REGIONAL RECOVERY PLAN

for Threatened Species and Ecological Communities of Adelaide and the Mount Lofty Ranges, South Australia

2009 - 2014

Appendices PART A

Department for Environment and Heritage

Australian Government

Government of South Australia

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Cover design and photography

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Disclaimers

The opinions expressed in this document are the views of the authors and do not necessarily reflect those of the Department for Environment and Heritage, South Australia.

This recovery plan sets out the actions necessary to stop the decline of, and support the recovery of, threatened species and ecological communities in the planning area. The Australian Government is committed to acting in accordance with the plan and to implementing the plan as it applies to Commonwealth areas.

The plan has been developed with the involvement and cooperation of a broad range of stakeholders, but the making or adoption of this plan does not necessarily indicate the commitment of individual stakeholders to undertaking any specific actions. The attainment of objectives and the provision of funds may be subject to budgetary and other constraints affecting the parties involved. Proposed actions may be subject to modification over the life of the plan due to changes in knowledge and a review of the analyses contained in this plan.

Citation

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A Recovery Plan prepared under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*

Table of Contents

1. Consultation and Stakeholders

1.1 Electronic Distribution Networks

The project was promoted in the following existing newsletters and electronic distribution lists:

- Echidna Express - e-publication of the Adelaide and Mount Lofty Ranges NRM Board
- Conservation Council of SA Briefs
- Conservation Council of SA E-bulletin
- Xanthopus - newsletter of the Nature Conservation Society SA
- MLR Grassy Woodland Network Newsletter
- DEH News - internal e-newsletter for DEH staff
- AMLR NRM email distribution list (co-ordinated by DWLBC)
- SA MDB NRM email distribution list (co-ordinated by SAMDBNRM)

1.2 Summary of Key Stakeholders

National
Australian Department of the Environment, Water, Heritage and Arts
Threatened Species Scientific Committee
State
Department for Environment and Heritage
Department of Water, Land and Biodiversity Conservation
Department of Transport Energy and Infrastructure
Primary Industries and Resources South Australia
Country Fire Service
Conservation Council of SA
SA Water
Threatened Species Network
Non-government Environmental and allied Organisations
Field Naturalists' Society
Greening Australia SA Inc
Native Orchid Society of South Australia
Nature Conservation Society of SA
Nature Foundation SA Inc
SA Native Fish Association
South Australian Farmers Federation
Threatened Plant Action Group
Threatened Species Network
Trees for Life
Weed Management Society SA
Regional
Adelaide and Mount Lofty Ranges Natural Resource Management Board
AMLR NRM Sub groups (see below)
Various Environmental Community Groups, e.g. Landcare Groups, Catchment Groups, Local Action Planning Groups, Friends of Parks
Adjoining regions
South Australian Murray Darling Basin Natural Resource Management (NRM) Board
Northern and Yorke NRM Board
South East NRM Board
DEH Murraylands and South-East Regions
Regionally relevant Conservation/Recovery Programs and staff
Mount Lofty Ranges Southern Emu-wren and Fleurieu Peninsula Swamps Recovery Program
Bandicoot Project Officer (SADEH)
Southern Emu-wren/Fleurieu Peninsula Swamps Recovery Program
Murraylands Threatened Species Project
SAMDB Threatened Flora Project Officer, Environment & Biodiversity Services
OBP Survey Co-ordinator
Lofty Block Orchid Recovery Project

Lofty Block Threatened Orchid Recovery Project
Hindmarsh Tiers Biodiversity Group
Program Leader & MDBC Native Fish Strategy Coordinator PIRSA
South Para Biodiversity Project
Urban Forest Biodiversity Program/ Million Trees Program
Ecologist, River Murray Corridor Fauna
Ecologist, Threatened Mallee Birds
SA Water, Land Management Manager
ForestrySA, Coordinator Community Programs
Local Government (see below for full list)
Indigenous Groups
Four Nations Governance Group (Kaurna, Ngarrindjeri, Ngadjuri, Peramangk and Nganguraku)
Research Institutions
University of Adelaide, School of Earth and Environmental Sciences
Flinders University, School of Biological Sciences
University of South Australia, School of Natural and Built Environments

1.3 Land Management Agency Administrative Areas

The following list shows the major land management agencies within the AMLR region.

Land Management Agency	Area
AMLR NRM Board	
Southern Group	Whole
Fleurieu Group	Whole
Central Group	Whole
Northern Group	Whole
MDB NRM Board	
Ranges to River Group	Partial
DEH	
Adelaide Region (Southern Lofty District)	Whole
Adelaide Region (Fleurieu District)	Whole
Adelaide Region (Northern Lofty District)	Majority
Murraylands Region (Mallee District)	Partial
Murraylands Region(Riverland District)	Partial
South-East Region (Coorong District)	Partial
Urban Forests Biodiversity Program	Whole
Forestry SA	
Mount Lofty Ranges Region	Majority
SA Water	
Local Government Area	
Adelaide City Council	Whole
Adelaide Hills Council	Whole
Alexandrina Council	Partial
Campbelltown City Council	Whole
City of Burnside	Whole
City of Charles Sturt	Whole
City of Holdfast Bay	Whole
City of Marion	Whole
City of Mitcham	Whole
City of Onkaparinga	Whole
City of Playford	Whole

Land Management Agency	Area
City of Port Adelaide Enfield	Whole
City of Salisbury	Whole
City of Tea Tree Gully	Whole
City of Unley	Whole
City of Victor Harbor	Whole
City of West Torrens	Whole
Light Regional Council	Partial
Mid Murray Council	Partial
The Barossa Council	Majority
The City of Norwood Payneham & St Peters	Whole
The City of Prospect	Whole
The Corporation Of The Town of Walkerville	Whole
The District Council of Mallala	Partial
The District Council of Mount Barker	Whole
The District Council of Yankalilla	Whole
The Rural City of Murray Bridge	Partial
Town of Gawler	Whole

2. Chronological Snapshot of the AMLR Region

1836 – 1860	• The site to become the city 'Adelaide' decided on December 31, 1836 by Colonel Light.[10] • By 1840, a number of villages established outside the parklands fringe. Pioneer pastoralists spread beyond the bounds of surveyed land, running flocks of sheep across the open grassy woodlands of the Adelaide Plains.[10] • Dingo, kangaroo, emu and wallaby hunts occurred across the plains.[17] • In the early 1840's, parcels of land known as 'hundreds' established to promote farming.[17] • The open woodlands of the Adelaide Plains (extending from Mclaren Vale north to the Gawler River) and adjoining hills heavily cleared and replaced with crops and pastures. The stringy bark forests of the eastern MLR were felled for timber to build houses and fences.[7,10,17] • By the late 1840's, Adelaide was well-established and major settlements extended south along the coastal plain and east across the MLR. Vines were planted in the Barossa Valley and southern vales districts.[10,17] • By 1860, an estimated 145,000ha around Adelaide was under cultivation.[3] The population of Adelaide was over 40,000.[18]
1861 - 1900	• Timber licences were issued between Rapid Bay and Encounter Bay on the southern Fleurieu in 1861.[18] • Coastal foreshores and the banks of rivers and lakes reserved for public use from the 1860s.[17] • In 1869 two fox cubs were given to the Adelaide Hunt. By 1888, foxes were well established along the Coorong.[17] • By 1880, remaining stands of black forest (*Eucalyptus microcarpa*) which occurred on the south-eastern foot slopes were mostly cleared.[3,12] The Adelaide plains noticeably lacked any form of native vegetation cover.[17] • By the early 1860's rabbits were common in parts of Adelaide Hills, and quickly spread across the region.[17] • By the late 1800's, commercial fishers supplying the Adelaide Market had noticed a decline in native fish stocks in the Murray River.[17] • Belair was made a National Park in 1891 (the 2nd National Park adopted in Australia).[10]

1901 - 1946	• By 1914, suburban housing extended three-kilometres around the parkland belt, with other separate growth areas clustered around Port Adelaide, Glenelg, Henley Beach, Grange, Mitcham, Woodville and Magill. The surrounding plains had become an intensive horticultural production zone including vegetables, fruit and vines.[10] • A significant housing boom followed the end of World War I. By 1920, the population of Adelaide had reached 200,000. Only a few significant areas of vegetation remained in the MLR. Urban expansion continued well into the 1930's, mainly to the south and east of the city. A suburban strip through Woodville linked the Adelaide city with Port Adelaide.[10] • The late 1930's saw concentrated clearing of the Fleurieu Peninsula. Knowledge of trace element deficiencies in the 1940's promoted agricultural development of lands previously considered unfavourable.[18] • The population rose steadily to around 400,000 by the end of World War II in 1946.[3] • Much of the remaining forest in the MLR, including Belair National Park, burnt during the 1939 fires.[10]
1947 - present	• Improvements in ploughs and fertilisers saw clearing expand to areas of naturally nutrient poor soils.[10] The remaining undeveloped Adelaide Plains and alluvial fans along the foothills were surrendered to a low density housing explosion after World War II. Nearly all the market gardens, orchards and vineyards on the plains were displaced by 1957.[10] The coastline was developed from Brighton to Outer Harbour.[3] • The 1955 'Black Sunday' fires spread across the Mount Lofty Ranges over a total area of 40,000ha. Another significant fire event occurred in 1957.[3] • The outer-towns of Elizabeth and Noarlunga were created in the 1950's and 60's to cope with the housing demands and anticipated future growth of South Australia's capital.[10] Between 1960 and 1980, development focus shifted to the Hills Face Zone.[14] • Of about 240,000ha of native vegetation in 1945 in the southern MLR, less than 90,000ha remained by 1980. Only 3 significant stands of native vegetation remained in 1980.[10] • A significant fire event occurred in the Adelaide Hills in 1980, followed by the 'Ash Wednesday' fires of February 1983 (the worst on record in SA) which burnt 2,714ha of parks and reserves in the MLR.[17] Bushfires also occurred in 1986, 1995, 1996, 1998.[3] • Regulations were adopted under the Planning Act in the 1970's, and strengthened in 1983 to control vegetation clearance.[17] The Native Vegetation Management Act was introduced in 1985, superseded by the *Native Vegetation Act 1991*, seeing the end to broad-scale vegetation clearance.[10] • By 1990, the population had reached one million.[10] • An urban boundary for Adelaide was introduced in 2002 to manage urban growth around the outer limits of metropolitan Adelaide. The boundary was expanded in 2007 to help meet urban development needs.[8,9]

3. Legislation and Planning

3.1 Relevant Legislation

There are numerouss Acts of Parliament relevant to this plan. The principal Acts are described in the main body of this plan (*Environment Protection and Biodiversity Conservation Act 1999, National Parks and Wildlife Act 1972 and the Native Vegetation Act 1991*). Other relevant legislation is described below.

Natural Resources Management Act 2004

The State's *Natural Resources Management Act 2004* (NRM Act) provides the legislative framework for the sustainable and integrated management of the State's natural resources. The NRM Act replaces and updates the *Animal and Plant Control Act 1986*, *Soil Conservation and Land Care Act 1989* and *Water Resources Act 1997*, and has resulted in the amendment of a further 15 state NRM related Acts.

Key regulatory functions of the NRM Act include the ability to control water use through prescription, allocations and restrictions; and the requirement to control pest plants and animals, and activities that might result in land degradation. A 'duty of care' is a fundamental component of this Act, i.e. ensuring one's environmental and civil obligation by taking reasonable steps to prevent land and water degradation. Persons can be prosecuted if they are considered negligent in meeting their obligations.

Established under the NRM Act is a peak advisory body, the NRM Council, and eight regionally based, community-driven NRM Boards. The guiding document for NRM is the State Natural Resources Management Plan 2006.[6] Each regional NRM Board is required to prepare a regional NRM Plan with associated Investment Strategies. A draft regional NRM plan has been developed for the Adelaide and Mount Lofty Ranges Region.[1] Where a water resource is prescribed the NRM Act requires that a water allocation plan is prepared by the relevant NRM Board.

Development Act 1993

In accordance with Section 37 of the State's Development Act and Regulation 24 of the Development Regulations (Part 5), planning authorities are required to refer certain types of development applications to other agencies for specialist advice.

Advice is sought from the Native Vegetation Council (NVC) regarding applications for land sub-division, where the development may impact on native vegetation. However, the decisions made by local councils and the Development Assessment Commission (DAC) may go against the advice of the NVC. Any approved development within an area of intact native vegetation is subject to the regulations of the NV Act.

The Coast Protection Board (CPB) establishes whether land and any development on it is likely to affect or be affected by coastal processes including storm surge flooding and short or long-term changes in the coastline's position. The CPB can recommend development applications along the coast be rejected if, for example, the development impinges on the conservation of coastal, estuarine and marine habitats.

Environment Protection Act 1993

The State's *Environment Protection Act 1993* (EP Act) is administered by the Environment Protection Authority to provide for the protection of the environment; control actions that will or might result in pollution; and prepare the State of Environment Report.

Coast Protection Act 1972

The State's *Coast Protection Act 1972* (CP Act) is administered by the Department for Environment and Heritage to protect the coast from erosion, deterioration, pollution or misuse on both private and public land and to engage in environmental restoration. The Coast Protection Board is the primary authority and prescribed body in South Australia managing coastal protection issues and providing advice on coastal development.

The CP Act is currently under review. It is anticipated that the new Act will establish a Coastal Board, provide the statutory basis for marine plans, and interacts with and informs the *Development Act 1993*, the *NRM Act 2004* and other coast and marine resource use legislation.

Crown Lands Act 1929

The State's *Crown Lands Act 1929* (CL Act) regulates the use of crown land under the care of local government (e.g. cemetery reserves, water reserves, stone reserves and parklands). Numerous sub-populations of the species in this plan occur on CL Act reserves. Crown land under the care of local government can be proclaimed as Conservation Reserves under the CL Act, and managed for biodiversity conservation purposes.

Forestry Act 1950

The State's Forestry Act 1950 (FA Act) regulates the use of land gazetted for the purpose of forestry. Forestry SA manages large areas of native vegetation in the Mount Lofty Ranges, which contain populations of species in this plan. Native Forest Reserves can be proclaimed under the FA Act for purposes relating to the conservation and management of land supporting flora and fauna.

Fisheries Management Act 2007

Management and regulation of fishing in South Australia comes under the State's *Fisheries Management Act 2007* (FM Act). This Act replaces the *Fisheries Act 1982*. The FM Act regulates the fishing of protected species and protected areas. Some of the freshwater fish included in this plan are fully protected from fishing activities. Penalties apply if offences are committed. The FM Act also provides for a more ecosystem-based approach to managing fisheries, with conservation objectives, risk-based assessments of potential impacts on the ecosystem and tools to protect fish habitats. A Fisheries Council is established under the Act to provide advice to the Minister in relation to fisheries management for commercial, recreational and traditional indigenous use.

River Murray Act 2003

This act provides for the protection and enhancement of the Murray River and its tributaries within South Australia. The objectives of the act relate to river health, environmental flow, water quality and human use.

Native Title Act 1993

Generally the Commonwealth's *Native Title Act 1993* (NT Act) requires certain assessment procedures to be followed prior to undertaking activities. The relevant provisions of the NT Act will be considered before undertaking any future acts that might affect Native Title. Procedures under the NT Act are additional to those required to comply with the State's *Aboriginal Heritage Act 1988*.

The requirements of the NT Act only apply to land where Native Title rights and interests may exist. When implementing any recovery actions in this plan where there has been no Native Title determination, or where there has been no clear extinguishment of Native Title, there will be consideration of the possibility that Native Title may continue to exist. This plan will be adopted and released subject to any Native Title rights and interests that may continue in relation to the land and/or waters. Content in this plan is not intended to affect Native Title.

3.2 EPBC Act Recovery Plan Requirements

The EPBC Act and its accompanying regulations stipulate specific information that must be included in a recovery plan adopted by the Minister. While the Act requires specific information for each species or community, the Act does provide the option of developing multi-species recovery plans where feasible. These may cover a range of species/communities that occur in the same area or a number of species that have closely related requirements based on their habitats, threats or recovery actions. Although these guidelines do not specifically address regional recovery plans, this plan and others being prepared under regional pilot projects will test whether regional recovery plans can meet the requirements for adoption under the EPBC Act.

The EPBC Act requires 'habitat critical to survival of species' to be identified. Regional recovery plans cater for large numbers of species and diverse taxa; consequently there are significant challenges in identifying 'habitat critical to survival of species' specific enough to be useful for formulating meaningful management actions. In this respect, this plan's approach is multi-scaled. Species' threats, distribution patterns and habitat at the broad ecological community level were analysed and summarised in a variety of ways to define management requirements. Species-specific details have been presented in a 'profile' for each species based on the best available data and knowledge (see Appendices Part B).

Plans may cover a combination of species/communities listed under the EPBC Act and relevant State legislation, in such cases the Commonwealth Minister for the Environment, Heritage and the Arts will only adopt the plan in relation to those species listed under the EPBC Act.

As per the EPBC Act's recovery planning guidelines, this plan is not intended to be a detailed implementation plan. This plan specifies management actions directly related to achieving the objectives, however the specific details of these actions (e.g. scientific or technical information, specific information on nature of research to be undertaken or experimental design) may be organisational and/or site-dependent. To aid implementation however, more detailed analysis will be provided for in separate operational documents and products.

In preparing a recovery plan liaison between the authors of the plan and a broad range of interested parties is required. Before a plan is made or adopted by the Commonwealth Minister under the EPBC Act there must be an opportunity for input by the general public. A recovery plan must identify interests that will be affected by the plan's implementation. In developing a recovery plan it is necessary to ensure that there is consultation with relevant indigenous people that have an interest in the species'/communities and where they occur.

