

3. Part A: How to Prioritise Management Actions

This section of the guidelines (Part A) will guide the reader through a step-by-step progression towards development of a management action plan (1 and 5 years). In cases where material is likely to be specific to the local government area, suggestions are given of likely relevant points to be addressed. This is presented as dot points in italics.

Step 1. Write a summary statement ('Local Natural Areas Overview' – Summary Statement) to describe the local government's natural areas and the ecological and cultural values present.

Step 2. List the local government's bushland reserves in order of ecological priority according to the NAIA Templates/Database and other priorities for management (see Step 2 instructions p9).

The method of prioritisation endorsed within these guidelines begins with the ranking of reserves according to their ecological values. The PBP and SWBP's Natural Area Initial Assessments (NAIA) and the NAIA Database are used to ascertain this ranking according to various ecological criteria and a viability score. Please see Appendix A, B & C of the guidelines for an explanation of NAIA ecological criteria used to prioritise bushland reserves.

Step 3. Prioritise the threats and pressures affecting the conservation of local government managed bushland reserves. Within each local government and between natural areas, threats may be prioritised differently and these priorities may change over time as may the threats and pressures affecting the conservation of reserves.

Step 4. Create the Management Action Plans (1 and 5yrs) according to the ecological prioritisation of reserves and the threats affecting their conservation.

A1. Step 1 - Local Natural Areas Overview – Summary Statement

In developing a holistic management action plan that considers relevant management issues for local government natural areas, it is advisable to start by making a brief summary that describes the management area and the associated natural values. This summary will set the local government's natural management areas in context as far as the amount of remnant bushland remaining, the unique values (ecological and cultural) present, the pressures threatening biodiversity conservation and the linkages to surrounding natural areas. Below is a checklist of suggested points to cover in the summary. Refer to Appendix D: Example of Step 1. City of Wanneroo - Local Natural Areas Overview – Summary Statement.

The **Summary Statement** should include a description of the local government's natural areas and include the range of values associated with it, including social and heritage considerations in addition to its inherent biodiversity value and other environmental services provided.

Natural Values

- *Size (area hectares) of bushland included in the management area*
- *Number of reserves and the range of sizes and conditions*
- *Physical features (e.g. geology, soils, landforms)*
- *Vegetation complexes represented and their significance (locally/regionally)*
- *Special geological attributes*
- *Special ecological attributes (significant and declared rare flora/protected fauna/fungi, threatened and priority ecological communities)*
- *Wetlands*
- *Relationship to other natural areas within the wider region*

A map highlighting all of the local government's natural area reserves is also a valuable way of presenting a visual overview. This map may contain additional information such as vegetation complexes and Bush Forever sites.

Management Framework existing within the local government

- *The objective in management of the local government's reserves*
- *Vesting and vesting purpose of reserves*
- *Planning considerations (e.g. creation of new reserves/impact of development on existing reserves)*
- *Legal responsibilities associated with management of reserves*
- *Cultural and heritage values associated with indigenous and non-indigenous use*
- *Social and cultural input and expectations (community interests)*
- *Responsibilities for carrying out works – local government staff, contractors, volunteers, 'friends of' groups*
- *Budget allocation – frequency, main source of funds*
- *Role of other funds e.g. grants*
- *Key threats to the conservation of biodiversity within the local government management area*
- *Reference to other documents relevant to the management of local natural areas e.g. Local Biodiversity Strategy, existing Reserve Management Plans, Dieback Management Strategy, Fire Risk Management Policy etc.*

A2. Step 2 - List the Local Government's Bushland Reserves in order of ecological priority according to the NAIA Templates and NAIA Database

To strategically plan for the management and conservation of natural areas, it is important to firstly identify the management areas and their biodiversity values.

Among the tools provided by the PBP and the SWBP are the Templates for Natural Area Initial Assessment (NAIA), as well as ecological criteria and viability factors to prioritise areas according to their importance for biodiversity conservation. The NAIA Templates provide a framework for local government to collect information on the ecological values of natural areas.

