
    - Species Record for recording significant incidental native species observations
    - Chemical Record sheets (optional, for your use only)
- Weed mapping and control works field recording sheet
- Rabbit mapping and control works field recording sheet
- Weed data collection – quick reference
- Rabbit data collection – quick reference
- Reserve maps (as required)
- Existing weed/rabbit mapping data (as available/required)

If you have difficulties with or concerns about following the methods in this document, please contact the land manager for support.

2 Works planning and reporting

2.1 Planning (start of the financial year)

The land manager will provide you with Works Plan/s for the works for which you are responsible. See Table 2 for a description of the different columns.

The Works Plan provides a space for you to plan and cost works for the current financial year (section 3 in Figure 2) and report actions completed (section 4 in Figure 3). The land manager may also provide to you a Works Plan as a way of requesting a detailed quote.

When planning works consider any specific issues or risks arising from works and how you will manage them. For example, contractor safety, public safety (such as pine trees falling after being drilled and filled, people eating sprayed blackberries), untested control methods, cultural heritage, damage to native vegetation, removal of habitat, weed reinvasion following removal, waterway pollution by herbicide runoff, *Phytophthora cinnamomi* infection, erosion and fire hazards.

If a control method has not been proven or there are specific risks (e.g. off-target damage), discuss with the land manager how the effectiveness of the control method will be assessed.

Note: Although Works Plans for previous and future years may be provided for context, you are only required to quote and report on the Works Plan for the current financial year.

Action

1. Fill in section 3 of the Works Plan.

   You can add any other weeds, threats or activities you think need management within the current budget.

   Allocate given budget to each action including estimated timing, hours and cost.

   Feel free to suggest any changes you feel necessary.
2. Return the Works Plan to the land manager.
3. You can start works once you have received the approved Works Plan and a purchase order.

Figure 2: Planning component of Works Plan

Section 1					Section 2				Section 3				Section 4
					Total Budget:								
Works plan					Annual works plan				Contractor planning (cost and time works)				Actual Works
Works ID	Responsible Group	Weed/ Threat/ Activity	Location	Five year goal	Action	Control Method/s	Budget (exGST)	Funding Source	Suggested changes to actions or control methods	Timing	Est. hours	Est. cost (exGST)	….

Table 2: Works Plan details

Field	Details
Section 1: Overall Works Plan – Land manager to complete.	
Works ID	Number created by the land manager. Use to reference works in the weed record and rabbit record worksheets.
Responsible Group	Group/organisation responsible for the works. You are responsible to quote on and deliver all works with the word "Contractor". There may be other works delivered in-house or by Friends Groups included in the Works Plans for your information.
Weed/ Threat/ Activity	Weed species or other threatening process (e.g. rabbit control or erosion) you are going to manage, or activity you are going to undertake (e.g. revegetation or fencing). The land manger may group different weed species together if you are going to control them together and they have similar cover and environmental impacts.
Location	The management zone for the weed/threat/activity (see map on the overview worksheet). More detail on the location of the works may be included in the Action. Descriptions of management zones are included in the appendices.
Five year goal	Five year goal for each weed, threat or activity. This is what you are working towards.
Section 2: Annual Works Plan – Land manager to complete for each year.	
Action	The action/s planned for that weed, threat or activity in that year.
Control Method/s	The planned control method/s for the weed (e.g. cut and paint, drill and fill, hand pull, etc.).
Budget (exGST)	This column may not be visible if there is a total budget for all works or if the land manager is requesting a quote. The total budget will be listed next to the worksheet title.
Funding Source	Funding source of budget. Works may be funded by recurrent funding or grants.
Section 3: Contractor Planning – to allow contractors to make suggestions to the Works Plan and to cost and time actions.	
Suggested changes to actions or control methods	Space for you to suggest changes to the actions or the control methods.
Timing	Space for you to plan the timing of the action/s (e.g. which season or months).
Estimated Time (hrs)	Space for you to estimate the number of man hours the action/s will take.
Estimated Cost (exGST)	Space for you to estimate the cost of the action/s.

2.2 Reporting (before each invoice and at the end of the financial year)

The "Reporting" section provides you with a space to report on works done and final costs. Keeping a good record of actual works completed allows the land manager to develop a site history and cost and plan future works. The land manager may also require this information for reporting to funding agencies.