While preparing this plan, DEH conducted the community consultation in line with Commonwealth requirements. The draft plan was circulated within State Government prior to being made available for a three month public comment period by AGDEWHA. Details of the consultation process, and comments received during the consultation period are provided to the Commonwealth Minister for consideration at the time of submitting the plan for adoption.

3.3 International Obligations

There are a number of international agreements and conventions that are relevant to this plan.

Convention on International Trade in Endangered Species

A number of species covered by this plan are listed under Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). CITES has established a world-wide system of controls on international trade in threatened wildlife. The legislative basis for meeting Australia's responsibilities under CITES is now provided by Part 13A of the EPBC Act. The actions identified in this plan are consistent with Australia's obligations under CITES.

Convention on Biological Diversity

Australia is a signatory to the Convention on Biological Diversity (CBD). The primary aims of the CBD are the conservation and sustainable use of biological diversity. The CBD emphasises the need for *in situ* conservation measures, and promotes the recovery of threatened species. The main implementation tools for the Convention are national strategies, plans or programs. This recovery plan is consistent with Australia's obligations under the CBD.

Agreements and Convention on Migratory Species

Some of the bird species included in this plan are migratory. The following bilateral agreements provide a formal framework for the conservation of migratory birds of the East Asian - Australasian Flyway. All migratory bird species listed in these bilateral agreements are protected in Australia as matters of national environmental significance under the EPBC Act.

- Japan Australia Migratory Bird Agreement (JAMBA),
- China Australia Migratory Bird Agreement (CAMBA),
- Republic of Korea Australia Migratory Bird Agreement (ROKAMBA).

Australia has also encouraged multilateral cooperation for migratory bird conservation through the Partnership for the East Asian-Australasian Flyway.

The Convention on the Conservation of Migratory Species of Wild Animals (CMS/Bonn Convention) is an intergovernmental treaty aimed to conserve terrestrial, marine and avian migratory species throughout their range.

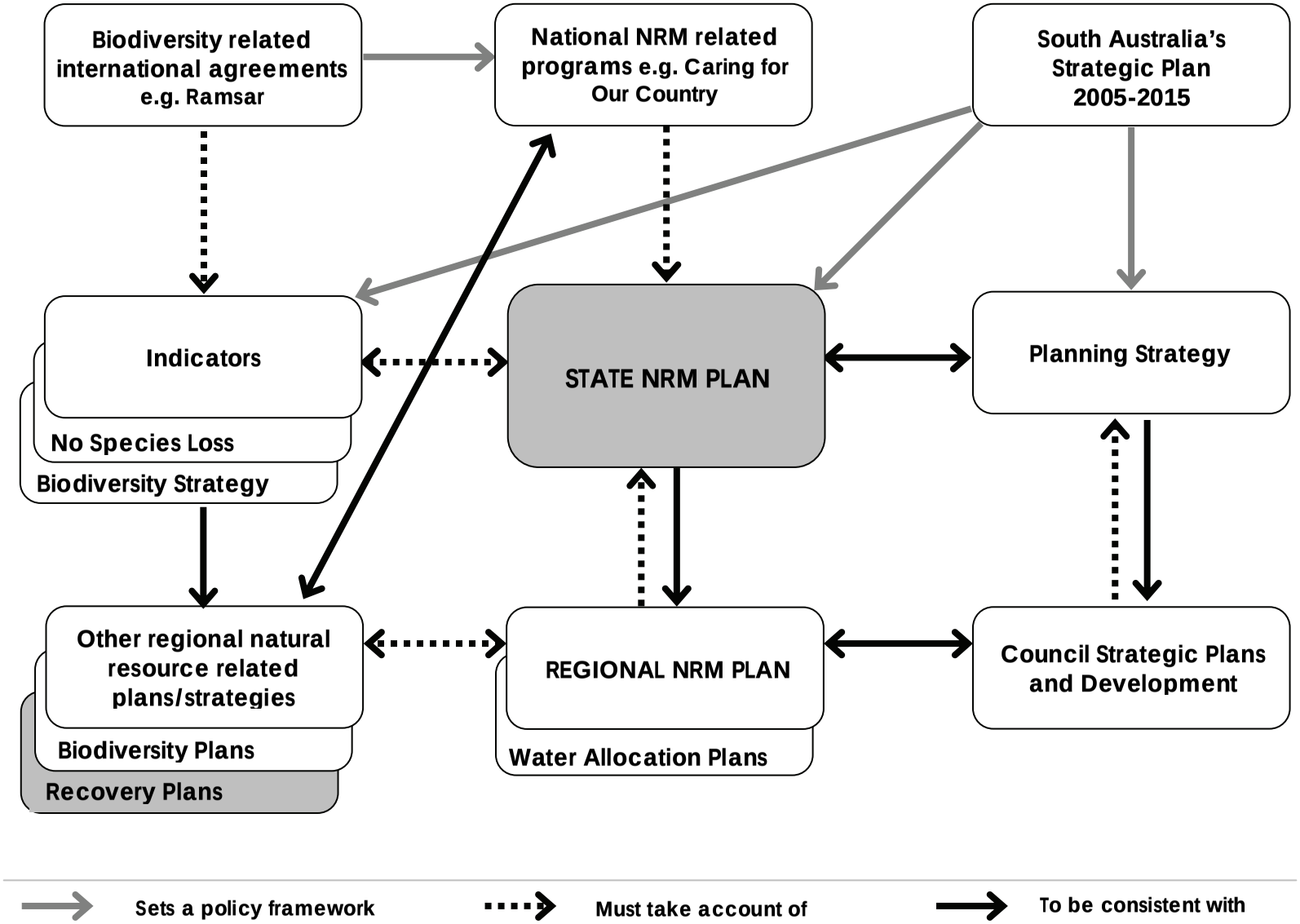
Ramsar Convention on Wetlands

The Ramsar Convention encourages the designation of sites containing representative, rare or unique wetlands, or wetlands that are important for conserving biological diversity. Once designated these sites are added to the Convention's List of Wetlands of International Importance and become known

as Ramsar sites. In designating a wetland as a Ramsar site, countries agree to manage the wetlands in a way that ensures their internationally important ecological values and character are maintained or improved over time. The Coorong and Lakes Alexandrina and Albert which border the AMLR region are Ramsar listed. The implementation of Australia's international environmental responsibilities is not adversely affected by this plan.

3.4 Key State Planning Relationships

(Source: adapted from the State NRM Plan[6])



3.5 Recovery Plan Status (Flora)

Note: for flora species included in the plan only.

Scientific name	Common name	EPBC SPRAT*	NATIONAL PLAN	STATE PLAN (SA)	INTER-STATE PLAN	REGIONAL PLAN (SA)
Acacia menzelii	Menzel's Wattle	✓				✓ (current non-AMLR)
Acacia pinguifolia	Fat-leaf Wattle	✓	✓ (in prep)			✓ (current non-AMLR)
Acacia rhetinocarpa	Resin Wattle	✓				✓ (current non-AMLR)
Caladenia argocalla	White Beauty Spider-orchid	✓		✓ (not current)		✓ (current AMLR)
Caladenia behrii	Pink-lip Spider-orchid	✓		✓ (not current)		✓ (current AMLR)
Caladenia colorata	Coloured Spider-orchid	✓				✓ (current non-AMLR)
Caladenia gladiolata	Bayonet Spider-orchid	✓				✓ (current AMLR)
Caladenia ovata	Kangaroo Island Spider-orchid	✓				✓ (not current non-AMLR)
Caladenia rigida	Stiff White Spider-orchid	✓				✓ (current AMLR)
Calochilus campestris	Plains Beard-orchid				✓ (current)	
Correa calycina var. *calycina*	Hindmarsh Correa	✓				✓ (not current non-AMLR, different ssp.)
Cullen parvum	Small Scurf-pea	✓	✓ (not current)			
Euphrasia collina ssp. *osbornii*	Osborn's Eyebright	✓	✓ (draft)		✓ (not current)	✓ (not current non-AMLR)
Glycine latrobeana	Clover Glycine	✓		✓ (draft)	✓ (current)	
Microtis atrata	Yellow Onion-orchid				Yes (current)	
Olearia pannosa ssp. *pannosa*	Silver Daisy-bush	✓				✓ (draft non-AMLR)
Paracaleana disjuncta	Black-beak Duck-orchid		✓ (draft)			
Prasophyllum fitzgeraldii	Fitzgerald's Leek-orchid				✓ (not current)	
Prasophyllum murfetii		✓			✓ (not current)	
Prostanthera eurybioides	Monarto Mintbush	✓	✓ (in prep)	✓ (not current)		✓ (current non-AMLR)
Pterostylis arenicola	Sandhill Greenhood	✓				✓ (current non-AMLR)
Pterostylis bryophila	Hindmarsh Greenhood	✓				✓ (current AMLR)
Pterostylis cucullata ssp. *sylvicola*	Leafy Greenhood	✓			Yes (current)	✓ (current AMLR)
Tecticornia flabelliformis	Bead Samphire	✓	✓ (draft)			✓ (draft non-AMLR)
Thelymitra mucida					✓ (current)	
Thelymitra cyanapicata	Blue Top Sun-orchid	✓				

Only species with an existing recovery plan or EPBC SPRAT profile have been included in the list

* EPBC SPRAT profile refers to species listed under the *Environment Protection and Biodiversity Conservation Act 1999*, which have information available on the Species Profile and Threats (SPRAT) Database: http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl

3.6 Recovery Plan Status (Fauna)

Note: for fauna species included in the plan only.

Scientific name	Common name	EPBC SPRAT*	NATIONAL PLAN	STATE PLAN (SA)	INTER-STATE PLAN	ACTION PLAN^
Acanthiza iredalei rosinae	Slender-billed Thornbill (SVG ssp.)	✓				✓
Aphelocephala leucopsis leucopsis	Southern Whiteface (eastern)					✓
Aprasia pseudopulchella	Flinders Ranges Worm-lizard	✓				✓
Austrelaps labialis	Pygmy Copperhead					✓
Botaurus poiciloptilus	Australasian Bittern					✓
Cercartetus concinnus	Western Pygmy-possum				✓ (not current)	
Cinclosoma punctatum anachoreta	Spotted Quail-thrush	✓				✓
Craterocephalus fluviatilis	Murray hardyhead	✓	✓(draft)			✓(SA, draft)
Gadopsis marmoratus	River blackfish					✓(SA, draft)
Galaxias brevipinnis	Climbing galaxias				✓(current NZ)	✓(SA, draft)
Galaxias olidus	Mountain galaxias					✓(SA, draft)
Geotria australis	Pouched lamprey					✓(SA, draft)
Hylacola pyrrhopygia parkeri	Chestnut-rumped Heathwren (MLR ssp.)	✓				✓
Isoodon obesulus obesulus	Southern Brown Bandicoot	✓		✓ (current)	✓ (current)	✓
Melanodryas cucullata cucullata	Hooded Robin (south-eastern)					✓
Melithreptus gularis gularis	Black-chinned Honeyeater (eastern)					✓
Mordacia mordax	Short-headed lamprey					✓(SA, draft)
Nannoperca australis	Southern pygmy perch					✓(SA, draft)
Nannoperca obscura	Yarra pygmy perch	✓	✓(draft)			✓(SA, draft)
Neophema chrysogaster	Orange-bellied Parrot	✓	✓ (current)			✓
Pseudaphritis urvillii	Congolli					✓(SA, draft)
Lewinia pectoralis pectoralis	Lewin's Rail (eastern)					✓
Stagonopleura guttata	Diamond Firetail					✓
Stipiturus malachurus intermedius	Southern Emu-wren (MLR ssp.)	✓	✓ (draft)			✓
Tympanocryptis lineata lineata	Five-lined Earless Dragon					✓ (different sub-species only
Zoothera lunulata halmaturina	Bassian Thrush (South Australian)					✓

Only species with an existing recovery plan, EPBC SPRAT profile or action statement have been included in the list. There are no regional recovery plans written for fauna species included in this plan.

* EPBC SPRAT profile refers to species listed under the *Environment Protection and Biodiversity Conservation Act 1999,* which have information available on the Species Profile and Threats (SPRAT) Database: http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl

^ Action Plan includes species with a specific recovery outline, taxon summary or action statement in a recognised National or South Australian Action Plan. The action plan is National unless otherwise stated. Note that some species have interstate action statements/plans but these have not been included in this assessment. The Native Fish Strategy for the Murray Darling Basin 2003-2013 includes recovery actions for a number of the freshwater fish included in this plan, but has not been included in this assessment.

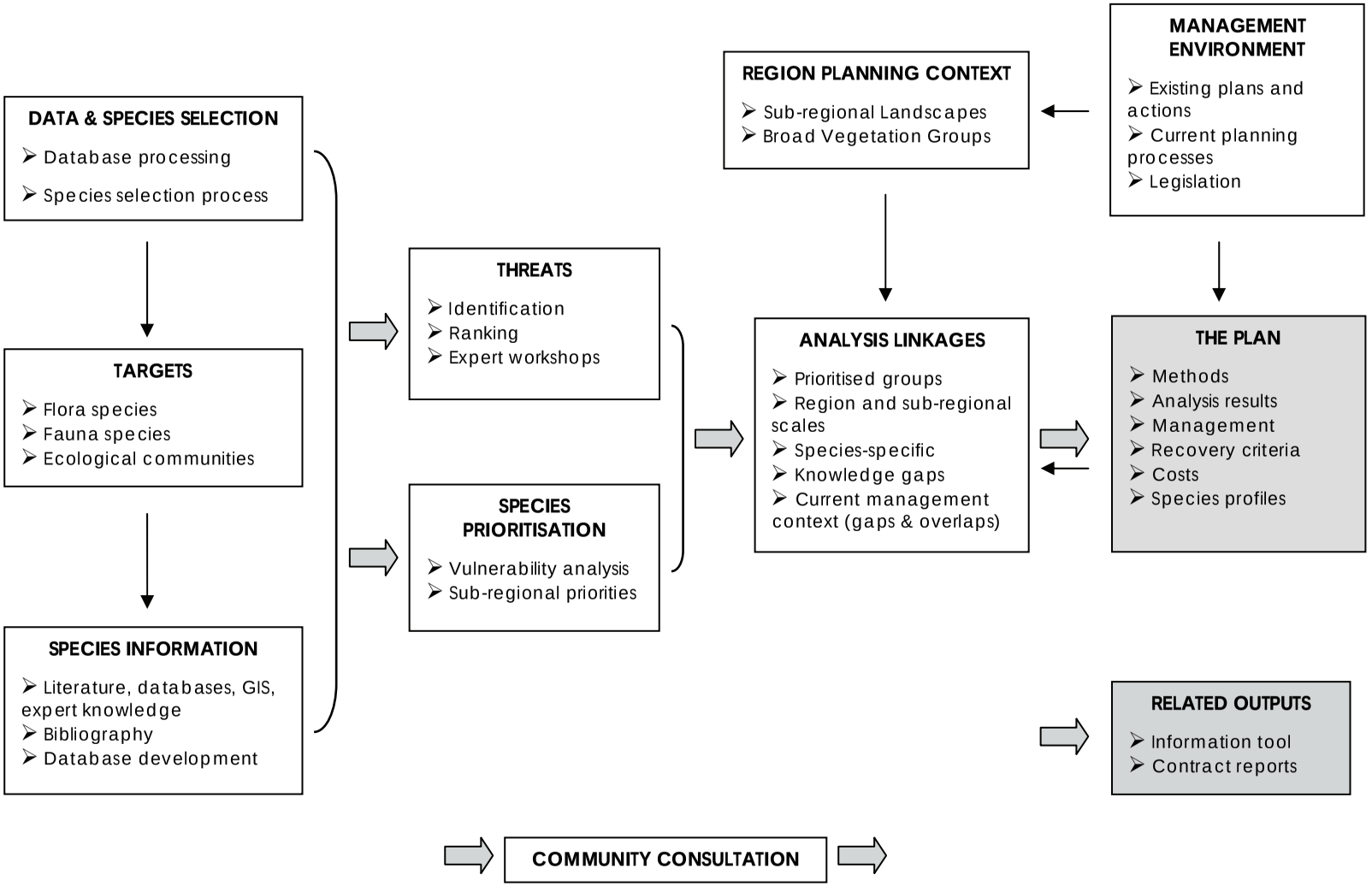
3.7 Recovery Plan Status (Ecological Communities)

Note: Greybox Woodland has been nominated for listing but has not yet been adopted.