Information provided through completion of the NAIA Templates, enables prioritisation of natural areas for conservation. Natural Area sites are ranked on the basis of prioritisation by ecological criteria and assessment of the areas' ecological viability (according to factors such as vegetation patch size, shape and connectivity with other natural areas).

The ecological prioritisation framework (used to rank reserves in the NAIA Database) is outlined in Part B - section 10.7 of the *Local Government Biodiversity Planning Guidelines* (Del Marco, 2004). The framework places natural areas into Priority 1 (A, B, C), 2 or 3 based on ecological values as described by the Local Significance Criteria.

Priority 1A Locally Significant Natural Areas (LSNAs) are of high value in a regional context for their ecological values. They are natural areas that:

- meet any of the regional representation criteria (except for criteria 1a) ii) or iii) – explained in section 10.7.1 of the *Local Government Biodiversity Planning Guidelines* (Del Marco *et al*, 2004) and/or;
- meet any of the rarity criteria (presence of underrepresented ecological communities, TEC, DRF and other Priority flora or fauna) and/or;
- are part of a regional ecological linkage; and/or
- meet any of the criteria for protection of wetland, streamline and estuarine fringing vegetation and coastal vegetation.

The remaining LSNAs are prioritised by using the designated criterion or criteria; met as either Essential (Priority 2) or Desirable (Priority 3). If only Desirable criteria are met, prioritisation is made according to the number of criteria the natural area meets.

The final ranking is assigned according to values of viability scores from the highest viability estimate to those having the lowest, within each Priority level.

Table 1.(p11) is used to rank reserves according to their priority for management based on ecological criteria and the viability score estimate. The ecological prioritisation/ranking via the NAIA Templates and the NAIA Database, can be used as a basis for the final prioritisation of reserves for their management. However, before finalising the ranking of natural areas for management, a few other considerations must be made. For example, there might be instances where Priority 2 reserves, with a higher viability estimate score than other Priority 1A reserves, may be considered a higher priority for management. Therefore it may be appropriate to reshuffle some Priority 2 natural areas and assign them a higher ranking for management. In this case, the viability estimate score can be used to justify the reviewed ranking.

Other considerations that may affect the final ranking of local government-managed natural areas include:

- the high level of community support (Friends Group) for conservation work within the reserve;
- Management Plans (pre-existing);
- Management Action Programs already being implemented;
- indigenous and non-indigenous heritage or use;
- eligibility for external funding; and
- the human resources available.

The final prioritisation should incorporate 'other' local government natural area management priorities. However, protection and conservation of the ecological integrity of natural areas should be the main focus in prioritising natural areas for management.

The column headings in Table1 (p11) direct the user to include: the NAIA Priority ranking; Viability Estimate score; reserve identification; location; size; presence of rare species or communities; current management plans; and notes (allowance for further comments such as the identification of Bush Forever sites, the regional significance of the site, the key features which may have affected the level of ranking for the reserve). The table may be extended to include further information such as community group support or pressure for management.

Read Appendix A for an explanation of natural area prioritisation using the NAIA Templates. For more information on the ranking process used, refer to Appendix C: *Guidance on prioritising Locally Significant Natural Areas, Local government Biodiversity Planning Guidelines* (Del Marco *et al*, 2004).

Recommended actions:

Where local governments have not yet completed the NAIA Templates:

- *Identify sites yet to be assessed; and*
- *complete NAIA Templates for all natural areas.*
- *Enter data into the NAIA Database (contact the PBP or the SWBP for more information or assistance).*

Where local governments have completed the NAIA Templates:

- *Assess the NAIA ranking to ensure individual local government management priorities are incorporated.*
- *Complete Table 1 (see Table 1 - Example p11).*

Table 1: Summary of Local Government Natural Areas Prioritised Using the NAIA Ecological Criteria and Viability Score - Example