Action

1. Before you invoice, complete section 4 of the Works Plan (as per Figure 3 and Table 3).
2. Return the Works Plan with section 4 completed to the land manager with each invoice to show progress. All reporting must be completed and submitted before payment of the final invoice.

Figure 3: Reporting component of the Works Plan

Section 4

Actual Works					
Progress	**Comments**	**Suggested follow-up works**	**Actual hours**	**Actual Cost (exGST)**	**Invoice number/s**

Table 3: Details of the reporting component of the Works Plan

Field	Details
Section 4: Actual works – to allow contractors to report on works completed. Also allows the land manager to report on actions completed in-house.	
Progress	Progress towards completing the action selected from a dropdown menu including: Not started; In progress; Partially completed action; Completed action; Exceeded action. In progress should only be included in interim reporting.
Comments	Comments. Particularly if the action wasn't fully completed or was exceeded.
Suggested follow-up works	Suggestions for works in the following years. Use the responses in this section when planning future works.
Actual Hours	Number of man hours the action took.
Actual Cost (exGST)	The actual cost of completing the works – as reflected in the your invoicing.
Invoice number/s	A reference to the invoices of the works. Use this section to reconcile accounts.

3 Weed and Rabbit Works Record & Mapping

Use the following method for recording the location of control works and mapping weed and rabbit locations. This information will form an ongoing record of the location of invasive species and works, help plan and cost future works, assist invoicing, and allow the land manager to report to their funding bodies.

Weeds and rabbits not being controlled don't need to be recorded unless requested by the land manager; however, you may wish to record their location to help plan future works or relocate them at a future time (if doing so collect the same information but leave the control works fields blank).

Action

In the field for each weed infestation (single species) or rabbit infestation (single warren) controlled or to be mapped:

1. Record the location of the infestation/control area (in the first data field). This may be a reference to waypoints (GPS points) taken or eastings and northings.
   Note: Collect any GIS data in GDA94 / MGA zone 55. The land manager may be able to provide some technical support if required.
2. Record details of the infestation and control works (for details see Table 4 Weeds and Table 5 Rabbits). There are a variety of tools available to help you (following).

In the office:

3. Download any waypoints (GPS points).
4. Enter records into the Weed and/or Rabbit Record worksheets in the Works Plan.
5. Provide to the land manager with the Works Plan and any associated mapping data when invoicing.

Note: All contractors are also legally required to keep records of chemical used as per the Agriculture Victoria's standards. For more information visit: http://agriculture.vic.gov.au/agriculture/farm-management/chemical-use/agricultural-chemical-use/record-keeping-agricultural-chemicals. There are forms included in the Works Plan document if you want to use them. The land manager may require you to provide photocopies of your chemical usage records.

To help you collect data in the field the land manger can provide a variety of tools depending on your preference and the technology you have available.

Weed and Rabbit mapping and control works field recording sheets – Hard copy recording sheets. Enter the data on paper forms and copy into Excel back in the office.

Works Plan (Excel spreadsheet) – Enter data into the recording worksheets on a laptop or Toughbook in the field.

Weed Record for Apple Numbers (iPhone, iPad or iPod touch) – Use the Apple Numbers application (the Apple version of Excel) to enter data into a spreadsheet, using the Numbers form tool. Once downloaded onto a laptop or desktop computer this spreadsheet can be opened in Microsoft Excel.