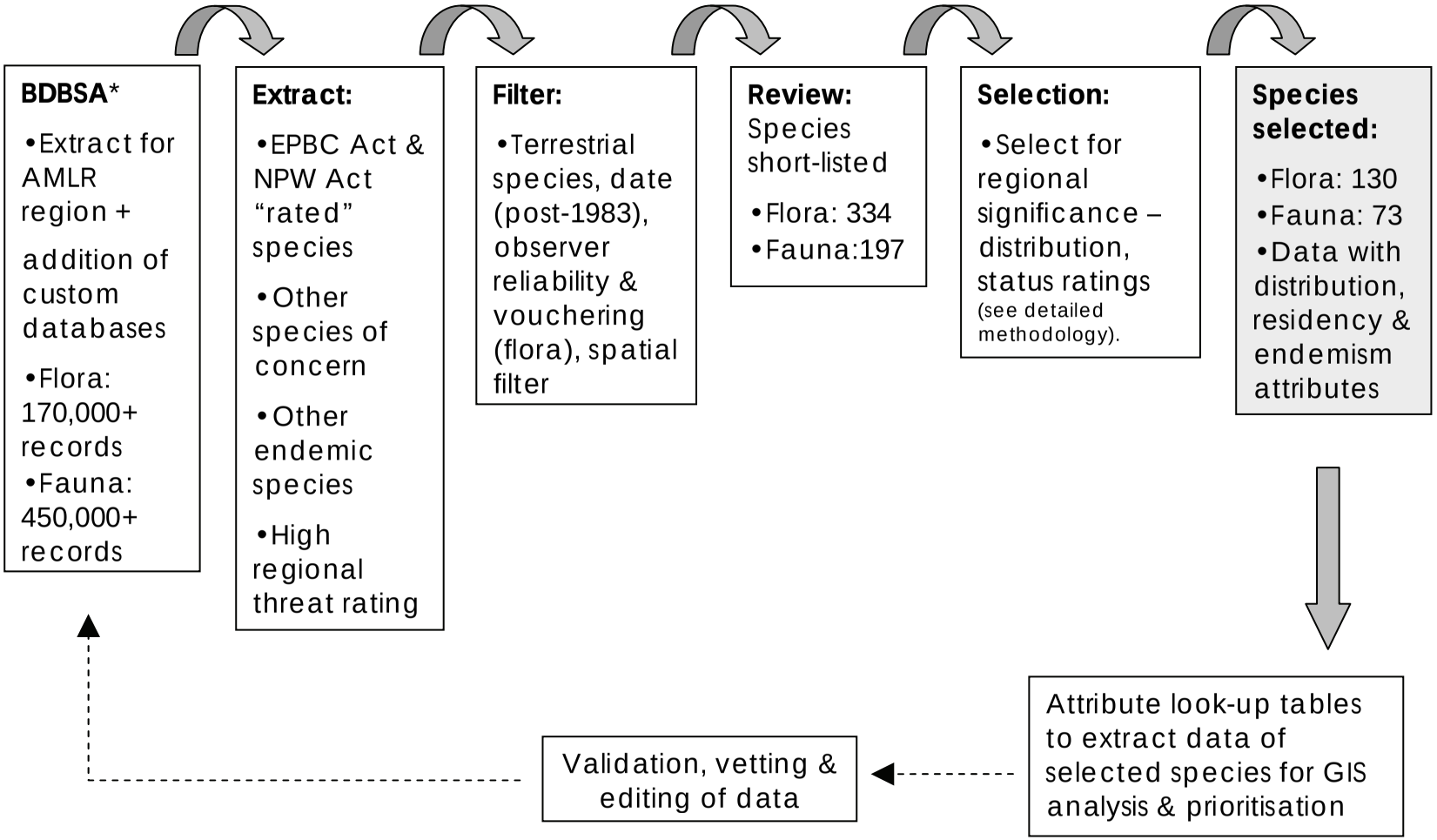
Scientific name	EPBC SPRAT	NATIONAL PLAN	STATE PLAN SA	INTER-STATE	OTHER
Iron Grass (Lomandra effusa – L. multiflora ssp. *dura) Natural Temperate Grassland of SA*	✓	✓ (in prep)			
Peppermint Box (Eucalyptus odorata) Grassy Woodland of SA	✓	✓ (in prep)			
Swamps of Fleurieu Peninsula	✓				✓ (Draft 'Recovery Statement')

4. Project Planning and Methodology

4.1 Project Planning Model

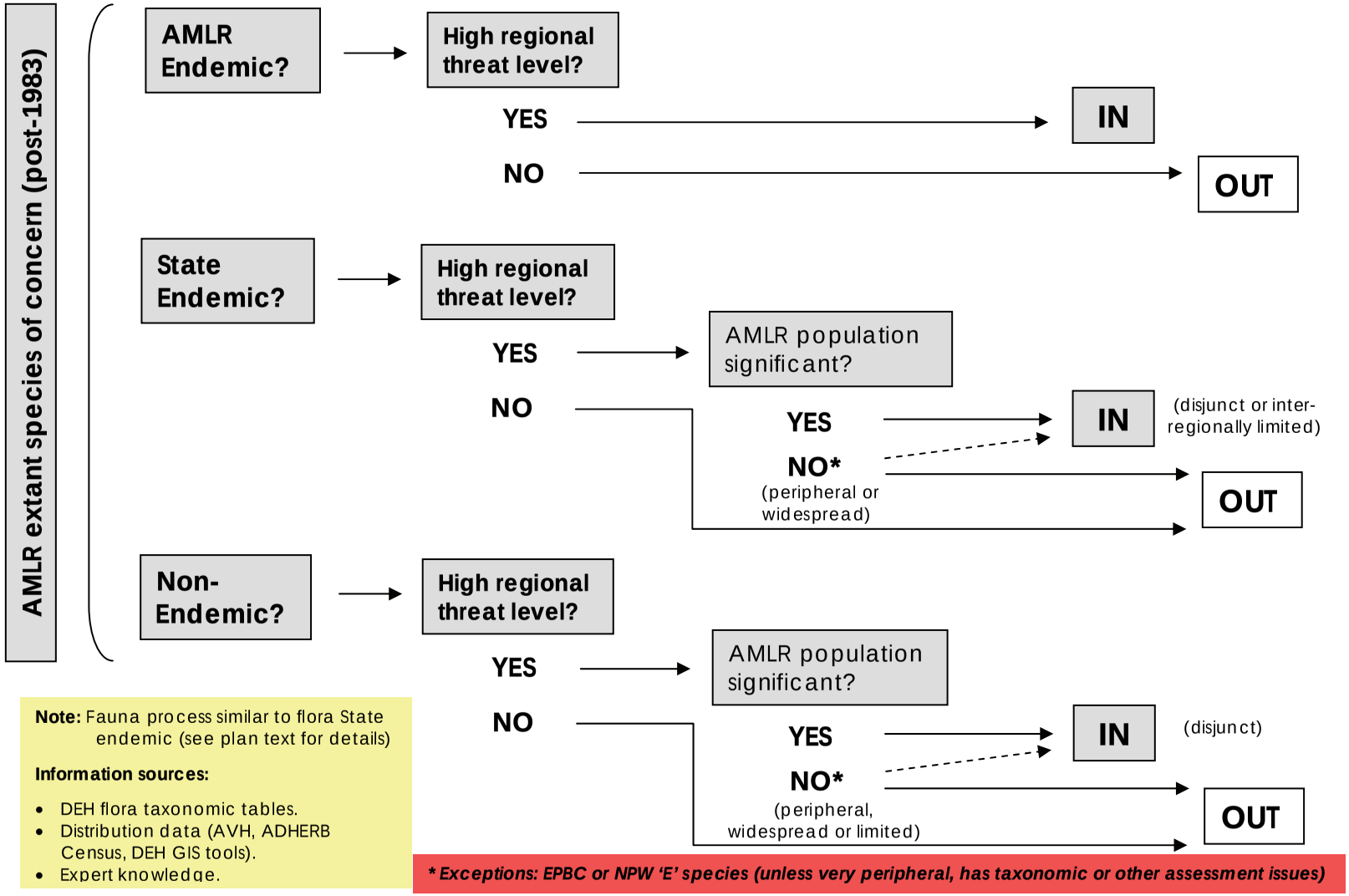


4.2 Species Data Processing Model



** BDBSA: Biological Databases of South Australia*

4.3 Flora Species Inclusion Process



4.4 Regional Vulnerability Groups (Methodology)

All species (except freshwater fish) were prioritised into six flora and fauna 'Regional Vulnerability Groups' (RVGs) (decreasing in priority from 1 to 6), according to scored criteria under the following categories:

- Regional conservation status (AMLR region);
- Relative area of occupancy (AMLR region);
- Endemism & distribution (South Australia);
- Habitat specialisation (flora);
- State (NPW Act) & National (EPBC Act) conservation status;
- Residency - AMLR (fauna).

Sub-species were treated as species. Each category was equally weighted and point-scored according to the criteria as below. The process was iterative, involving sensitivity analyses to determine criteria and scoring influence. Results were also assessed by expert opinion.

Regional Conservation Status (AMLR)

An unofficial rating relevant to the AMLR region used in this plan, derived from existing conservation ratings systems and expert opinion.

Flora

Score	Criteria
3	Endangered
2	Threatened
1	Vulnerable

Fauna

Score	Criteria
3	Endangered
2	Vulnerable
1	Rare or Uncommon

Relative area of occupancy (AMLR)

Measured by calculating species presence within a 5km grid cell (irrespective of the number of occurrences within a grid cell) using post-1983 filtered presence data, and counting the occupied grid cells. The range of counts was classified into three classes using the 'Jenk's Natural Breaks algorithm, as below.

Flora

Score	Description & criteria
3	Extremely Limited: 1-4 grid cells
2	Very Limited: 5-11 grid cells
1	Moderately Limited: 12-22 grid cells

Fauna

Score	Description & criteria
3	Extremely Limited: 1-35 grid cells
2	Very Limited: 36-101 grid cells
1	Moderately Limited: 102-205 grid cells

Endemism & Distribution (South Australia)

Flora

Score	Description & criteria
3	AMLR endemic
2	State endemic or AMLR confined non-endemic*
1	Other (non-endemic and/or peripheral)

*Non-endemic species where the majority or all of the mainland State population is confined within AMLR region.

Fauna

Score	Description & criteria
3	AMLR endemic or State endemic
2	Disjunct or inter-regionally limited*
1	Other (widespread or peripheral)

* The AMLR distribution is more or less contiguous across one to three adjacent regions with SA.

Habitat Specialisation (Flora)

Score	Description & criteria
3	Very High: *A very narrow habitat requirement within one broad vegetation group (e.g. Thelymitra circumsepta, requiring peaty bogs in high rainfall areas, within 'Wetland' broad vegetation group. Other habitat examples may include wetland margins or exposed coastal headlands.*
2	High: *A narrow habitat requirement that may occur within one or two broad vegetation groups (e.g. Acacia gunnii restricted to rocky areas within higher rainfall heathy communties).*
1	Moderate-Low: *Habitat requirements not relatively specific, and that may occur within more than one broad vegetation group (e.g. Spyridium coactilifolium).*

State-wide & National Conservation Concern

Flora & Fauna

Score	Description & criteria
3	Nationally listed (Critically Endangered, Endangered, Vulnerable)
2	State listed (Endangered or Vulnerable)
1	State listed (Rare)
0	Not listed

Note: if a species is both Nationally and State listed, it cannot be scored twice (i.e. it will only be scored for National listing).

Residency - AMLR (fauna)

Score	Description & criteria
3	Resident
2	Migrant (breeding)
1	Other (e.g. nomadic)

4.5 Ecological Community Inclusion and Prioritisation

DEH ID	Ecological Community	Landscape description	Broad Ecological Community	State DEH rating	EPBC rating^	AMLR significance*	Expert priority adjustment	AMLR priority$
SA0018	*Banksia marginata* Grassy Low Woodland	Sandy loam plains in higher rainfall areas	Grassy Woodland	E		High	-	VERY HIGH
SA0001	*Eucalyptus dalrympleana* ssp. *dalrympleana* Open Forest	Heavy soils of upland valleys	Riparian	E		Very High	-	VERY HIGH
SA0012	*E. microcarpa* Grassy Low Woodland	Southern foothills and hill slopes	Grassy Woodland	E	Nom.	Very High	-	VERY HIGH
SA0011	*E. odorata* +/- *E. leucoxylon* Grassy Low Woodland	Loamy soils of low hills	Grassy Woodland	E	CE	Medium	-	VERY HIGH
SA0033	Freshwater wetlands e.g. *Triglochin procerum* Herbland		Wetland	E	CE (SFP)	Medium	-	VERY HIGH
SA0025	*Leptospermum lanigerum* Closed Shrubland	Non-saline wetlands	Wetland (or Shrubland)	E	CE (SFP)	High	-	VERY HIGH
SA0027	*Lomandra effusa* Tussock Grassland	Shallow loams in low hills	Grassland	E	CE	Medium	-	VERY HIGH
SA0026	*Melaleuca squamea* +/- *Leptospermum continentale*	Closed Shrubland on peaty soils	Wetland	V	CE (SFP)	High	-	VERY HIGH
SA0029	*Themeda triandra* +/- *Danthonia* spp. Tussock Grassland	Heavy, fertile soils of plains and hill slopes	Grassland	E	*Note 1*	Very High	-	VERY HIGH
SA0014	*Callitris preissii* +/- *E. leucoxylon* Grassy Low Woodland	Quartzite gravels on western foot-slopes	Grassy Woodland	V		Very High	-	HIGH
SA0008	*E. fasciculosa* +/- *E. leucoxylon* Heathy Woodland	Sandy loams of flats and slopes	Heathy Woodland	V		High	Increased	HIGH
SA0010	*E. ovata* +/- *E. viminalis* ssp. *cygnetensis* +/- *E. camaldulensis* var. *camaldulensis* Low Woodland	Valleys and drainage lines	Riparian (or Wetland)	V		High	Increased	HIGH
SA0030	*Gahnia filum* Sedgeland	Drainage lines and	Wetland	V	*Note 2*	High	Increased	HIGH

DEH ID	Ecological Community	Landscape description	Broad Ecological Community	State DEH rating	EPBC rating^	AMLR significance*	Expert priority adjustment	AMLR priority$
		depressions						
SA0004	*Eucalyptus viminalis* ssp. *cygnetensis* and/or *E. viminalis* ssp. *viminalis* Woodland	Alluvial soils in moist areas	Riparian	V		High	-	MEDIUM+
SA0015	*Allocasuarina verticillata* Grassy Low Woodland	Clay loams of low hills	Grassy Woodland	V		Medium	-	MEDIUM
SA0013	*E. leucoxylon* ssp. *pruinosa* +/- *E. odorata* Grassy Low Woodland	Loams of hill slopes	Grassy Woodland	V		Medium	-	MEDIUM
-	*Eucalyptus porosa* Woodland		Grassy Woodland	*Conservation concern but more detailed assessment required*				
-	*Melaleuca halmaturorum* Shrubland/ Low Open Forest		Shrubland	*Conservation concern but more detailed assessment required*				

Adapted from the Provisional List of Threatened Ecosystems of South Australia (DEH 2005)[4]. Note, communities selected by presence within FLB1 or KAN2 IBRA sub-regions of the Agricultural Regions (16 TEC's selected from 33 State-listed communities occurring in agricultural regions).

^ As indicated in DEH 2005. Nom. = nomination current; SFP = Swamps of the Fleurieu Peninsula (EPBC CE)

* AMLR Significance: relative to State-wide distribution, determined by mapped distribution (presence by IBRA sub-region as per DEH 2005)

Very High: AMLR endemic or near endemic (or AMLR portion of range is very disjunct from remaining State-wide distribution)

High: Limited distribution around AMLR, or, AMLR portion of range is disjunct from remaining State-wide distribution

Medium: Range occurs in numerous adjoining regions around AMLR.

$ AMLR Priority determined by:

If EPBC listed, then Very High, otherwise, State rating & AMLR Significance = AMLR Priority…

E & Very High = Very High V & Very High = High

E & High = Very High V & High = Medium+

E & Medium = High+ V & Medium = Medium

Note: if community priority increased via expert adjustment, then '+' status not retained.

Note 1: Noted in DEH (2005) as EPBC nominated, however for this analysis not assumed to be part of any currently listed EPBC community.

Note 2: Noted in DEH (2005) as EPBC listed, however for this analysis not assumed to be part of any currently listed EPBC community.

5. Excluded Flora Species

The following flora species were reviewed but excluded from the detailed planning process.