NAIA Priority Ranking	Viability Estimate Score	Reserve ID	Location	Size	Presence of rare species or communities (specify*) Is there a recovery Plan available for the listed species/community? TEC/DRF	Current Management Plan/its currency (yes/no and years of currency)	Notes
1	20.1	Drosera Reserve	King Rd, Harloop	27ha	TEC - Interim Recovery Plan No 60	No	Contains DRF sp _____ + includes ___BF Reference site
2	19.5	Dryandra Reserve	Tranin Rd, Milton	17ha	no	Yes/2007-2012	Conservation Category Wetland
3	14.8	Smith Rd Park	Smith Rd, Bellsbrook	21ha	no	Yes/1995-2000	Excellent condition, under represented vegetation complex
4	13.3	Gumnut Park	Marri Rd, Scholton	23 ha	no	no	Contains both upland and wetland structural plant communities

*Biodiversity Features: TEC = Threatened Ecological Communities
 PEC = Priority Ecological Communities (Vegetation Complexes)
 DRF = Declared Rare Flora
 Priority 1, Priority 2, Priority 3, Priority 4 Flora
 Threatened Fauna (Endangered, Vulnerable, Schedule 1 and Schedule 4, Priority 1-4 Fauna)

#Please note: Recovery Plans are prepared by the Department of Environment and Conservation and their availability and status can be checked on the following link:
<http://www.dec.wa.gov.au/management-and-protection/threatened-species/recovery-planning-and-implementation.html>

A3. Step 3 - Prioritise the Threats and Pressures affecting the Conservation of Local Government Managed Bushland Reserves

Step 3 requires the management action planner to collate and list all threats affecting, or with the potential to affect, the conservation of natural areas under the local government's control.

Threats can then be ranked according to the broad level of risk across the management area. Del Marco *et al* (2004) suggest that controlling the following threats should be a top priority and the bare minimum:

- inappropriate fire regimes;
- uncontrolled access and activities;
- weed invasion;
- disease;
- feral animals; and
- major factors/processes degrading condition of native vegetation.

Varying combinations of threats exist across the Perth Metropolitan Region and coastal South-West Natural Resource Management areas. For example, where *Phytophthora* dieback and uncontrolled motorbike access may pose a serious threat to the conservation of natural areas in the eastern hills area of the Perth Metropolitan Region, weed infestation and trampling (due to much higher levels of visitation) may be a serious threat in the western and south-western coastal areas.

This stage of the prioritisation process requires ranking threats across a whole local government area (column 1-'Threat Priority'). There are several approaches to this. The first option is that threats are listed in order as suggested above (Del Marco *et al*, 2004) and all natural areas affected by those threats are listed. Any additional issues can be added and their ranking evaluated later. The second option is that threats are ranked based on how many natural areas are affected by the threat. The third and final option is that all threats are listed without ranking.

Information for this stage can be collated from NAIA Templates, current management plans and ground-truthing where required. This analysis could highlight the extent of various problems and might help identify management strategies that can be applied to several natural areas simultaneously.

However, the final decision for prioritisation of threat abatement actions will depend on site-specific analysis of natural areas and the level of threat to individual natural areas. Prioritisation of threats may vary according to: location; landscape and soil; climate; distribution of flora, fauna, weed and pest species; and the varying pressures on bushland reserves due to development and external land use. Additionally, these priorities may change over time as may the threats and pressures affecting the conservation of reserves.

Management of invasive species threats should be prioritised according to asset-based management strategies. Prevention of the introduction of invasive species and timely eradication, at the point of introduction, is vital in the protection of high-value natural areas. This strategy of prevention and early eradication will provide good return on investment and should be considered an important part of threat prioritisation. A model,

illustrating the management of invasive species threat in Western Australia, is included as Appendix E.