Table 4: Data to collect when recording weed control works or mapping weeds

	Field	Field Options	Field Description
Administration	Location/ GPS points		Number of a GPS point/waypoint collected or the eastings and northings. This is a temporary field prior to the information being converted into a MapInfo table.
	Date		Date record taken and works start.
	Name		Name of people/person mapping and/or doing the works (including operator and supervisor). Initials are okay, as long as it is possible to identify the people present.
	Organisation		Name of the organisation collecting the data and/or doing the works.
Weed Information	Common name	List of common names	Common name of weed.
	Scientific name	List of scientific names	Scientific/botanical name of weed.
	Extent diameter (m)	<1m	The average diameter of the infestation in metres. For point data (a GPS point taken to represent a weed infestation), take the GPS point from the central point of the infestation and enter the extent. For polygon data (mapping the area of the weed infestation) select/enter "Polygon". In most cases you won't need the polygon option.
		1-5m	
		6-10m	
		11-25m	
		26-50m	
		>50m	
		Polygon	
	Cover percent	Present (not assessed)	Estimate of the projective foliage cover of the weed infestation. Projective foliage cover is an estimation of the percentage of the ground that would be covered by the shadow of the weed's leaves if the sun was directly overhead. For dormant deciduous trees, the estimate should consider what the cover would likely be in summer. Inspectors are advised to take care when estimating the cover of grasses as their cover can be misleading when viewed from the side; a better estimate is achieved by looking down at the infestation.
		Trace (<1%)	
		Light (1-10%)	
		Medium (11-50%)	
		Dense (>50%)	
		Absent	
	Age class	N/A	Age class of the weed infestation. If treating or mapping multiple age classes and it's not practical to take multiple records, use the older age class. A resprout is a plant that has been previously treated that is showing regrowth. N/A may be selected where the distinction between age classes isn't apparent (e.g. herbaceous plants) or if the age class isn't assessed.
		Seedling	
		Juvenile	
		Mature	
		Resprout	

	Field	Field Options	Field Description
Weed Information	Adjacent property	N/A Yes No	Does the weed exist on the adjacent property? Generally only used for roadsides, but may be used on reserves and properties to indicate an infestation that occurs on an adjacent property. Select N/A if this field is not applicable or not assessed.
	Comments		Details of the location, distribution of the weed, significance of the infestation, source of the infestation, habitat value of the weed, suggested treatment or follow-up treatment, issues or risks encountered and how they were managed, quantity of weeds treated (e.g. number of buckets of weeds, number of plants).
Control works	Control method		Control method used (e.g. spot spray, cut and paint, hand weed)
	Chemicals used		Herbicide/chemicals used and rate (rate per 10L/total Volume) (if applicable).
	Hours taken		An optional field to record the time taken to do the control work. May be useful when invoicing.
	Invoice number		Your invoice number for the works.
	Works IDs		Unique ID that links to the corresponding goal/s and action/s in the Works Plan.

Table 5: Data to collect when recording rabbit locations

	Field	Field Options	Field Description
Administration	Location/ GPS points		Number of a GPS point/waypoint collected or the eastings and northings. This is a temporary field prior to the information being converted into a MapInfo table.
	Date		Date record taken and works start.
	Name		Name of people/person mapping and/or doing the works (including operator and supervisor). Initials are okay, as long as it is possible to identify the people present.
	Organisation		Name of the organisation collecting the data and/or doing the works.
Rabbit Information	Rabbit Activity	Absent	An assessment of the level of rabbit activity/abundance.
		Low	
		Medium	
		High	
	Warren Harbour ID		Description or identification (tag number) for a warren or harbour.
	Number of entrances		Number of entrances to a warren.
	Warren activity	Inactive	An assessment of the activity of a warren.
		Active	
	Comments		Details of the location, harbour available, signs of rabbit presence, source of the rabbits, suggested control, issues or risks.
Control Works	Control method		Control method used (e.g. netting, baiting, ferreting, fumigation, shooting)
	Chemicals used		Pesticides/chemicals used and rate (rate per 10L/total Volume) (if applicable).
	Rabbits killed		Number of rabbits killed.
	Hours taken		An optional field to record the time taken to do the control work. May be useful when invoicing.
	Invoice number		Your invoice number for the works.
	Works IDs		Unique ID that links to the corresponding goal/s and action/s in the Works Plan.

3.1 Further guidance on mapping

The land manager will talk to you about the complexity of mapping you are required to collect for each reserve. The detail required will depend on how you as the contractor and the land manager plan to use the information.

The land manager may ask you to map weed or rabbit locations and control works for several reasons:

1. To keep a history of control works
2. To relocate an infestation for future control
3. To help plan future weed control
4. To see the impact of control works over time

There are two situations when the land manager will ask you to map weeds.

1. **Map weed control works**. This is a basic requirement for all control work.
2. **Specific weed or rabbit mapping.** The land manager may ask you to do extra mapping to help us understand the cover and distribution of a weed or rabbit infestation. The land manager will include any specific mapping required of you in the works plan.

Following is a brief discussion on how you might approach each of these mapping tasks.