Scientific name	Common name	Family	EPBC	NPW
Acacia araneosa		LEGUMINOSAE	V	E
Acacia argyrophylla	Silver Mulga-bush	LEGUMINOSAE		
Acacia dodonaeifolia	Hop-bush Wattle	LEGUMINOSAE		R
Acacia leiophylla		LEGUMINOSAE		
Acacia montana	Mallee Wattle	LEGUMINOSAE		R
Acacia nematophylla	Coast Wallowa	LEGUMINOSAE		
Acacia rhigiophylla	Dagger-leaf Wattle	LEGUMINOSAE		R
Acacia trineura	Three-nerve Wattle	LEGUMINOSAE		E
Acacia whibleyana	Whibley's Wattle	LEGUMINOSAE	E	E
Acrotriche fasciculiflora	Mount Lofty Ground-berry	EPACRIDACEAE		
Allocasuarina striata		CASUARINACEAE		
Amphibromus archeri	Pointed Swamp Wallaby-grass	GRAMINEAE		R
Amphibromus macrorhinus	Long-nosed Swamp Wallaby-grass	GRAMINEAE		R
Anogramma leptophylla	Annual Fern	ADIANTACEAE		R
Anthocercis angustifolia	Narrow-leaf Ray-flower	SOLANACEAE		R
Aristida australis		GRAMINEAE		R
Atriplex australasica		CHENOPODIACEAE		R
Austrodanthonia laevis	Smooth Wallaby-grass	GRAMINEAE		R
Austrodanthonia tenuior	Short-awn Wallaby-grass	GRAMINEAE		R
Austrostipa breviglumis	Cane Spear-grass	GRAMINEAE		R
Austrostipa densiflora	Fox-tail Spear-grass	GRAMINEAE		R
Austrostipa gibbosa	Swollen Spear-grass	GRAMINEAE		R
Austrostipa multispiculis		GRAMINEAE		R
Austrostipa pilata	Prickly Spear-grass	GRAMINEAE		V
Austrostipa tenuifolia		GRAMINEAE		R
Baumea acuta	Pale Twig-rush	CYPERACEAE		R
Baumea gunnii	Slender Twig-rush	CYPERACEAE		R
Baumea laxa	Lax Twig-rush	CYPERACEAE		R
Billardiera uniflora		PITTOSPORACEAE		
Blechnum nudum	Fishbone Water-fern	BLECHNACEAE		R
Blechnum wattsii	Hard Water-fern	BLECHNACEAE		R
Boronia edwardsii	Edwards' Boronia	RUTACEAE		
Bothriochloa macra	Red-leg Grass	GRAMINEAE		R
Botrychium australe	Austral Moonwort	BOTRYCHIACEAE		E
Brachyscome basaltica var. *gracilis*	Swamp Daisy	COMPOSITAE		R
Brachyscome breviscapis	Short-stem Daisy	COMPOSITAE		R
Brachyscome parvula	Coast Daisy	COMPOSITAE		R
Caladenia brumalis	Winter Spider-orchid	ORCHIDACEAE	V	V
Caladenia cardiochila		ORCHIDACEAE		
Caladenia flaccida	Drooping Spider-orchid	ORCHIDACEAE		V
Caladenia gracilis		ORCHIDACEAE		E
Caladenia parva	Small Comb Spider-orchid	ORCHIDACEAE		E
Caladenia pusilla		ORCHIDACEAE		
Caladenia stellata	Star Spider-orchid	ORCHIDACEAE		R
Caladenia stricta		ORCHIDACEAE		
Caladenia tensa		ORCHIDACEAE	E	
Caladenia verrucosa		ORCHIDACEAE		
Calytrix glaberrima		MYRTACEAE		
Calytrix involucrata	Cup Fringe-myrtle	MYRTACEAE		
Cardamine gunnii	Spade-leaf Bitter-cress	CRUCIFERAE		V
Cardamine papillata		CRUCIFERAE		
Cardamine paucijuga (NC)	Annual Bitter-cress	CRUCIFERAE		R
Carex gunniana	Mountain Sedge	CYPERACEAE		R
Carex iynx		CYPERACEAE		
Cassinia tegulata		COMPOSITAE		E

Scientific name	Common name	Family	EPBC	NPW
Centrolepis cephaloformis ssp. *cephaloformis*	Cushion Centrolepis	CENTROLEPIDACEAE		R
Cladium procerum	Leafy Twig-rush	CYPERACEAE		R
Correa aemula	Hairy Correa	RUTACEAE		R
Correa alba var. *pannosa*	White Correa	RUTACEAE		R
Correa decumbens		RUTACEAE		
Correa glabra var. *turnbullii*		RUTACEAE		
Correa pulchella		RUTACEAE		
Crassula exserta	Large-fruit Crassula	CRASSULACEAE		R
Crassula peduncularis	Purple Crassula	CRASSULACEAE		R
Cryptandra hispidula		RHAMNACEAE		
Cryptandra sp. long hypanthium (C.R. Alcock 10626)	Long-flower Cryptandra	RHAMNACEAE		R
Cyperus lhotskyanus		CYPERACEAE		R
Cyperus sanguinolentus	Dark Flat-sedge	CYPERACEAE		R
Daviesia asperula		LEGUMINOSAE		
Daviesia benthamii ssp. *humilis*	Mallee Bitter-pea	LEGUMINOSAE		R
Daviesia ulicifolia		LEGUMINOSAE		
Dennstaedtia davallioides	Lacy Ground-fern	DENNSTAEDTIACEAE		E
Veronica derwentiana ssp. *derwentiana*	Derwent Speedwell	SCROPHULARIACEAE		E
Deyeuxia densa	Heath Bent-grass	GRAMINEAE		R
Deyeuxia minor	Small Bent-grass	GRAMINEAE		V
Dianella callicarpa	Swamp Flax-lily	LILIACEAE		E
Dicksonia antarctica		DICKSONIACEAE		
Dipodium punctatum		ORCHIDACEAE		E
Diuris chryseopsis		ORCHIDACEAE		E
Diuris palustris	Little Donkey-orchid	ORCHIDACEAE		
Dodonaea baueri		SAPINDACEAE		
Dodonaea humilis		SAPINDACEAE		
Dodonaea subglandulifera		SAPINDACEAE		E
Dodonaea tepperi		SAPINDACEAE		
Doodia caudata		BLECHNACEAE		
Drosera binata	Forked Sundew	DROSERACEAE		R
Drosera praefolia	Early Sundew	DROSERACEAE		R
Drosera whittakeri ssp. *whittakeri*		DROSERACEAE		
Echinopogon ovatus	Rough-beard Grass	GRAMINEAE		R
Elatine gratioloides	Waterwort	ELATINACEAE		R
Eragrostis infecunda	Barren Cane-grass	GRAMINEAE		R
Eragrostis lacunaria	Purple Love-grass	GRAMINEAE		R
Eremophila behriana		MYOPORACEAE		
Eriochilus sp. *swamp (D.E. Murfet 1950b)*		ORCHIDACEAE		E
Eryngium rostratum	Blue Devil	UMBELLIFERAE		V
Eryngium vesiculosum	Prostrate Blue Devil	UMBELLIFERAE		R
Eucalyptus behriana	Broad-leaf Box	MYRTACEAE		R
Eucalyptus cosmophylla		MYRTACEAE		
Eucalyptus dalrympleana ssp. *dalrympleana*	Candlebark Gum	MYRTACEAE		R
Eucalyptus fasciculosa	Pink Gum	MYRTACEAE		R
Eucalyptus viminalis ssp. *viminalis*	Manna Gum	MYRTACEAE		R
Festuca benthamiana		GRAMINEAE		
Genoplesium ciliatum		ORCHIDACEAE		E
Gleichenia microphylla	Coral Fern	GLEICHENIACEAE		R
Gonocarpus micranthus ssp. *micranthus*	Creeping Raspwort	HALORAGACEAE		R
Haloragis eichleri	Eichler's Raspwort	HALORAGACEAE		R
Histiopteris incisa	Bat's-wing Fern	DENNSTAEDTIACEAE		E
Hydrocotyle comocarpa	Fringe-fruit Pennywort	UMBELLIFERAE		R
Hypericum calycinum	Large-flower St John's Wort	GUTTIFERAE		
Hypericum japonicum	Matted St John's Wort	GUTTIFERAE		R
Hypolepis rugosula	Ruddy Ground-fern	DENNSTAEDTIACEAE		R

Scientific name	Common name	Family	EPBC	NPW
Isoetes drummondii ssp. *drummondii*	Plain Quillwort	ISOETACEAE		R
Joycea clelandii	Cleland's Wallaby-grass	GRAMINEAE		
Juncus australis	Austral Rush	JUNCACEAE		R
Juncus continuus	Pithy Rush	JUNCACEAE		
Juncus homalocaulis	Wiry Rush	JUNCACEAE		V
Lachnagrostis punicea var. *filifolia*	Narrow-leaf Blown-grass	GRAMINEAE		R
Lepyrodia valliculae	Kangaroo Island Scale-rush	RESTIONACEAE		R
Leucopogon concurvus		EPACRIDACEAE		
Leucopogon hirsutus	Hairy Beard-heath	EPACRIDACEAE		R
Logania crassifolia	Coast Logania	LOGANIACEAE		
Logania recurva		LOGANIACEAE		
Logania saxatilis	Rock Logania	LOGANIACEAE		R
Lomandra densiflora		LOMANDRACEAE		
Lomandra fibrata		LOMANDRACEAE		
Lomandra multiflora		LOMANDRACEAE		
Luzula ovata	Clustered Wood-rush	JUNCACEAE		R
Lythrum salicaria	Purple Loosestrife	LYTHRACEAE		R
Maireana rohrlachii	Rohrlach's Bluebush	CHENOPODIACEAE		R
Mentha diemenica	Slender Mint	LABIATAE		R
Mentha satureioides	Native Pennyroyal	LABIATAE		R
Micrantheum demissum		EUPHORBIACEAE		
Microlepidium pilosulum	Hairy Shepherd's-purse	CRUCIFERAE		R
Microtis frutetorum		ORCHIDACEAE		
Myoporum parvifolium	Creeping Boobialla	MYOPORACEAE		R
Myriophyllum amphibium	Broad Milfoil	HALORAGACEAE		R
Myriophyllum crispatum	Upright Milfoil	HALORAGACEAE		V
Myriophyllum integrifolium	Tiny Milfoil	HALORAGACEAE		R
Myriophyllum papillosum	Robust Milfoil	HALORAGACEAE		R
Nymphoides crenata	Wavy Marshwort	MENYANTHACEAE		R
Olearia grandiflora	Mount Lofty Daisy-bush	COMPOSITAE		
Olearia passerinoides ssp. *glutescens*	Sticky Daisy-bush	COMPOSITAE		R
Olearia picridifolia	Rasp Daisy-bush	COMPOSITAE		R
Ottelia ovalifolia ssp. *ovalifolia*	Swamp Lily	HYDROCHARITACEAE		R
Pentapogon quadrifidus var. *quadrifidus*	Five-awn Spear-grass	GRAMINEAE		R
Philotheca angustifolia ssp. *angustifolia*	Narrow-leaf Wax-flower	RUTACEAE		R
Phyllangium distylis	Tiny Mitrewort	LOGANIACEAE		R
Phylloglossum drummondii	Pigmy Clubmoss	LYCOPODIACEAE		R
Picris squarrosa	Squat Picris	COMPOSITAE		R
Pilularia novae-hollandiae	Austral Pillwort	MARSILEACEAE		R
Poa drummondiana	Knotted Poa	GRAMINEAE		R
Poa umbricola	Shade Tussock-grass	GRAMINEAE		R
Prasophyllum constrictum	Tawny Leek-orchid	ORCHIDACEAE		R
Prasophyllum occidentale	Plains Leek-orchid	ORCHIDACEAE		
Prasophyllum validum		ORCHIDACEAE		V
Prostanthera behriana		LABIATAE		
Pseudanthus micranthus	Fringed Pseudanthus	EUPHORBIACEAE		R
Pterostylis cycnocephala	Swan-head Greenhood	ORCHIDACEAE		
Pterostylis foliata	Slender Greenhood	ORCHIDACEAE		R
Prasophyllum sp. *'Enigma' (R. Bates 2350)*	Contorted Leek-orchid	ORCHIDACEAE		E
Pterostylis sp. *Halbury (R. Bates 8425)*		ORCHIDACEAE		
Ptilotus erubescens	Hairy-tails	AMARANTHACEAE		R
Pultenaea involucrata	Mount Lofty Bush-pea	LEGUMINOSAE		
Pultenaea scabra	Rough Bush-pea	LEGUMINOSAE		R
Pultenaea trinervis		LEGUMINOSAE		
Ranunculus hamatosetosus	Hill Buttercup	RANUNCULACEAE		
Rhodanthe anthemoides		COMPOSITAE		E

Scientific name	Common name	Family	EPBC	NPW
Rorippa dictyosperma	Forest Bitter-cress	CRUCIFERAE		R
Rumex dumosus	Wiry Dock	POLYGONACEAE		R
Sarcozona bicarinata	Ridged Noon-flower	AIZOACEAE		V
Scaevola calendulacea	Dune Fanflower	GOODENIACEAE		V
Scaevola linearis		GOODENIACEAE		
Schoenus laevigatus		CYPERACEAE		R
Schoenus lepidosperma ssp. *lepidosperma*	Slender Bog-rush	CYPERACEAE		R
Schoenus tesquorum	Grassy Bog-rush	CYPERACEAE		R
Sclerolaena muricata var. *villosa*	Five-spine Bindyi	CHENOPODIACEAE		R
Scutellaria humilis	Dwarf Skullcap	LABIATAE		R
Sphaerolobium minus	Leafless Globe-pea	LEGUMINOSAE		R
Sprengelia incarnata	Pink Swamp-heath	EPACRIDACEAE		R
Spyridium phlebophyllum		RHAMNACEAE		
Spyridium phylicoides		RHAMNACEAE		
Spyridium spathulatum	Spoon-leaf Spyridium	RHAMNACEAE		R
Spyridium thymifolium		RHAMNACEAE		
Stellaria palustris var. *tenella*	Swamp Starwort	CARYOPHYLLACEAE		R
Stylidium beaugleholei	Beauglehole's Trigger-plant	STYLIDIACEAE		R
Templetonia stenophylla	Leafy Templetonia	LEGUMINOSAE		V
Thelymitra albiflora		ORCHIDACEAE		
Thelymitra batesii		ORCHIDACEAE		R
Thelymitra benthamiana	Leopard Sun-orchid	ORCHIDACEAE		
Thelymitra carnea	Small Pink Sun-orchid	ORCHIDACEAE		R
Thelymitra epipactoides	Metallic Sun-orchid	ORCHIDACEAE	E	E
Thelymitra flexuosa	Twisted Sun-orchid	ORCHIDACEAE		R
Thelymitra grandiflora	Great Sun-orchid	ORCHIDACEAE		R
Thelymitra matthewsii		ORCHIDACEAE	V	E
Thysanotus tenellus	Grassy Fringe-lily	LILIACEAE		R
Triglochin alcockiae	Alcock's Water-ribbons	JUNCAGINACEAE		R
Veronica gracilis	Slender Speedwell	SCROPHULARIACEAE		V
Viminaria juncea	Native Broom	LEGUMINOSAE		R
Wahlenbergia gracilis	Sprawling Bluebell	CAMPANULACEAE		
Wurmbea latifolia ssp. *vanessae*	Broad-leaf Nancy	LILIACEAE		R
Xanthorrhoea quadrangulata		XANTHORRHOEACEAE		
Xanthorrhoea semiplana ssp. *tateana*	Tate's Grass-tree	XANTHORRHOEACEAE		R
Xanthosia tasmanica	Southern Xanthosia	UMBELLIFERAE		R
Zieria veronicea ssp. *veronicea*	Pink Zieria	RUTACEAE		R

6. Excluded Fauna Species

The following fauna species were reviewed but excluded from the detailed planning process.

Common name	Scientific name	Class	EPBC	NPW
Australasian Shoveler	*Anas rhynchotis*	AVES		R
Australian Bustard	*Ardeotis australis*	AVES		V
Australian Reed-Warbler	*Acrocephalus australis*	AVES		
Australian Spotted Crake	*Porzana fluminea*	AVES		
Banded Stilt	*Cladorhynchus leucocephalus*	AVES		V
Barking Owl	*Ninox connivens*	AVES		R
Blue-billed Duck	*Oxyura australis*	AVES		R
Blue-winged Parrot	*Neophema chrysostoma*	AVES		V
Brolga	*Grus rubicunda*	AVES		V
Bush Stone-curlew	*Burhinus grallarius*	AVES		R
Cape Barren Goose	*Cereopsis novaehollandiae*	AVES		R
Cattle Egret	*Ardea ibis*	AVES		R
Common Bronzewing	*Phaps chalcoptera*	AVES		
Darter	*Anhinga novaehollandiae*	AVES		R
Dusky Woodswallow	*Artamus cyanopterus*	AVES		
Eastern Curlew	*Numenius madagascariensis*	AVES		V
Elegant Parrot	*Neophema elegans*	AVES		R
Flame Robin	*Petroica phoenicea*	AVES		V
Freckled Duck	*Stictonetta naevosa*	AVES		V
Gilbert's Whistler	*Pachycephala inornata*	AVES		R
Glossy Ibis	*Plegadis falcinellus*	AVES		R
Golden-headed Cisticola	*Cisticola exilis*	AVES		
Great Crested Grebe	*Podiceps cristatus*	AVES		R
Grey Falcon	*Falco hypoleucos*	AVES		R
Grey Goshawk	*Accipiter novaehollandiae*	AVES		E
Intermediate Egret	*Ardea intermedia*	AVES		R
King Quail	*Excalfactoria chinensis*	AVES		E
Latham's Snipe	*Gallinago hardwickii*	AVES		R
Lesser Sand Plover	*Charadrius mongolus*	AVES		R
Letter-winged Kite	*Elanus scriptus*	AVES		R
Little Bittern	*Ixobrychus dubius*	AVES		E
Little Egret	*Egretta garzetta*	AVES		R
Little Lorikeet	*Glossopsitta pusilla*	AVES		E
Long-toed Stint	*Calidris subminuta*	AVES		R
Magpie Goose	*Anseranas semipalmata*	AVES		E
Major Mitchell's Cockatoo	*Cacatua leadbeateri*	AVES		R
Malleefowl	*Leipoa ocellata*	AVES	V	V
Masked Owl	*Tyto novaehollandiae*	AVES		E
Musk Duck	*Biziura lobata*	AVES		R
Olive-backed Oriole	*Oriolus sagittatus*	AVES		R
Pacific Golden Plover	*Pluvialis fulva*	AVES		R
Pectoral Sandpiper	*Calidris melanotos*	AVES		R
Plains-wanderer	*Pedionomus torquatus*	AVES		E
Rainbow Bee-eater	*Merops ornatus*	AVES		
Red-browed Finch	*Neochmia temporalis*	AVES		
Red-chested Button-quail	*Turnix pyrrhothorax*	AVES		R
Red-lored Whistler	*Pachycephala rufogularis*	AVES	V	R
Regent Honeyeater	*Anthochaera phrygia*	AVES	E	E
Rock Parrot	*Neophema petrophila*	AVES		R
Ruff	*Philomachus pugnax*	AVES		R
Rufous Fieldwren	*Calamanthus campestris*	AVES		
Scarlet-chested Parrot	*Neophema splendida*	AVES		R
Shy Heathwren (Shy Hylacola)	*Hylacola cauta*	AVES		R
Square-tailed Kite	*Lophoictinia isura*	AVES		E
Striped Honeyeater	*Plectorhyncha lanceolata*	AVES		R
Swift Parrot	*Lathamus discolor*	AVES	E	E
White-bellied Cuckoo-shrike	*Coracina papuensis*	AVES		R