Recommended actions:

- *Identify management recommendations from reserve assessments and/or management plans. Depending on the level of experience of the assessor and how long ago the assessments (using the NAIA Templates) were completed, it may be necessary to revisit sites in order to ascertain their current status with regard to threats;*
- *List all threats or pressures affecting, or with the potential to affect (e.g. *Phytophthora dieback*), the conservation of natural areas/reserves within the local government management area;*
- *Rank threats according to their (potential) level of impact. Consider the above list and individual circumstances of the local government such as location, variations in human use and current management actions (or proceed to the next step without ranking threats);*
- *Complete Table 2 (see Table 2 – Example p14).*

Table 2: Summary and Prioritisation of Threats to Natural Areas in the Local Government – Example

Threat Priority (optional)	Threat	Reserve/s Affected	Reserve Priority Ranking (Refer to Table 1)	Issues	Proposed Actions	Proposed Timeframe	Cost estimates (over 5 years)	Additional Information
1	Inappropriate fire regimes	Possibly all reserves (this depends on the current policy on prescribed burning or can use the information collected through the NAIA Templates that will identify reserves affected by frequent fires due to arson)	As per Table 1	Lack of recorded fire history of individual natural areas - frequency of fires and area burnt No Fire management plans for a number of LG Reserves Lack of community awareness about how frequent fire affects biodiversity	Identify fire history of individual reserves Develop Fire Management Plan (FMP) and Fire Response Plans (FRP) in cooperation with FESA (First for priority areas = high ecological value + high incidence of fires, then all) Include awareness of effects of frequent fires on natural areas into a community education package	2009-2010 Compile information on fire frequency for all LG controlled natural areas - identify areas with high incidence of fires By Summer 2011 - all natural areas have a FMP/FRP By Summer 2011 establish a public awareness program	\$500 Officer Time 3 days/reserve @ 70 reserves @ \$30/hr = \$47,880 \$5K	Liaise with FESA regarding fire history for all natural areas
2	Uncontrolled access - by vehicles, motorbikes	Reserve A Reserve B Reserve C Reserve D	Reserve C Reserve B Reserve D Reserve A	Damage to vegetation, disturbance of fauna habitat, Damage to fencing and	Install fencing/gates Repair damaged infrastructure	Reserve C - by June 2010 Reserves C & B by June 2009 Reserve D & A by	Get quotes/m2 fencing Officer time + materials ~ 2days/reserve	Liaise with neighbours, DEC and FESA Monitor disturbance

Threat Priority (optional)	Threat	Reserve/s Affected	Reserve Priority Ranking (Refer to Table 1)	Issues	Proposed Actions	Proposed Timeframe	Cost estimates (over 5 years)	Additional Information
				Entrance gates Complaints from surrounding residents due to noise pollution	Install signage with appropriate messages/review old signage Community awareness-raising Liaise with Police to organise a blitz to apprehend offenders in at least one high priority area	2010 Survey old signage in Reserves C,B,D &A by June 2009 Research new signage (messages & cost) by June 2010 - installation by 2011	@ 4 reserves ~ \$8K Signage - (inc. research and development + new signs) ~ \$6K Installation - officer time + materials ~ \$2K	Record community/ranger/bushland condition/infrastructure reports
3	Unauthorised access by horse riders	Reserve C Reserve E Reserve H	Reserve C Reserve E Reserve H	Trampling Informal trails Risk of spread of weeds and diseases	Map access points and trails (formal and informal) Consult horse-riding community Undertake research	Complete strategy proposal and associated costings by June 2010 Allow officer time	10K	Research techniques used externally Survey reserve users Seek advice from DEC Include community education/awareness raising
4	Priority Weeds	All	As per Table 1	Weeds list Number of priority weeds Extent of weed infestations	Weed control program Weed mapping	2009-2014	200K	Priority reserves first

A4. Step 4 - Create Management Action Plan Summaries (1 and 5yrs) according to prioritisation of reserves and the threats affecting their conservation

At this point, highest priority reserves and highest priority threats (management issues) can be transferred from Table 2 into the 5 year Management Action Plan Summary (see Table 3 below). The highest priority action recommendations (in response to high priority threats in highly ranked reserves) should be listed first. You may include any number of the most highly ranked (or all) reserves into the management action summary. This will depend on factors such as: how many reserves are controlled by the local government, the amount and type of management actions required, and the resources available to achieve proposed management actions.