Map control works

The purpose of mapping control works is to form an ongoing record of the location of weeds, rabbit and works for their control, help plan and cost future works, assist invoicing, and allow the land manager to report to their funding bodies.

Weeds and rabbits not controlled don't need to be recorded unless requested by the land manager; however, you may wish to record their location to help plan future works or relocate them at a future time.

When mapping weed control works, you would generally collect between one and five records per day. Let's consider a few examples for weed control:

Works	Mapping
Treating scattered Boneseed throughout the whole reserve which takes you half a day	Take one record in the centre of the reserve choosing an extent as the average width of the reserve.
Treating Blackberry on a stretch of creek which takes you two days	Take several records as you move along the creek.
Treating three patches of Blue Periwinkle taking two days	Take three records, one in the centre of each patch.
Treating isolated seedlings of Pine, Broom, Sweet Pittosporum and a variety of Acacia species throughout a management zone taking two days	Take one record per species in the centre of the management zone choosing an extent as the average width of the management zone.

Works	Mapping
Treating scattered juvenile and mature Sweet Pittosporum throughout the whole reserve which takes you a day	Take two records: one for the juveniles and one for the mature. Take the record in the centre of the reserve choosing an extent as the average width of the reserve. Note: You might take a record for each mature plant so you can follow up resprouts.
Treating Tradescantia involving two treatments one month apart	Take two records, once for each treatment.
Treating Spanish Heath by spraying a core infestation and then cutting and painting isolated infestations radiating outwards from the core infestation	Take two records from the centre of the infestation. The first to represent the work done on the core infestation; the second to represent the work on the isolated infestations.

Specific Weed Mapping

If the land manager asks you to do specific weed mapping they will tell you what they want you to map and how. One way of mapping a whole site is to walk through the site in a zigzag pattern and recording the GPS location of any weeds of interest.

Mapping can be complex or simple. Consider how the information will be used:

High detail mapping is useful for seeing fine scale changes in the location of new and emerging weeds and weed fronts, and for relocating isolated or cryptic infestations. In may also be important to pinpoint the location of weeds directly impacting a high value asset (such as a patch of orchids) that needs focused attention.

Broader scale mapping is better for common weeds and weeds scattered across the reserve that are easy to locate.

You can map weed infestations as a point (a spot on the map) or a polygon (a shape or area):

Points (for most infestations)**:** Take a waypoint at the centre of an infestation or at the location of an individual weed. To be able to visualise the area of infestation, record its extent (diameter or width). Points are useful for quick mapping of isolated weed infestations. They are also useful for relocating weeds or weed infestations, particularly when an infestation may be small or cryptic.

Polygons: Take multiple waypoints to record the extent of the infestation. Polygons are useful for seeing changes in the extent and movement of weed fronts over time. Note: If the extent of the infestation is not clear from the waypoints taken, mark the extent of the infestation on a printed map.

4 Appendices

4.1 Definitions of terms

Datum – In Australia, most maps created by government organisations use the Geocentric Datum of Australia 1994 (GDA94) for the datum. A datum is a framework that enables us to define a coordinate system. A geographic coordinate system is a reference system that uses latitude and longitude to define the locations of points on the surface of the earth.

Eastings and northings - Geographic Cartesian coordinates for a point. Easting refers to the eastward-measured distance (x-coordinate), while northing refers to the northward-measured distance (y-coordinate). Eastings and northings are numbers that combined with a specified datum and projection can represent a GPS point. Eastings and northings can be used to specify a location instead of waypoints collected in a digital file.

GIS - Geographic Information System – A system which allows the user to capture, store, manipulate, analyse, manage and present all types of geographical data (including GPS data).

GDA94 / MGA zone 55 – Preferred datum and projection for collecting waypoints.

GPS – Global Positioning System - A system of identifying locations on the earth's surface using space-based satellites.
GPS point – A spatially referenced point in the landscape. GPS points can be used to mark locations on maps or to relocate a position in the landscape.

GPS unit – A handheld machine which connects to GPS designed to allow the user to navigate and take waypoints.

High threat weed – Non-indigenous plants that under the current conditions will over time out-compete, suppress and replace indigenous species. The level of threat that a weed poses depends on the risk of a weed invading bushland and the impact it has on the biodiversity values present. Species considered high threat will vary across locations and in different climatic conditions. If in doubt about if a weed is high threat discuss with your land manager.