Common name	Scientific name	Class	EPBC	NPW
White-browed Treecreeper	*Climacteris affinis*	AVES		R
White-throated Gerygone	*Gerygone albogularis*	AVES		R
White-throated Treecreeper	*Cormobates leucophaea*	AVES		
Wood Sandpiper	*Tringa glareola*	AVES		R
Black-footed Rock Wallaby	*Petrogale lateralis pearsoni*	MAMMALIA	V	R
Brush-tailed Phascogale	*Phascogale tapoatafa*	MAMMALIA		E
Common Brushtail Possum	*Trichosurus vulpecula*	MAMMALIA		R
Little Forest Bat	*Vespadelus vulturnus*	MAMMALIA		
Southern Bent-wing Bat	*Miniopterus schreibersii bassanii*	MAMMALIA		CE
Swamp Rat	*Rattus lutreolus*	MAMMALIA		R
Water-rat	*Hydromys chrysogaster*	MAMMALIA		
Western Broad-nosed Bat	*Scotorepens balstoni*	MAMMALIA		
Yellow-bellied Sheathtail Bat	*Saccolaimus flaviventris*	MAMMALIA		R
Yellow-footed Antechinus	*Antechinus flavipes*	MAMMALIA		V
Adelaide Snake-lizard	*Delma molleri*	REPTILIA		
Delicate Skink	*Lampropholis delicata*	REPTILIA		
Macquarie Tortoise	*Emydura macquarii*	REPTILIA		V
Red-bellied Black Snake	*Pseudechis porphyriacus*	REPTILIA		
Southern Rock Dtella	*Gehyra* sp. 2n=44	REPTILIA		
Tawny Dragon	*Ctenophorus decresii*	REPTILIA		
Barramundi	*Lates calcarifer*	FISH		
Bony herring	*Nematalosa erebi*	FISH		
Brook trout	*Salvelinus fontinalis*	FISH		
Brown trout	*Salmo trutta*	FISH		
Carp gudgeons	*Hypseleotris spp.*	FISH		
Chanda perch	*Ambassis agassizii*	FISH		
Common carp	*Cyprinus carpio*	FISH		
Common galaxias	*Galaxias maculatus*	FISH		
Dwarf flathead gudgeon	*Philypnodon macrostomus*	FISH		
Flathead gudgeon	*Philypnodon grandiceps*	FISH		
Freshwater catfish	*Tandanus tandanus*	FISH		
Gambusia	*Gambusia holbrooki*	FISH		
Goldfish	*Carassius auratus*	FISH		
Lagoon goby	*Tasmanogobius lasti*	FISH		
Murray cod	*Maccullochella peelii*	FISH	V	
Murray rainbowfish	*Melanotaenia fluviatilis*	FISH		
Murray-Darling golden perch	*Macquaria ambigua*	FISH		
Rainbow trout	*Oncorhynchus mykiss*	FISH		
Redfin	*Perca fluviatilis*	FISH		
Shortfinned eel	*Anguilla australis*	FISH		
Silver perch	*Bidyanus bidyanus*	FISH		
Smallmouthed hardyhead	*Atherinosoma microstoma*	FISH		
Smelt	*Retropinna semoni*	FISH		
Southern purple-spotted gudgeon	*Mogurnda adspersa*	FISH		
Tench	*Tinca tinca*	FISH		
Unspecked hardyhead	*Craterocephalus stercusmuscarum fulvus*	FISH		
Western bluespot goby	*Pseudogobius olorum*	FISH		

7. Summary of Level of Knowledge, Broad Vegetation Groups and Habitat Specialisation (Flora)

Species (Scientific name)	Knowledge	BVG 1	BVG 2	BVG 3	Habitat Specialisation
Acacia gunnii	some	HEATHY WOODLAND	HEATHY OPEN FOREST		High
Acacia menzelii	fair	MALLEE	GRASSY WOODLAND		Moderate-Low
Acacia pinguifolia	fair	MALLEE	SHRUBLAND		Moderate-Low
Acacia rhetinocarpa	fair	MALLEE	SHRUBLAND	GRASSY WOODLAND	Moderate-Low
Adiantum capillus-veneris	poor	WETLAND	RIPARIAN		Very High
Allocasuarina robusta	some	HEATHY WOODLAND	WETLAND		High
Amphibromus pithogastrus	poor	RIPARIAN	GRASSY WOODLAND		High
Asterolasia muricata	some	HEATHY WOODLAND	SHRUBLAND		Moderate-Low
Austrostipa echinata	poor	COASTAL			High
Austrostipa oligostachya	poor	GRASSY WOODLAND	GRASSLAND		Moderate-Low
Boronia parviflora	poor	WETLAND			Very High
Brachyscome diversifolia	some	HEATHY WOODLAND	GRASSY WOODLAND	RIPARIAN	High
Caladenia argocalla	fair	GRASSY WOODLAND			High
Caladenia behrii	fair	HEATHY WOODLAND			High
Caladenia bicalliata ssp. *bicalliata*	some	COASTAL			High
Caladenia colorata	fair	HEATHY WOODLAND			High
Caladenia gladiolata	fair	HEATHY WOODLAND	GRASSY WOODLAND		High
Caladenia ovata	some	HEATHY WOODLAND	SHRUBLAND		High
Caladenia rigida	fair	HEATHY WOODLAND			Moderate-Low
Caladenia valida	fair	HEATHY WOODLAND	HEATHY OPEN FOREST	MALLEE	Moderate-Low
Caladenia vulgaris	poor	HEATHY WOODLAND			High
Caleana major	some	HEATHY WOODLAND			High
Callistemon teretifolius	poor	HEATHY WOODLAND	GRASSY WOODLAND		Moderate-Low
Calochilus campestris	some	WETLAND	MALLEE	HEATHY WOODLAND	Moderate-Low
Calochilus cupreus	fair	COASTAL			High
Calochilus paludosus	poor	HEATHY WOODLAND	WETLAND		High
Centrolepis glabra	poor	WETLAND			High
Correa calycina var. *calycina*	fair	RIPARIAN	WETLAND	HEATHY WOODLAND	High
Correa eburnea	some	RIPARIAN	HEATHY WOODLAND		Moderate-Low
Corybas dentatus	fair	HEATHY OPEN FOREST			High
Corybas expansus	some	COASTAL			Very High
Corybas unguiculatus	some	HEATHY OPEN FOREST			High
Crassula sieberiana	poor	RIPARIAN	GRASSY WOODLAND	WETLAND	Moderate-Low
Cryptostylis subulata	poor	WETLAND			Very High
Cullen parvum	some	GRASSY WOODLAND	GRASSLAND		Moderate-Low
Dampiera lanceolata var. *intermedia*	fair	COASTAL	HEATHY WOODLAND		Moderate-Low
Daviesia pectinata	poor	MALLEE	COASTAL		High
Dianella longifolia var. *grandis*	fair	GRASSY WOODLAND	GRASSLAND		High
Dipodium pardalinum	some	HEATHY OPEN FOREST	HEATHY WOODLAND	GRASSY WOODLAND	Moderate-Low

Species (Scientific name)	Knowledge	BVG 1	BVG 2	BVG 3	Habitat Specialisation
Diuris behrii	fair	GRASSY WOODLAND	GRASSLAND		Moderate-Low
Diuris brevifolia	fair	HEATHY WOODLAND	WETLAND	RIPARIAN	High
Eleocharis atricha	poor	WETLAND			Very High
Eremophila gibbifolia	poor	MALLEE			Moderate-Low
Eucalyptus cneorifolia	poor	HEATHY WOODLAND	MALLEE		Moderate-Low
Eucalyptus paludicola	poor	HEATHY WOODLAND	WETLAND	RIPARIAN	High
Eucalyptus phenax ssp. *compressa*	poor	MALLEE			High
Euphrasia collina ssp. *osbornii*	some	HEATHY WOODLAND	COASTAL	WETLAND	Moderate-Low
Gahnia radula	poor	RIPARIAN	HEATHY WOODLAND		Very High
Gastrodia sesamoides	poor	HEATHY OPEN FOREST	RIPARIAN	SHRUBLAND	Moderate-Low
Glycine latrobeana	fair	GRASSY WOODLAND	GRASSLAND		Moderate-Low
Glycine tabacina	poor	RIPARIAN	GRASSY WOODLAND		Moderate-Low
Gratiola pumilo	poor	WETLAND			Very High
Haloragis brownii	some	WETLAND	RIPARIAN		Very High
Haloragis myriocarpa	some	HEATHY WOODLAND	SHRUBLAND		High
Helichrysum rutidolepis	some	RIPARIAN			Very High
Hibbertia tenuis	poor	WETLAND			Very High
Hydrocotyle crassiuscula	poor	GRASSY WOODLAND			Moderate-Low
Juncus amabilis	some	HEATHY WOODLAND	WETLAND	RIPARIAN	High
Juncus prismatocarpus	poor	WETLAND			Very High
Juncus radula	poor	GRASSY WOODLAND	RIPARIAN		High
Lagenophora gracilis	some	WETLAND	GRASSY WOODLAND	RIPARIAN	Very High
Leionema hillebrandii	some	HEATHY WOODLAND	RIPARIAN		High
Logania minor	poor	COASTAL			High
Luzula flaccida	poor	GRASSY WOODLAND	RIPARIAN		High
Lycopodiella lateralis	poor	WETLAND			Very High
Lycopodiella serpentina	poor	WETLAND			Very High
Lycopodium deuterodensum	some	HEATHY OPEN FOREST	SHRUBLAND		High
Maireana decalvans	poor	COASTAL			Very High
Mazus pumilio	poor	WETLAND			Very High
Melaleuca squamea	poor	WETLAND			Very High
Microtis atrata	some	WETLAND			Very High
Microtis rara	some	WETLAND			Very High
Montia fontana ssp. *chondrosperma*	some	WETLAND	HEATHY WOODLAND		High
Neopaxia australasica	poor	WETLAND			Very High
Olearia glandulosa	poor	WETLAND			Very High
Olearia pannosa ssp. *pannosa*	some	MALLEE	SHRUBLAND	GRASSY WOODLAND	Moderate-Low
Oreomyrrhis eriopoda	some	GRASSY WOODLAND	RIPARIAN		High
Orobanche cernua var. *australiana*	poor	COASTAL			High
Paracaleana disjuncta	poor	HEATHY WOODLAND			High
Paracaleana minor	some	HEATHY WOODLAND			Moderate-Low
Phyllanthus striaticaulis	poor	COASTAL	HEATHY WOODLAND		Moderate-Low

Species (Scientific name)	Knowledge	BVG 1	BVG 2	BVG 3	Habitat Specialisation
Podolepis muelleri	poor	COASTAL			High
Potamogeton ochreatus	poor	WETLAND			Very High
Prasophyllum australe	some	WETLAND			High
Prasophyllum fecundum	some	MALLEE			Moderate-Low
Prasophyllum fitzgeraldii	poor	GRASSY WOODLAND	MALLEE		Moderate-Low
Prasophyllum murfetii	some	WETLAND			Very High
Prasophyllum occultans	some	GRASSY WOODLAND	HEATHY WOODLAND	MALLEE	Moderate-Low
Prasophyllum pallidum	some	GRASSY WOODLAND	HEATHY WOODLAND		Moderate-Low
Prasophyllum pruinosum	some	GRASSY WOODLAND			Moderate-Low
Pratia puberula	poor	WETLAND			Very High
Prostanthera chlorantha	poor	SHRUBLAND	MALLEE	COASTAL	Moderate-Low
Prostanthera eurybioides	fair	MALLEE	SHRUBLAND	GRASSY WOODLAND	High
Psilotum nudum	some	RIPARIAN			Very High
Pteris tremula	some	WETLAND	RIPARIAN		High
Pterostylis arenicola	fair	GRASSY WOODLAND	SHRUBLAND	MALLEE	Moderate-Low
Pterostylis bryophila	fair	GRASSY WOODLAND			High
Pterostylis cucullata ssp. *sylvicola*	fair	GRASSY WOODLAND			Moderate-Low
Pterostylis curta	some	GRASSY WOODLAND	RIPARIAN		High
Pterostylis falcata	some	WETLAND			Very High
Pterostylis sp. Hale (R.Bates 21725)	some	HEATHY WOODLAND			Moderate-Low
Pterostylis uliginosa	some	WETLAND			Very High
Pultenaea dentata	poor	WETLAND			Very High
Pultenaea viscidula	poor	HEATHY OPEN FOREST	HEATHY WOODLAND		Moderate-Low
Ranunculus inundatus	some	WETLAND			Very High
Ranunculus papulentus	poor	WETLAND			Very High
Schizaea bifida	poor	WETLAND	HEATHY WOODLAND		High
Schizaea fistulosa	poor	WETLAND			Very High
Schoenus discifer	poor	WETLAND			High
Schoenus latelaminatus	poor	WETLAND	RIPARIAN		High
Senecio megaglossus	poor	SHRUBLAND	GRASSLAND	GRASSY WOODLAND	Moderate-Low
Spiranthes australis	poor	WETLAND			Very High
Spyridium coactilifolium	some	COASTAL	HEATHY WOODLAND	SHRUBLAND	Moderate-Low
Tecticornia flabelliformis	some	COASTAL			High
Thelymitra circumsepta	some	WETLAND			Very High
Thelymitra cyanapicata	fair	WETLAND			Very High
Thelymitra cyanea	some	WETLAND			Very High
Thelymitra holmesii	some	WETLAND			High
Thelymitra inflata	some	HEATHY WOODLAND	RIPARIAN		High
Thelymitra mucida	some	WETLAND			Very High
Thelymitra peniculata	some	HEATHY WOODLAND	WETLAND		Moderate-Low
Todea barbara	some	HEATHY OPEN FOREST	WETLAND		Very High
Tricostularia pauciflora	poor	SHRUBLAND	WETLAND		Very High

Species (Scientific name)	Knowledge	BVG 1	BVG 2	BVG 3	Habitat Specialisation
Trymalium wayi	poor	HEATHY WOODLAND	SHRUBLAND	MALLEE	High
Utricularia lateriflora	poor	WETLAND			Very High
Veronica derwentiana ssp. *anisodonta*	poor	HEATHY WOODLAND	RIPARIAN		High
Veronica derwentiana ssp. *homalodonta*	some	HEATHY WOODLAND	WETLAND	HEATHY OPEN FOREST	High
Viola betonicifolia ssp. *betonicifolia*	some	HEATHY WOODLAND	GRASSY WOODLAND		Moderate-Low
Wurmbea uniflora	some	RIPARIAN	GRASSY WOODLAND		High
Xyris operculata	poor	WETLAND			Very High

8. Summary of Level of Knowledge, Broad Vegetation Groups and Habitat Specialisation (Fauna)

Species (Common name)	Knowledge	Habitat 1	Habitat 2	Habitat 3	Habitat specialisation
Australasian Bittern	some	WETLAND			
Baillon's Crake	some	WETLAND			
Bassian Thrush	poor	HEATHY WOODLAND	GRASSY WOODLAND		
Beautiful Firetail	some	COASTAL	HEATHY WOODLAND	WETLAND	
Black-chinned Honeyeater	fair	GRASSY WOODLAND	HEATHY WOODLAND	RIPARIAN	
Brown Quail	poor	GRASSLAND	GRASSY WOODLAND	WETLAND	
Brown Toadlet	poor	HEATHY WOODLAND	WETLAND		High
Brown Treecreeper	fair	GRASSY WOODLAND	MALLEE	RIPARIAN	
Brown-headed Honeyeater	some	HEATHY WOODLAND	GRASSY WOODLAND	MALLEE	
Brush Bronzewing	poor	HEATHY WOODLAND	COASTAL	SHRUBLAND	
Buff-banded Rail	some	WETLAND	RIPARIAN		
Carpet Python	poor	RIPARIAN			High
Chestnut-rumped Heathwren (MLR)	some	HEATHY WOODLAND	SHRUBLAND	COASTAL	
Chestnut-rumped Thornbill	poor	GRASSY WOODLAND	HEATHY WOODLAND	MALLEE	
Crested Shrike-tit	poor	GRASSY WOODLAND	HEATHY WOODLAND	RIPARIAN	
Cunningham's Skink	some	GRASSY WOODLAND	COASTAL	HEATHY WOODLAND	High
Diamond Firetail	some	GRASSY WOODLAND			
Eastern Water Skink	poor	RIPARIAN			High
Fairy Martin	poor	RIPARIAN			
Fan-tailed Cuckoo	some	HEATHY OPEN FOREST			
Five-lined Earless Dragon	poor	GRASSLAND	GRASSY WOODLAND		High
Flinders Worm Lizard	some	GRASSLAND	GRASSY WOODLAND		Moderate-Low
Heath Goanna	poor	HEATHY WOODLAND			High
Hooded Robin (South-eastern)	some	GRASSY WOODLAND	HEATHY WOODLAND	MALLEE	
Horsfield's Bronze-cuckoo	some	HEATHY WOODLAND	GRASSY WOODLAND	SHRUBLAND	Moderate-Low
Jacky Winter	poor	GRASSY WOODLAND	HEATHY WOODLAND	MALLEE	
Lewin's Rail	some	WETLAND			
Little Wattlebird	poor	HEATHY WOODLAND	SHRUBLAND	WETLAND	
Olive Snake-lizard	poor	GRASSLAND	GRASSY WOODLAND		Moderate-Low
Orange-bellied Parrot	fair	COASTAL			
Painted Button-quail	poor	HEATHY WOODLAND	GRASSY WOODLAND	HEATHY OPEN FOREST	
Pallid Cuckoo	some	SHRUBLAND	MALLEE	RIPARIAN	
Peregrine Falcon	fair	RIPARIAN	COASTAL		
Pygmy Copperhead	poor	HEATHY WOODLAND			High
Red-capped Robin	some	GRASSY WOODLAND	MALLEE	SHRUBLAND	
Red-rumped Parrot	poor	GRASSY WOODLAND	RIPARIAN		
Restless Flycatcher	some	GRASSY WOODLAND	HEATHY WOODLAND	MALLEE	
Rufous Whistler	some	GRASSY WOODLAND	HEATHY WOODLAND	MALLEE	
Sacred Kingfisher	poor	GRASSY WOODLAND	HEATHY WOODLAND	RIPARIAN	