Management Action Plan Summaries should be used for strategising management actions and can be adapted as circumstances change. For example, changes in threat prioritisation, funding or other management considerations (see p9).

There will be many cases where urgent management issues/threats don't overlap with high priority reserves. It is important to consider that actions taken now to ameliorate a high priority threat may save a significant amount of resources in the future. Implementation of measures to reduce the risk of *Phytophthora* dieback spread, or control of localised infestations of highly invasive weed species are good examples.

Monitoring and assessment of management actions should be incorporated within the Management Action Plan/s. The monitoring and assessment of management actions such as revegetation work and weed control is vital in:

- ascertaining efficiency of techniques;
- allowing adaptive management and;
- justifying the incorporation of new management requirements within annual budget reviews (see Part B12 – p37).

The time taken to prepare the Management Action Plan/s should also be included.

Recommended actions:

- Complete Tables 3 & 4 (5 year and 1 year Management Action Plans) see Tables 3 & 4 examples, pp17-18.

Note: The tables provided have been created for the purpose of example only. Cost estimates are not a true indication of real costs and have been formulated to include staff salaries/wages.

Table 3: Five Year Local government Natural Area Management Action Plan - Example

Reserve ID	Reserve Priority	Threat	Threat Priority	Proposed Actions	Responsible Parties	Project Name	Cost \$					Total Cost
							Y1 '09	Y2 '10	Y3 '11	Y4 '12	Y5 '13	
Drosera Reserve	1	Dieback	1	Dieback assessment + signage Education/Awareness	Contract Ops crew EO SO	PA	1.5K 1K		1.5K			3K 1K
		Fire	2	Fire Management/Response Plan	EO	PB	800	500	500			1.8K
		Weeds	4	Priority weed management + Monitoring	EO, FESA	PC	250					250
		Rubbish	6	Removal	Bush crew	PD	1K	1K	500	500	500	3.5K
							200	200	200	200	200	1K
Dryandra Reserve	2	Dieback	1	Dieback assessment + signage Education/Awareness	Contract Ops crew	PA	1.5K 1K		1.5K			1.5K 1K
		Fire	2	Fire Management/Response Plan	EO SO EO, FESA	PB	700	500	500			1.7K
		Weeds	4	Priority weed management + Monitoring	Bush crew Contract	PC	250					250
							700	500	400	200	200	2K
Project Budget (5 years)						PA						40K
						PB						5K
						PC						200k
						PD						10k

Table 4: One Year Local Government Natural Area Management Action Plan - Example

Scheduling				Reserve	Threat	Actions	Treatment Area	Responsible Parties	Cost	Project	% of Project Budget (over 5yrs)
Jul-Sep 2009	Oct-Dec 2009	Jan-Mar 2010	Apr-Jun 2010								
X				Drosera	Dieback	assessment	Entire reserve	Contractor	1.5	PA	3.75%
	X					signage	all entry points	Ops crew	1K	PA	2.5%
	X					education/awareness	visitors/local community	SO EO	800	PA	2%
X					Fire	Fire Management/Fire response Plan		EO, FESA	250	PB	5%
			X		Weeds	priority weed management	perimeter	Bush crew	1K	PC	0.5%
			X		African Love Grass	edge effects spot spray glyphosate	Perimeter 6km	Bush crew			
		X			Perennial Veld Grass	blanket spray dense infestations & spot-spray remainder with grass selective herbicide	Entire site 27ha	Contractor			
X				Dryandra	Dieback	assessment	Entire reserve	Contractor	1.5	PA	3.75%
	X					signage	all entry points	EO/Marketing	1K	PA	2.5%
	X					education/awareness	Visitors/local community	EO/Marketing	700	PA	1.75%
X					Fire	Fire Management/Fire response Plan		EO	250	PB	5%
X			X		Weeds	Edge-effects weed control	perimeter	bush crew	700	PC	.35%