Mapping software (e.g. basecamp or MapInfo) – Computer software used for manipulating waypoints and creating maps.

Projection – Projection is the mathematical formula used to make geographic data that is based on the earth's surface to a flat surface (e.g. a flat map) or to a grid coordinate (metres). Use MGA Zone 55.

Systematically search – Conduct a thorough search for weeds or rabbit burrows, following a grid or zig zag pattern to ensure all ground is covered.
Waypoint – A GPS point collected by a GPS unit. Waypoints can be tracked back to using the unit and downloaded onto a computer for use on maps. In this system waypoints should be labelled with an appropriate ID which links to information on that point in an excel spreadsheet.

Weed infestation – A discrete infestation of a weed; this may be one plant or many plants clustered together with approximately the same cover.

Core infestation/Isolated infestation – Weeds may be scattered throughout the landscape at different densities. An isolated infestation refers to a newly established or

small infestation of a weed, or an isolated individual plant. A core infestation refers to a larger and more well-established patch of weeds. Often there is a significant seedbank under core infestations that requires follow-up treatment thus weed management often focuses on controlling isolated infestations first.

4.2 Management zones

Management zones are areas of distinct habitat quality, which are managed for a particular purpose and to a particular level of service. Each management zone will have one or more five year goals.

Note: Zones may change over time as new information emerges or quality changes.

Biodiversity Hotspots (BH)

Biodiversity Hotspots are small and clearly defined areas vital for maintaining biodiversity within the landscape. They include one or more of the following attributes:

- Support the most sensitive or threatened species (such as EPBC listed species or species at risk of local extinction; e.g. Rosella Spider Orchid or Clover Glycine)
- Support habitat for the most sensitive or threatened fauna species (such as EPBC listed species; e.g. Eltham Copper Butterfly)
- Contain a particularly high diversity of indigenous plants
- Support an intact patch of a particularly rare or threatened vegetation type

Biodiversity Hotspots generally require intensive management to protect and promote a particular biodiversity asset. Depending on the biodiversity asset, management may include, grazing management through fencing or cages, zero tolerance for weeds, assisted pollination, planting of pollinator or food species, reintroductions and/or ecological thinning.

Core Habitat (CH)

Areas of Core Habitat provide refuge for indigenous plants and animals to live, reproduce and flourish. Protecting, improving and connecting core habitat is vital to maintain ecological function at a landscape scale.

They include one or more of the following attributes:

- Support a diversity of indigenous species
- Support relatively intact native vegetation
- Provide habitat for a range of indigenous fauna species
- Provide an important habitat link (even if relatively disturbed) in a habitat corridor

Core Habitat generally requires a moderate level of management to maintain biodiversity. Management may include, landscape scale pest animal control, reduction of high threat weed cover,

supplementary planting of absent or structural species, revegetation to improve connectivity, maintenance of existing revegetation, artificial habitat creation (nest boxes, dunnart tiles) and/or ecological burning.

Non-Core Habitat (NCH)

Non-Core Habitat are areas of lower quality bushland compared to Core Habitat. They contain only a low diversity and/or cover of indigenous plants or are newly rehabilitated from significant disturbance (such a paddock area that has been revegetated). Non-Core Habitat is generally not vital for the movement of indigenous fauna.

Management may include, pest animal or weed control to prevent spread into Core Habitat and Biodiversity Hotspots, and/or maintenance of existing revegetation. It may also aim to aid rehabilitation depending on the resources available.

Highly Degraded Habitat (HDH)

Highly Degraded Habitat are cleared or degraded areas that support mostly exotic and few native plants. Management may include pest animal or weed control to prevent spread into Core Habitat and Biodiversity Hotspots.

Amenity Zones (AZ)

Amenity Zones are vegetated areas managed for community amenity following horticultural practices.

Landholder Engagement Zones (LEZ)

Landholder Engagement Zones are areas of private land surrounding an area of public land where landholders are engaged to complement works. Management focuses on preventing pest animal or weed spread into Core Habitat and Biodiversity Hotspots on the public land and to protect biodiversity or agricultural assets on the private land.

Fuel Management Zone (FMZ)

Fuel management zones are areas managed to mitigate bushfire risk. Fuel Management Zones generally overlap other management zones.