Species (Common name)	Knowledge	Habitat 1	Habitat 2	Habitat 3	Habitat specialisation
Scarlet Robin	fair	GRASSY WOODLAND	HEATHY WOODLAND	HEATHY OPEN FOREST	
Shining Bronze-Cuckoo	some	HEATHY WOODLAND	GRASSY WOODLAND	HEATHY OPEN FOREST	
Slender-billed Thornbill (SVG)	some	COASTAL			
Southern Brown Bandicoot	fair	HEATHY WOODLAND			High
Southern Emu-wren	fair	WETLAND	HEATHY WOODLAND		
Southern Grass Skink	poor	WETLAND	COASTAL		High
Southern Whiteface	poor	GRASSY WOODLAND	HEATHY WOODLAND	MALLEE	
Spotless Crake	some	WETLAND			
Spotted Quail-thrush	poor	GRASSY WOODLAND	HEATHY WOODLAND		
Tawny Frogmouth	poor	HEATHY WOODLAND	GRASSY WOODLAND	MALLEE	
Tawny-crowned Honeyeater	some	SHRUBLAND	COASTAL	MALLEE	
Tiger Snake	poor	RIPARIAN	HEATHY WOODLAND	WETLAND	Moderate-Low
Tree Martin	poor	GRASSY WOODLAND	HEATHY WOODLAND	MALLEE	
Varied Sittella	some	HEATHY WOODLAND	GRASSY WOODLAND	MALLEE	
Western Pygmy-possum	fair	MALLEE	HEATHY WOODLAND		High
Whistling Kite	poor	GRASSY WOODLAND	RIPARIAN		
White-browed Babbler	fair	GRASSY WOODLAND	HEATHY WOODLAND	MALLEE	
White-fronted Chat	poor	SHRUBLAND	WETLAND	COASTAL	
White-naped Honeyeater	some	HEATHY WOODLAND	GRASSY WOODLAND		
White-winged Chough	fair	GRASSY WOODLAND	MALLEE		
Yellow Thornbill	some	GRASSY WOODLAND	HEATHY WOODLAND	COASTAL	
Yellow-bellied Water Skink	poor	RIPARIAN			High
Yellow-rumped Thornbill	some	GRASSY WOODLAND	GRASSLAND	GRASSY WOODLAND	
Yellow-tailed Black-Cockatoo	some	GRASSY WOODLAND	HEATHY WOODLAND	HEATHY OPEN FOREST	
Zebra Finch	poor	GRASSY WOODLAND	SHRUBLAND	WETLAND	

9. Recovery Management & Research

9.1 Flora Species

Note, this list should be considered a provisional inventory only of recovery management and research occurring in the AMLR region.

Species	Knowledge	Organisations	Activities
Acacia gunnii	some	TPAG/FOSCCP/FOMGCP/ APOS/DTEI/ FOER	Seed collection, propagation, restocking for some populations, threat abatement & habitat management for several sub-populations
Acacia menzelii	fair	MDBTFRP/MTSP/TPAG	Surveys, seed collection, population database, fact sheets, mapping, recovery plan, roadside sites included in RMS
Acacia pinguifolia	fair	TPAG/MDBTFRP/MTSP/ SCC/DEH/ Private	Bridal creeper control and seedling establishment at Finniss. Active management and monitoring at Brimarvi Road (MDB). Site action plan prepared. Seed collection EP & SL. Nurragi Conservation area. Old Milang to Sandergrove Rail Reserve. There have been several groups planted along this corridor to help conserve the local population. Surveys, monitoring, seed collection, buffer zone revegetation project, propagation & planting out, burn trial research, genetic research, weed control at 3 priority sites, population database, fact sheets, mapping, recovery plan, roadside sites included in RMS, bridal creeper rust introduced to suitable sites
Acacia rhetinocarpa	fair	MDBTFRP/TPAG/MTSP/ DEH/SCC	Active management and monitoring at Brinkley plains and Gilbert's Siding (AMLR). Site action plan prepared for Gilbert's siding. Bridal creeper control and seedling establishment at Finniss. Monitoring/ weeding at Pine Point, Yorke Peninsula. Seed collection from Monarto. Surveys, seed collection, buffer zone revegetation project, propagation & planting out, population database, fact sheets, mapping, recovery plan, roadside sites included in RMS, fence remnant habitat site
Adiantum capillus-veneris	poor		
Allocasuarina robusta	some		
Amphibromus pithogastrus	poor		
Asterolasia muricata	some	FONHCP	
Austrostipa echinata	poor		
Austrostipa oligostachya	poor		
Boronia parviflora	poor	FPSRP	
Brachyscome diversifolia	some	TPAG/SAW/FOSC/DEH	Active management and monitoring undertaken on *Brachycombe diversifolia* ssp. *disecta* at Dorset Vale. Site action plan prepared.
Caladenia argocalla	fair	LBORP/TPAG/NOSSA/ FOSG/TFL/BEST	Active site management at Mt Beevor, Tanunda Creek (AMLR), Emu Flat, Spring Gully, Waninga, Sevenhill and Leighton Road (N&Y). Monitoring undertaken
Caladenia behrii	fair	LBORP/TPAG/NOSSA/FOB/ FOSC/DEH/FOB/ SLBORT	Recovery Plan current. Active management at Belair, Wongalere & Ironbank. Surveys & monitoring undertaken
Caladenia bicalliata ssp. *bicalliata*	some	NOSSA	Surveys
Caladenia colorata	fair	MDBTFRP/MTSP/DEH	Surveys, weed control at 1 priority site, community awareness field day planned, genetic analysis research, population database, fact sheets, mapping, recovery plan, roadside

Species	Knowledge	Organisations	Activities
			sites included in RMS, bridal creeper rust introduced to suitable sites
Caladenia gladiolata	fair	LBORP/TPAG/FOSC/ NOSSA/SLBORT	Recovery Plan current. Active site management at Scott Creek. Monitoring undertaken
Caladenia ovata	some	NOSSA	Surveys
Caladenia rigida	fair	LBORP/TPAG/DEH/SAW/ FOSC/FSA/NOSSA/FOB/ NTSA	Recovery Plan current. Active site management at Millbrook, Scott Creek, Roachdale, Belair. Survey & monitoring undertaken
Caladenia valida	fair	TPAG/NOSSA/FONH/ LBORP	Active site management at Newland Hill. Surveys undertaken
Caladenia vulgaris	poor		
Caleana major	some	NOSSA/TPAG	Habitat protection & population monitoring at Knott Hill
Callistemon teretifolius	poor		
Calochilus campestris	some	NOSSA	Surveys
Calochilus cupreus	fair	TPAG/NOSSA/FOAS/DEH	Active management and monitoring at Aldinga Scrub
Calochilus paludosus	poor		
Centrolepis glabra	poor		
Correa calycina var. *calycina*	fair	TPAG/HTBG/SAW/SCC/ DCVH/DEH	Active management and monitoring at Hindmarsh Falls, Hindmarsh River, Myponga CP. Site action plan prepared. Seed collection Myponga CP
Correa eburnea	some		Surveys.
Corybas dentatus	fair	TPAG/LBO/NOSSA/DCA	RSMS markers for Frome Road. Survey and threat abatement. Sandy Ck population re-location
Corybas expansus	some	NOSSA	
Corybas unguiculatus	some	NOSSA	
Crassula sieberiana	poor		
Cryptostylis subulata	poor	SEWFPSRP	Potentially benefited by SEWFPSRP swamp habitat restoration/protection
Cullen parvum	some	TPAG/SAW/DEH/SCC	Active management (weeding) and monitoring at Hope Valley. Site action plan prepared. Seed collection Terowie
Dampiera lanceolata var. *intermedia*	fair	TPAG/FOASCP/DEH	Active management at Aldinga Scrub.
Daviesia pectinata	poor		
Dianella longifolia var. *grandis*	fair	KB/UFBP/CO/ WRMC	Weed control to portect plants currently being undertaken at Billy Goat Hill Lenswood, Montacute CP, Peter Hrmo property Upper Sturt, Richards property Montacute, Black Hill CP, Tangari Regional Reserve, Northern Skate Park Happy Valley. Active management at Watiparinga Reserve.
Dipodium pardalinum	some	NOSSA	Surveys
Diuris behrii	fair	NOSSA/LBORP/TPAG/FOB	Active site managament at Millbrook, Belair, Tanunda Creek
Diuris brevifolia	fair	TPAG/LBORP/FOSC/ NOSSA/FSA	Active site management at Knott Hill, Wilson Hill.
Eleocharis atricha	poor		
Eremophila gibbifolia	poor		

Species	Knowledge	Organisations	Activities
Eucalyptus cneorifolia	poor		
Eucalyptus paludicola	poor	SEWFPSRP	Potentially benefited by SEWFPSRP swamp habitat restoration/protection
Eucalyptus phenax ssp. *compressa*	poor		
Euphrasia collina ssp. *osbornii*	some	SEWFPSRP/FONHCP	Potentially benefited by SEWFPSRP swamp habitat restoration/protection
Gahnia radula	poor		
Gastrodia sesamoides	poor		
Glycine latrobeana	fair	TPAG/SCC	Site restoration and monitoring at Millbrook Reservoir. Minor seed collection from Montacute CP.
Glycine tabacina	poor	WRMC	Active management at Watiparinga Reserve
Gratiola pumilo	poor		
Haloragis brownii	some	FOSCCP	Weed control along Bushrat Creek
Haloragis myriocarpa	some	TPAG	Surveys
Helichrysum rutidolepis	some	TPAG	Weeding, site action planning and monitoring at Thomas Gully, Mount Bold
Hibbertia tenuis	poor		Surveys
Hydrocotyle crassiuscula	poor		
Juncus amabilis	some	TPAG/FOCSCP	Surveys, seed collections. Weed removal Bushrat Creek
Juncus prismatocarpus	poor	SEWFPSRP	Potentially benefited by SEWFPSRP swamp habitat restoration/protection
Juncus radula	poor		
Lagenophora gracilis	some	KB	Higgs Property Pages Flat Rd, Myponga weed control
Leionema hillebrandii	some	TPAG	Surveys, threat abatement, habitat management
Logania minor	poor		
Luzula flaccida	poor		
Lycopodiella lateralis	poor		
Lycopodiella serpentina	poor	SEWFPSRP	Potentially benefited by SEWFPSRP swamp habitat restoration/protection
Lycopodium deuterodensum	some	TPAG	Population monitoring, habitat restoration, woody weed control, Site Action Plan completed
Maireana decalvans	poor		
Mazus pumilio	poor		
Melaleuca squamea	poor		
Microtis atrata	some	SEWFPSRP/NOSSA	Potentially benefited by SEWFPSRP swamp habitat restoration/protection. NOSSA surveys
Microtis rara	some	SEWFPSRP/NOSSA	Potentially benefited by SEWFPSRP swamp habitat restoration/protection. NOSSA surveys
Montia fontana ssp. *chondrosperma*	some	FOSCCP/TPAG	Habitat restoration, monitoring
Neopaxia australasica	poor		
Olearia glandulosa	poor	SEWFPSRP	
Olearia pannosa ssp. *pannosa*	some	TPAG/MTSP/MDBTFRP/ SCC	Seed collections from Tarcowie, Goolwa, Blackhill & Keith. Surveys, seed collection, genetic research, weed control at priority sites, population database, fact sheets, mapping, recovery plan, roadside sites included in RMS, bridal creeper rust introduced to

Species	Knowledge	Organisations	Activities
			suitable sites, fence remnant habitat site
Oreomyrrhis eriopoda	some	TPAG/SAW/SCC	Weeding, site action planning and monitoring at Thomas Gully, Mount Bold. Seed collection from private property near Lenswood. Planned collections from Mt Bold.
Orobanche cernua var. *australiana*	poor		
Paracaleana disjuncta	poor		
Paracaleana minor	some	NOSSA/LBORP/TPAG	Surveys
Phyllanthus striaticaulis	poor		
Podolepis muelleri	poor		
Potamogeton ochreatus	poor		
Prasophyllum australe	some	NOSSA/SEWFPSRP	Surveys by NOSSA. Potentially benefited by MLRSEW swamp habitat restoration/protection
Prasophyllum fecundum	some	NOSSA	Surveys
Prasophyllum fitzgeraldii	poor		
Prasophyllum murfetii	some	NOSSA/SEWFPSRP	Potentially benefited by SEWFPSRP swamp habitat restoration/protection
Prasophyllum occultans	some	NOSSA	Surveys
Prasophyllum pallidum	some	NOSSA	Surveys
Prasophyllum pruinosum	some	NOSSA	Surveys
Pratia puberula	poor		
Prostanthera chlorantha	poor		
Prostanthera eurybioides	fair	SAMDBTFRP/MTSP	Surveys, monitoring, seed collection, genetic research, weed control at priority sites, population database, fact sheets, mapping, recovery plan, bridal creeper rust introduced to suitable sites
Psilotum nudum	some	TPAG	Monitoring
Pteris tremula	some	TPAG/HTBG	Habitat restoration, monitoring
Pterostylis arenicola	fair	TPAG/DEH/NOSSA/MTSP/ SAMDBTFRP	Active site management at Grange Golf Course. Surveys & monitoring undertaken. Surveys, population database, fact sheets, mapping, recovery plan, bridal creeper rust introduced to suitable sites
Pterostylis bryophila	fair	TPAG/LBORP/NOSSA/ FOMBCP	Recovery Plan current. Active site management at Mount Billy CP. Hindmarsh Reservoir & Hindmarsh Falls. Surveys and monitoring undertaken.
Pterostylis cucullata ssp. *sylvicola*	fair	TPAG/LBORP/NOSSA/ FOBNP/SLBRT	Recovery Plan current. Active site management at Belair NP and Bushland Park. Surveys and monitoring
Pterostylis curta	some	TPAG/LBORP/NOSSA/ FOBNP	Some surveys. Benefited by habitat restoration work for *P.cucullata*
Pterostylis falcata	some	SEWFPSRP/FOSSCP/TPAG/ NOSSA	Potentially benefited by MLRSEW swamp habitat restoration/protection. Habitat restoration & monitoring
Pterostylis sp. Hale (R.Bates 21725)	some	NOSSA	Surveys. Previously included in LBORP but taken off due to taxonomic issues.
Pterostylis uliginosa	some	NOSSA/SEWFPSRP	Surveys & monotoring by NOSSA. Previously by LBORP. Potentially benefited by MLRSEW swamp habitat restoration/protection

Species	Knowledge	Organisations	Activities
Pultenaea dentata	poor	SEWFPSRP	Potentially benefited by SEWFPSRP swamp habitat restoration/protection
Pultenaea viscidula	poor		
Ranunculus inundatus	some	KB/UFBP	Delaney and Smith properties Norton Summit weed control
Ranunculus papulentus	poor		
Schizaea bifida	poor	SEWFPSRP/ FOER	Potentially benefited by SEWFPSRP swamp habitat restoration/protection. Managed at Engelbrook Reserve.
Schizaea fistulosa	poor		
Schoenus discifer	poor	SEWFPSRP	Potentially benefited by SEWFPSRP swamp habitat restoration/protection
Schoenus latelaminatus	poor		
Senecio megaglossus	poor		
Spiranthes australis	poor	SEWFPSRP	Potentially benefited by SEWFPSRP swamp habitat restoration/protection
Spyridium coactilifolium	some	TPAG/FONHCP/SCC	Weed control (Boneseed), seed collection and site action planning at Victor Harbor. Seed collection Parsons Beach
Tecticornia flabelliformis	some		
Thelymitra circumsepta	some	NOSSA/TPAG	Surveys
Thelymitra cyanapicata	fair	LBORP/NOSSA/TPAG/ SLBORT/FSA	Surveys & habitat protection at Knott Hill.
Thelymitra cyanea	some	NOSSA	Surveys
Thelymitra holmesii	some	NOSSA	Surveys
Thelymitra inflata	some	NOSSA	Surveys
Thelymitra mucida	some	NOSSA	Surveys
Thelymitra peniculata	some	NOSSA	Surveys
Todea barbara	some	TPAG	Surveys, monitoring, habitat management
Tricostularia pauciflora	poor		
Trymalium wayi	poor		
Utricularia lateriflora	poor	SEWFPSRP	Potentially benefited by SEWFPSRP swamp habitat restoration/protection
Veronica derwentiana ssp. *anisodonta*	poor		
Veronica derwentiana ssp. *homalodonta*	some	TPAG/FOSCCP/SCC/DEH/ Private	A site action plan has been written for Bushrat Creek. Seed collection from Mt Lofty Ranges populations. Creekbed restoration by Friends of Scott Creek CP. Active managment and monitoring at Scott Creek, Ironbank, Devils Gully, Warren CP.
Viola betonicifolia ssp. *betonicifolia*	some	TPAG/SAW	Weeding, site action planning and monitoring at Thomas Gully, Mount Bold
Wurmbea uniflora	some	TPAG/SAW	Weeding, seed collection, site action planning and monitoring at Thomas Gully, Mount Bold
Xyris operculata	poor		

Abbreviations:

CO	City of Onkaparinga
DEH	Department for Environment & Heritage
FOASCP	Friends of Aldinga Scrub CP
FOBNP	Friends of Belair NP
FOER	Friends of Engelbrook Reserve
FOMBCP	Friends of Mount Billy CP
FOMGCP	Friends of Mount George CP
FONHCP	Friends of Newland Head CP
FOSCCP	Friends of Scott Creek CP
FSA	Forestry SA
HTBG	Hindmarsh Tiers Biodiversity Group
KB	Keiran Brewer
LBORP	Lofty Block Orchid Recovery Program
MDBTFRT	Murray Darling Basin Threatened Flora Recovery Team
MTSP	Murraylands Threatened Species Project
NOSSA	Native Orchid Society of South Australia
SAW	SA Water
SEWFPSRP	Southern Emu-wren/Fleurieu Peninsula Swamps Recovery Program
TPAG	Threatened Plant Action Group
UFBP	Urban Forests Biodiversity Program
WRMC	Watiparinga Reserve Management Committee

9.2 Fauna Species

Note, this list should be considered a provisional inventory only of recovery management and research occurring in the AMLR region.

Species (Common name)	Knowledge	Notes
Australasian Bittern	some	Potential benefit from SEWFPSRP wetland restoration and protection
Baillon's Crake	some	Potential benefit from SEWFPSRP wetland restoration and protection
Bassian Thrush	poor	
Beautiful Firetail	some	Potential benefit from SEWFPSRP heath restoration and protection
Black-chinned Honeyeater	fair	Local research by Paton PA (2002), Chapman (1995), Paton et al. (1999) and Paton (2002)
Brown Quail	poor	Potential benefit from SEWFPSRP wetland restoration and protection
Brown Toadlet	poor	Potential benefit from SEWFPSRP wetland/heath restoration and protection
Brown Treecreeper	fair	
Brown-headed Honeyeater	some	Potential benefit from SEWFPSRP restoration and protection, local research by Willoughby (2005)
Brush Bronzewing	poor	Potential benefit from SEWFPSRP heath restoration and protection
Buff-banded Rail	some	Potential benefit from SEWFPSRP wetland restoration and protection
Carpet Python	poor	
Chestnut-rumped Heathwren (MLR ssp)	some	Potential benefit from SEWFPSRP heath restoration and protection, DEH fire management surveys
Chestnut-rumped Thornbill	poor	
Crested Shrike-tit	poor	
Cunningham's Skink	some	Some survey work by Herpetology Group
Diamond Firetail	some	Some research by Read JL (1994), Houdet (2003), Ankor (2005 pending)
Eastern Water Skink	poor	
Fairy Martin	poor	
Fan-tailed Cuckoo	some	Potential benefit from SEWFPSRP heath restoration and protection
Five-lined Earless Dragon	poor	
Flinders Worm Lizard	some	
Heath Goanna	poor	Potential benefit from SEWFPSRP heath restoration and protection
Hooded Robin (South-eastern)	some	Some research by Paton & Rogers (2003), Gillespie (2005)
Horsfield's Bronze-cuckoo	some	Potential benefit from SEWFPSRP heath restoration and protection
Jacky Winter	poor	
Lewin's Rail	some	Potential benefit from SEWFPSRP wetland restoration and protection
Little Wattlebird	poor	
Olive Snake-lizard	poor	
Orange-bellied Parrot	fair	
Painted Button-quail	poor	
Pallid Cuckoo	some	
Peregrine Falcon	fair	
Pygmy Copperhead	poor	
Red-capped Robin	some	Some research by Paton & Rogers (2003), Gillespie (2005)
Red-rumped Parrot	poor	
Restless Flycatcher	some	Some research by Paton & Rogers (2003), Gillespie (2005)
Rufous Whistler	some	

Species (Common name)	Knowledge	Notes
Sacred Kingfisher	poor	
Scarlet Robin	fair	Some research by Heddle (1999), Paton et al. (2004)
Shining Bronze-Cuckoo	some	
Slender-billed Thornbill (St Vinc. Gulf ssp.)	some	
Southern Brown Bandicoot	fair	DEH Adelaide Region recovery project
Southern Emu-wren	fair	
Southern Grass Skink	poor	Potential benefit from SEWFPSRP wetland restoration and protection
Southern Whiteface	poor	
Spotless Crake	some	Potential benefit from SEWFPSRP wetland restoration and protection
Spotted Quail-thrush	poor	
Tawny Frogmouth	poor	
Tawny-crowned Honeyeater	some	Potential benefit from SEWFPSRP heath restoration and protection
Tiger Snake	poor	Potential benefit from SEWFPSRP heath restoration and protection
Tree Martin	poor	
Varied Sittella	some	Potential benefit from SEWFPSRP heath restoration and protection
Western Pygmy-possum	fair	Potential benefit from SEWFPSRP heath restoration and protection, University of Adelaide research
Whistling Kite	poor	
White-browed Babbler	fair	Local research by Tan MSM (1996)
White-fronted Chat	poor	Potential benefit from SEWFPSRP wetland restoration and protection
White-naped Honeyeater	some	Local research by Willoughby (2005)
White-winged Chough	fair	
Yellow Thornbill	some	Some research by Allan (2004)
Yellow-bellied Water Skink	poor	Potential benefit from SEWFPSRP wetland restoration and protection
Yellow-rumped Thornbill	some	Local research by Davill C (2001)
Yellow-tailed Black-Cockatoo	some	Potential benefit from SEWFPSRP heath restoration and protection
Zebra Finch	poor	

10. Broad Vegetation Groups

10.1 Descriptions

BVG	Description
Coastal	Subject to the influences of coastal environments. This includes sheltered and exposed cliffs on non-calcareous substrates, sheltered and exposed dunes on non-calcareous or calcareous substrates, and sheltered tidal zones. Coastal vegetation faces different environmental conditions than terrestrial vegetation, and in particular, it must be able to tolerate exposure, high salt content and unstable substrates such as sandy soils and eroded cliff-tops. parameters such as geology and level of exposure are important determinants of the type and composition of coastal vegetation that will persist at a particular coastal location.
Grassland	Few or no trees, and an understorey dominated by native grasses and herbs. Grasslands may have patches of shrubs in the mid-storey, particularly on shallow and rocky soils. All grasslands in the AMLR are tussock grasslands, having discrete clumps or tussocks of grasses, herbs or sedges. Inter-tussock spaces consist of bare ground with a diverse range of herbs and annual plans emerging in spring. Grasslands with an emergent tree or shrub layer have been classified in this document as grasslands with emergents. However, in reality, vegetation is a continuum with subtle intergrades between grasslands, grasslands with emergents and grassy woodlands.
Grassy Woodland	Woodlands with an understorey dominated by grasses, herbaceous species (e.g. daisies, lilies) and sedges, a scattered shrub layer and a discontinuous tree layer. Grassy woodlands have an overstorey typically dominated by eucalypts, including smooth-barked gums and/or box. Tree density is variable, but a typical grassy woodland may have a tree density of approximately 30 trees per hectare, which results in some open areas without canopy. In high rainfall areas, tree density may be higher resulting in woodlands that resemble forests. The mid-storey of grassy woodlands may contain scattered woody shrubs. Shrub density is highly variable between communities and individual patches of vegetation, probably reflecting soil quality and fire history. Grassy woodlands contain a very high diversity of native plant species. This diversity is particularly apparent during spring, when many species of wildflower emerge from spaces between grass tussocks.
Heathy Open Forest	Forest with a canopy dominated by eucalypts, and a dense understorey comprising many species of low shrubs, generally with small, hard leaves (sclerophyllous). The understorey is dominated by the Families Dilleniaceae (e.g. *Hibbertia* spp.), Epacridaceae (e.g. *Acrotriche fasciculiflora*, *Astroloma humifusum*), Leguminosae (e.g. *Pultenaea involucrata, Platylobium obtusangulum, Acacia myrtifolia*) and Proteaceae (e.g. *Hakea rostrata*). The understorey also contains abundant lilies and orchids, and sparse but diverse native grasses. A sparse midstorey of Blackwood *Acacia melanoxylon*, Native Cherry *Exocarpus cupressiformis* and banksias *Banksia* spp. may be present. The understorey and midstorey density is heterogeneous, with structure dependant upon fire history and other disturbance.
Heathy Woodland	Similar to heathy open forest, heathy woodland has a dense understorey and midstorey of a variety of low small-leaved (sclerophyllous) shrubs. These layers have high structural diversity, but contain fewer species than that of grassy woodlands. Most of the midstorey and understorey species listed under heathy open forest would also be found in heathy woodland. The overstorey is more widely spaced than in heathy open forest. Most heathy woodland is dominated by eucalypts (often stringybarks), although some is dominated by native pines.
Mallee	Vegetation with low, characteristically multi-stemmed trees. Mallee may have a grassy or shrubby understorey, or a mixture of both – the type of understorey is dependant upon soil and rainfall patterns. Chenopod low shrubs are dominant in arid areas, sandy soils support a more grassy understorey with *Triodia* spp. hummocks, and in high rainfall areas, mallee may have a midstorey comprising sclerophyllous shrubs. Mallee has a dense ground layer of twigs and leaf litter and good soil crust.
Riparian	Vegetation found along watercourses and on flood plains. Riparian zones represent transition areas between land and water. The natural vegetation of these areas usually reflects the better soils and moist conditions found in the lower parts of the landscape. In the AMLR, riparian zones can be separated into two distinct types. The first is the creeks and gullies of the steeper slopes and ridges of

BVG	Description
	the Mount Lofty Ranges, where riparian zones are dominated by tall open forests of Candlebarks, Manna Gums, Swamp Gums, Blackwoods and Stringybarks. The second type of riparian zone is the Red Gum dominated drainage lines of the foothills and eastern flanks. Riparian zones support typically dense vegetation, with dense understorey, shrublayer and overstorey. Red Gum drainage lines support more open vegetation, with some open grassy patches in the understorey.
Shrubland	Vegetation with an open to very dense layer of shrubs up to 2 m in height, with few or no trees. Shrubland types in the AMLR include coastal chenopod shrublands, low-rainfall open plains shrublands, and high-rainfall sclerophyllous shrublands.
Wetland	A number of wetland types are found in the AMLR. Discussion of these wetlands and their conservation requirements is included under freshwater aquatic biodiversity. However, native vegetation associations specific to freshwater wetlands are considered in this section. In the AMLR, wetland vegetation is associated with: freshwater swamps of the MLR and lower Fleurieu Peninsula; seasonal wetlands of the Adelaide Plains; estuarine creeks of the south coast (considered under coastal); and Red Gum wetlands along creeks featuring waterholes with fringing reeds (considered under riparian). Freshwater swamp vegetation in the AMLR is shrub-dominated and typically very dense. This vegetation has high structural and floristic diversity, and contains many endemic and naturally rare plants. Seasonal wetlands on the Adelaide plains were flat areas with open water and fringing vegetation such as macrophytes, lignum and samphire.

10.2 Vegetation Associations

Broad Vegetation Group	Vegetation Association
Coastal	Basement rock
	Low cliffs/hills
	Estuarine
	Landward of saltmarsh
	Mangroves
	Saltmarsh
	Dunes
	Plains/estuarine
Grassland	*Lomandra effusa* / *L. multiflora* tussock grassland
	Stipa spp., *Danthonia* spp. Grassland
	Themeda triandra grassland
Grassy Woodland	*A. verticillata* grassland w/ emergents
	A. verticillata grassland w/ emergents (heath)
	Banksia marginata grassland w/ emergents
	Callitris preissii grassland w/ emergents
	E. fasciculosa + *E. leucoxylon* grassland w/ emergents
	E. behriana +/- *E. odorata* grassy woodland
	E. fasciculosa grassy woodland
	E. largiflorens grassy woodland
	E. leucoxylon grassy woodland
	E. leucoxylon ssp pruinosa grassy woodland
	E. microcarpa grassy woodland
	E. odorata grassy woodland
	E. porosa grassy woodland
	E. viminalis ssp. *cygnetensis* grassy woodland
Heathy Open Forest	*E. obliqua* and/or *E. baxteri* heathy open forest
Heathy Woodland	*Callitris preissii* heathy woodland
	E. fasciculosa heathy woodland
	E. baxteri heathy woodland
	E. baxteri, E. cosmophylla, E. fasciculosa heathy woodland
	E. cosmophylla, E. fasciculosa heathy woodland
	E. goniocalyx heathy woodland
	E. leucoxylon shrubby woodland
	E. obliqua + *E. cosmophylla* heathy woodland
	E. obliqua + *E. fasciculosa* heathy woodland
	E. obliqua + *E. goniocalyx* heathy woodland
Mallee	*E. calycogona* var. *calycogona* +/- *E. dumosa* over shrubs/grasses
	E. incrassata mixed mallee
	E. phenax, *E. dumosa, E. socialis* mallee
	Mallee zone shrubland
Riparian	*E. camaldulensis* riparian or grassy woodland
	E. viminalis and/or *E. dalrympleana* riparian woodland
Shrubland	*Allocasuarina muelleriana* heath
	Banksia marginata shrubland
	Callitris rhomboidea shrubland
	Maireana aphylla shrubland
	Melaleuca uncinata shrubland
	Senna artemisioides ssp. *petiolaris*, +/- *Eremophila longifolia* shrubland
Wetland	*E. ovata* woodland over wet heath
	Gahnia filum +/- *Bolboschoenus caldwellii* sedgeland
	Leptospermum lanigerum shrubland
	Phragmites australis +/- *Typha* sp. sedgeland

11. Threat Analysis

Species and ecological communities in the AMLR are at risk as a result of a combination of historical, current and potential threats. Species have initially become threatened because of historical actions, in particular the vast clearance of native vegetation, causing populations to become reduced in size and restricted to small and isolated pockets of remaining habitat.

11.1 Threat Terminology and Categorisation

What is a stress?

Stresses are impaired aspects of conservation targets that result directly or indirectly from threats. In essence, stresses are degraded key ecological attributes, e.g. habitat loss, habitat fragmentation, altered hydrological regimes, low population size.

For example, 'habitat loss' (stress) is the result of "residential and commercial development" (direct threat).

Identifying the stresses and their relationship with the threats is an important step in understanding their impact on threatened species, and appropriate direction for management, as highlighted by the following example:

> *The construction of a road across a watercourse is identified as a threat to native fish. Without considering what the stress is resulting from the threat, one would draw the conclusion that the construction of the road must be refused. But the stress is not the road, it is the loss of water flow. Given this, consideration could be given to ways to keep tidal waters flowing whilst allowing development of the road to proceed (e.g. culverts may be the answer).*

It can be difficult identifying stresses and threats in a consistent style. In cases where the decision isn't clear, it is more important that they be considered in the analysis process rather than spending too much time deciding into which category they fit.

There are many cases where the human caused threats have been abated, but the persistent stresses are still affecting the targets, *e.g. habitat loss and fragmentation caused by historical land clearance*. This further highlights the importance of identifying the stresses in the first instance, thereby ensuring the impacts of such historical actions are not overlooked in the formulation of management actions.

What is a direct threat?

Direct threats (also known as 'sources of stress') are the proximate activities or processes that have caused, are causing or may cause the stresses, by physically causing the destruction or degrading the integrity of the conservation target. For example, a roadside plant population might be affected by the direct threats of road maintenance and stock grazing.

Direct threats can be classed as historical (occurred in the past, although their effects may still persist), current, or future (not actively occurring, but have some probability of occurring in the future).

For the most part, direct threats are limited to human activities. There is often a fine line between a naturally occurring event such as a fire started by lighting and a human-caused threat such as a deliberate fire or even increased intensity of fires due to management practices. In general, a direct threat in the context of this plan is human induced. In systems that depend on human actions to maintain biodiversity such as the use of prescribed burns, the removal or alteration of these management activities may also constitute a threat.[11,15]

What is an indirect threat?

Indirect threats are the underlying causes (usually social, economic, political, institutional or cultural) that enable or otherwise contribute to the occurrence and or persistence of direct threats. For example, a lack of planning regulations (indirect threat) many allow inappropriate development (direct threat) to occur, resulting in the destruction of habitat (stress).

Sometimes underlying indirect threats can be inferred from the direct threats. Regard for such underlying causes can present opportunities for management (e.g. revision in government regulations). The distinction between a direct threat and an indirect threat is not always clear; it is sometimes situational.[15]

Threat categories

Recovery plans use varied terminology to describe threats and their relationship to one another. This plan has adopted threat terminology consistent with the Nature Conservancies Conservation Action Planning hierarchical threat categories and IUCN-CMP Unified Classification of Direct Threats.[2,11] These systems provided comprehensive threat categories at the high level of classification but were incomplete at lower levels, requiring definition of some additional threat categories specific to the AMLR. The threat analysis was mostly performed within the Nature Conservancies Conservation Action Planning Tool (Version 5, July 2007), however final summarising was undertaken outside of this tool.

A detailed summary of the broad threat categories, and the more specific threat categories relevant to the AMLR threatened species is provided in the main plan. The threat analysis was performed at the broad threat category level for some threats, and at the more specific level for others, depending on the significance of the threat sub-categories, the quality of available information, and the level of detail necessary in establishing suitable management actions. The analysis focused on the direct threats currently impacting, or likely to have impact on the species within the next five year period (i.e. the life of the plan). Many species are clearly suffering prolonged stress associated with past threats. For example, vegetation clearance was not considered a current direct threat and so was not assessed. However, threats that currently cause incremental vegetation clearance were assessed (e.g. residential development).

Threat Categories

Broad Threat Categories (IUCN)	Threat categories used for analysis
(1) Agriculture *Threats from grazing and agricultural expansion, intensification, and change in agricultural land use*	• Grazing & Disturbance by Stock • Intensive Agriculture
(2) Biological Resource Use *Threats from consumptive use of "wild" biological resources including both deliberate and unintentional harvesting effects; also persecution or control of specific species*	• Firewood Harvest & Rock Removal • Fishing & Harvesting of Aquatic Resources • Illegal Hunting or Collection
(3) Climate Change & Severe Weather *Threats from long-term climatic changes which may be linked to global warming and other severe climatic/weather events that are outside of the natural range of variation, or potentially can wipe out a vulnerable species or habitat*	• Climate Change, Drought & Severe Weather
(4) Energy Production & Mining *Threats from production of non-biological resources*	• Mining & Quarrying
(5) Human Intrusions & Disturbance *Threats from human activities that alter, destroy and disturb habitats and species associated with non-consumptive uses of biological resources*	• Recreational Activities & Site Disturbance
(6) Invasive & Other Problematic Species & Genes *Threats from non-native and native plants, animals, pathogens/microbes, or genetic materials that have or are predicted to have harmful effects on biodiversity following their introduction, spread and/or increase in abundance*	• Competition with Honey Bees • Disease & Insect Damage • Grazing & Disturbance by Deer or Goats • Grazing & Disturbance by Kangaroos • *Phytophthora** • Predation & Competition by Introduced Birds • Predation & Competition by Introduced Fish • Predation & Disturbance by Uncontrolled Dogs • Predation by European Fox • Predation by Feral & Uncontrolled Cats • Problematic Native Species (other) • Weed Invasion
(7) Natural System Modifications *Threats from actions that convert or degrade habitat in service of "managing" natural or semi-natural systems, often to improve human welfare*	• Fire Management Activities • Inappropriate Fire Regimes • Inappropriate Site Management • Removal of Snags • Water Management & Use
(8) Pollution *Threats from introduction of exotic and/or excess materials (e.g. chemicals, solid rubbish) or energy from point and non-point sources*	• Pollution & Poisoning (Chemical, Solid Waste & Other)
(9) Residential & Commercial Development *Threats from human settlements or other non-agricultural land uses with a substantial footprint*	• Residential & Commercial Development
(10) Transportation & Service Corridors *Threats from long narrow transport corridors and the vehicles that use them including associated wildlife mortality*	• Road-kill • Road, Rail & Utilities Maintenance Activities

Direct Threat Hierarchy

Direct Threat Category Level 1 (IUCN)	Direct Threat Category Level 2 (IUCN)	Direct Threat Category Level 3 (plan specific categories)	Links to Stresses
Agriculture	Annual & Perennial Non-Timber Crops	Intensive Agriculture	E, B
	Marine & Freshwater Aquaculture		
	Livestock Farming	Grazing & Disturbance by Stock	A, B, E, G, I
Biological Resource Use	Hunting & Collecting terrestrial Animals	Illegal Hunting or Collection	A, I, K, L
	Gathering Terrestrial Plants		
	Logging & Wood Harvesting	Firewood Harvest	A, I
	Fishing & Harvesting Aquatic Resources	Fishing & Harvesting of Aquatic Resources	A, I, K, L
		Rock Removal	A, K
Climate Change & Severe Weather	Drought	Climate Change, Drought & Severe Weather	A, B, C, D, F, G, H, K, L
	Habitat Shifting and Alteration		
	Temperature Extremes		
	Storms and Flooding		
Energy Production & Mining	Mining & Quarrying	Mining & Quarrying	A, B, E, G, I, K
Human Intrusions & Disturbance	Recreational Activities	Recreational Activities & Site Disturbance	A, B, G, I, K
	Work and other Activities		
Invasive & Other Problematic Species & Genes	Invasive Non-Native/ Alien Species	*Phytophthora*	A, B, G, I, L
		Disease/Dieback & Insect Damage	A, B, E, G, I, K, L
		Predation by European Fox	I
		Predation by Feral & Uncontrolled Cats	I
		Grazing & Disturbance by Rabbits	A, K, L
		Grazing & Disturbance by Deer or Goats	A, K, L
		Predation/ Competition by Introduced Birds	I, K
		Predation/ Competition by Introduced Fish	A, I, K
		Competition with Honey Bees	I, K, L
		Predation & Disturbance by Uncontrolled Dogs	I, K
		Weed Invasion	A, B, G, I, K, L
	Problematic Native Species	Grazing & Disturbance by Kangaroos	A, B, I, K, L
		Problematic Native Species (Other)	I, K, L
Natural System Modifications	Fire & Fire Suppression	Inappropriate Fire Regimes	A, C, E, F, G, H, I, K
		Fire Management Activities	A, B, C, E, F, G, H, I, K, L
	Dams & Water Management/Use	Water Management & Use	A, D, E, F, H, I, K
	Other Ecosystem Modifications	Incompatible Site Management	A, B, G, I, K
		Removal of Snags	A, E, K, L
Pollution	Household Sewage & Urban Waste Water	Pollution & Poisoning (chemical, solid waste & other)	A, F, I, K
	Industrial & Military Effluents		
	Agricultural & Solid Waste		
	Garbage and Solid Waste		
	Air-Borne Pollutants		
Residential & Commercial Development	Housing & Urban Areas	Residential & Commercial Development	A, B, D, E, F, G, H, I, J, K, L
	Commercial & Industrial Areas		
	Tourism & Recreation Areas		

Direct Threat Category Level 1 (IUCN)	Direct Threat Category Level 2 (IUCN)	Direct Threat Category Level 3 (plan specific categories)	Links to Stresses
Transportation & Service Corridors	Roads & Railroads	Road/ Rail & Utilities Maintenance Activities	A, B, E, F, G, H, I, J, K, L
	Utility & Service Lines		
		Road Kill	J

Stress Hierarchy and links to AMLR current direct threats

Stress Category Level 1	Stress Category 2	Stress Category 3	Link to Threats
Ecosystem/Community Stresses	Ecosystem Conversion	Habitat Loss and Modification	A
		Incremental Clearance	B
	Ecosystem Degradation	Altered Fire Regimes	C
		Altered Hydrological Regimes (drainage, diversion, extraction, regulation, altered flow regimes)	D
	Indirect Ecosystem Effects	Fragmentation of Existing Habitat (isolation of populations)	E
		Barriers to Dispersal	F
		Edge Effects	G
		Distance Effects (isolation)	H
Species Stresses	Species Mortality	Species Mortality General (e.g. killing or capturing species)	I
		Road Mortality	J
	Species Disturbance	Species Disturbance (e.g. disruption of critical life stages)	K
	Indirect Species Effects	Indirect Species Effects (e.g. inbreeding, loss of pollinator or host, increased competition)	L

11.2 Threat Rating Criteria

The threat analysis was performed within the Nature Conservancies Conservation Action Planning (CAP) Tool, a Microsoft Excel based workbook used by environmental practitioners around the world to guide conservation action.[16] The CAP Tool has many components; only a simplified version of the threat analysis function was utilised in this plan, the main benefits being transparency and the ability to easily revisit and update the ratings.

The first step was to rate the ***Severity*** and ***Scope*** of each threat, based on defined criteria. These ratings were combined to obtain an overall ***Threat Magnitude*** rating. Given that documented information on the severity and scope was lacking for most threats, workshops were held with threatened flora and fauna experts to inform the threat analysis process.

The CAP Tool has inbuilt formulae to calculate an overall status for each threat across all species. However, an alternative method was used to summarise and rank threats to determine an overall regional rating for each threat. This was performed within flora, fauna, freshwater fish groups and broad vegetation groups, by:

1. Allocating scores to the threat magnitude ratings
2. Summing the scores for each threat
3. Ranking the threat according to the score
4. Classifying the threat rankings into descriptive classes according to the maximum threat score (75-100% = very high; 50-75% = high; 30-50% = medium-high; 20-30% = medium; 1-20% = low)

The threat of Inappropriate Fire Regimes was particularly difficult to rate consistently because of the significant gaps in the knowledge of species' fire requirements. This should be taken into consideration when assessing the ratings (i.e. the lack of a rating for this threat may be due to a lack of information). The threat of *Phytophthora* and Dieback has been assessed at the Broad Vegetation

Group level, but could not be assessed on a species-based level because there is currently no information on susceptibility of the species included in this plan. Instead, inference was drawn about *Phytophthora* risk based on species' occurrence within two kilometres of known or suspected *Phytophthora* infestations (see the individual species profiles, Appendices Part B).

1. The ***Severity*** and ***Scope*** of each threat is determined, based on defined criteria.

Severity: *The level of damage to the conservation target that can reasonably be expected within 5 years under current circumstances (i.e. given the continuation of the existing situation) .*

- Very High: The threat is likely to destroy or eliminate the conservation target over some portion of the target's occurrence in the region.
- High: The threat is likely to seriously degrade the conservation target over some portion of the target's occurrence in the region.
- Medium: The threat is likely to moderately degrade the conservation target over some portion of the target's occurrence in the region.
- Low: The threat is likely to only slightly impair the conservation target over some portion of the target's occurrence in the region.

Scope*: Most commonly defined spatially as the geographic scope of impact on the conservation target in the region can reasonably be expected within 5 years under current circumstances (i.e. given the continuation of the existing situation).*

- Very High: The threat is likely to be very widespread or pervasive in its scope, and affect the conservation target throughout the target's occurrences in the region.
- High: The threat is likely to be widespread in its scope and affect the conservation target at many of its locations in the region.
- Medium: The threat is likely to be localized in its scope and affect the conservation target at some of the target's locations in the region.
- Low: The threat is likely to be very localized in its scope and affect the conservation target at a limited portion of the target's location in the region.

2. The ***Severity*** and ***Scope*** ratings are combined to give an overall ***Threat Magnitude*** rating:

		Severity			
Scope		**Very High**	**High**	**Medium**	**Low**
	Very High	**Very High**	**High**	**Medium**	**Low**
	High	**High**	**High**	**Medium**	**Low**
	Medium	**Medium**	**Medium**	**Medium**	**Low**
	Low	**Low**	**Low**	**Low**	**Low**

Severity & Scope = Threat Magnitude

Note:

** For the purpose of this plan, the conservation targets were the threatened species, considered at the regional population level.*

*** The ratings represent the threat magnitude likely within a time period of five years; in line with the life of the recovery plan. Longer timeframes may need to be considered for some threats.*

11.3 Threat Analysis Limitations

Performing a criteria-based threat analysis is a difficult process when the nature and impact of threats are not well understood.[13] Whilst a genuine attempt was made to base the analysis on the best available information, it is acknowledged that there are significant gaps in our knowledge of certain species and certain threats. Information to inform the threat analysis was initially sourced from existing literature; however as threats are often referred to generically, such as 'vegetation clearance', 'fragmentation' or 'lack of recruitment' it was difficult to translate much of the available information into specific management actions for species. Expert opinion was heavily relied on to refine the threat analysis. The resultant threat ratings should be considered as a 'best guess'. As further research is undertaken and more information obtained, the threat ratings should be reviewed and updated.

The authors acknowledge the following limitations of the threat analysis:

- The separation of threats into distinct categories is essentially artificial, given that many threats are intrinsically inter-related and can be exacerbated by other threats. The analysis is based on the primary impacts of a given threat.
- Threats are active at a range of scales across the project area. The threat analysis for this plan was performed at a regional scale, therefore does not necessarily reflect the situation for sub-regions or individual sub-populations.
- The threat of vegetation clearance was not assessed *per se*, as it is predominantly an historical threat which combined with other direct threats has contributed to a range of ecological stresses. The act of illegal clearance and incremental legal clearance that still occurs on a small scale has been considered under the threat category of Inappropriate Site Management. Also, due to lack of knowledge and difficulty in dealing with related threat classes, it was difficult to comprehensively assess 'disturbance regimes', particularly relating to grazing and hydrology.
- A general regional-scale threat category was used to rate weed invasion (rather than rating the threat of individual weed species). Due to the information available and the nature of weed invasion threats, it is difficult to rate individual weed species at the regional scale and devise meaningful management actions. However, existing weed species threat analysis information for the region was adapted and generically ranked within Broad Vegetation Groups. Implementation of the plan will involve more detailed weed threat assessment at the sub-regional and site level.
- A lack of a rating for a threat does not necessarily mean that the threat has no impact on the species in question. Rather, ratings were applied to threats when the impact on a species was considered significant enough to warrant recognition and some form of action (guided by the rating criteria). For example, whilst all species are potentially at low threat from illegal collection, assigning a low rating for all species would reduce the meaningfulness of the rating for species considered at real risk.
- In some cases, the lack of a rating for a threat may represent a lack of information, highlighting that care should be taken in interpreting the analysis results (e.g. 'Inappropriate Fire Regimes'). Research should take precedence, particularly for threats that rate as high priority, but are not well understood. Management actions have been recommended to address information gaps.
- It was difficult to predict the frequency and scale of impact of potential threats (e.g. Inappropriate Fire Regimes) hence making them difficult to rate in a consistent fashion.
- Potential future threats (e.g. pest incursions) not included in the analysis may warrant priority action in the event that they occur.
- Based on the threat analysis criteria, a high overall threat rating is allocated when the scope and severity of the threat are high. However in the case of invasive pest species, priority action may be warranted when the scope is low and the pest can potentially be eradicated (i.e. new invaders or species yet to become well established).

12. Threatening Weeds (by Broad Vegetation Group)

The following information was sourced and adapted from the State of the Environment Report 2008[5] and other unpublished sources.

Weeds posing a moderate to high threat in Heathy Open Forest

Common Name	Species Name
African weed-orchid	*Disa bracteata*
Asparagus Fern	*Asparagus scandens*
Blackberry*	*Rubus* spp.
Blue Periwinkle[1]	*Vinca major*
Bluebell Creeper^	*Billardiera scandens*
Bridal Creeper*	*Asparagus asparagoides*
Bridal Veil[1]	*Asparagus declinatus*
Montpellier Broom[1]	*Genista monspessulana*
English Broom[1]	*Cytisis scoparius*
Bulbil Watsonia[1]	*Watsonia meriana* var. *bulbilifera*
Cotoneaster	*Cotoneaster* spp.
English Ivy	*Hedera helix*
Euryops	*Euryops abrotanifolius*
Gorse*	*Ulex europaeus*
Holly	*Ilex aquifolium*
Japanese Honeysuckle	*Lonicera japonica*
Muraltia (Furze)[1]	*Muraltia heisteria*
Spanish heath[1]	*Erica lusitanica*
Sweet Pittosporum[1]^	*Pittosporum undulatum*
Sydney golden wattle^	*Acacia longifolia* ssp. *longifolia*
Three-corner Garlic	*Allium triquetrum*
Tree heath[1]	*Erica arborea*

^ Non-indigenous native species; * WONS (weed of national significance); [1] Weed is considered a high regional priority

Weeds posing a moderate to high threat in Heathy Woodlands

Common Name	Species Name
African weed-orchid	*Disa bracteata*
Blackberry*	*Rubus* spp.
Bluebell Creeper^	*Billardiera scandens*
Boneseed*	*Chrysanthemoides monilifera* ssp. *monilifera*
Bridal Creeper*	*Asparagus asparagoides*
Bridal Veil[1]	*Asparagus declinatus*
Montpellier Broom[1]	*Genista monspessulana*
Buckthorn[1]	*Rhamnus alaternus*
Cotoneaster	*Cotoneaster* spp.
Freesia[1]	*Freesia alba x F. leichtlinii*
Gorse*	*Ulex europaeus*
Myrtle-leaved Milkwort	*Polygala myrtifolia*
Pussy-tail Grass[1]	*Pentaschistis pallida*
Spanish heath[1]	*Erica lusitanica*
Sydney golden wattle^	*Acacia longifolia* ssp. *longifolia*
Tree heath[1]	*Erica arborea*

^ Non-indigenous native species; * WONS; [1] Weed is considered a high regional priority

Weeds posing a moderate to high threat in Grassy Woodlands and Grasslands

Common Name	Species Name
-	*Oxalis brasiliensis*
Cane Needlegrass+	*Nassella hyalina*
Espartillo+	*Achnatherum caudatum*
Lobed Needlegrass+	*Nassella charruana*
Mexican Feather Grass+	*Nassella tenuissima*
Serrated Tussock+	*Nasella trichotoma*
African Boxthorn	*Lycium ferocissmum*
African Feather Grass[1]	*Pennisetum macrourum*
African Lovegrass[1]	*Eragrostis curvula*
African weed-orchid	*Disa bracteata*
Athel Pine*	*Tamarix aphylla*
Bluebell Creeper^	*Billardiera scandens*
Boneseed*	*Chrysanthemoides monilifera* ssp. *monilifera*
Briar Rose[1]	*Rosa* spp.
Bridal Creeper*	*Asparagus asparagoides*
Bridal Veil[1]	*Asparagus declinatus*
Broad-leaved Cotton Bush	*Gomphocarpus cancellatus*
Montpellier Broom[1]	*Genista monspessulana*
Buckthorn[1]	*Rhamnus alaternus*
Bulbil Watsonia[1]	*Watsonia meriana* var. *bulbilifera*
Chilean Needlegrass*	*Nassella neesiana*
Cocksfoot	*Dactylis glomerata*
Coolatai Grass[1]	*Hyparrhenia hirta*
Cotoneaster	*Cotoneaster* spp.
Edible Asparagus	*Asparagus officinalis*
Fountain grass[1]	*Pennisetum setaceum*
Freesia[1]	*Freesia alba x F. leichtlinii*
Gorse*	*Ulex europaeus*
Hawthorn[1]	*Crataegus monogyna*
Longstyle Feathergrass[1]	*Pennisetum villosum*
Narrow-Leaf Cotton Bush	*Gomphocarpus fruticosus*
Olive[1]	*Olea europaea*
One-Leaf Cape Tulip	*Moraea flaccida*
Soursob	*Oxalis pes-caprae*
Perennial Veldt Grass	*Ehrharta calycina*
Phalaris	*Phalaris aquatica*
Pussy-tail Grass[1]	*Pentaschistis pallida*
Ribwort	*Plantago lanceolata*
Rice Millet	*Piptatherum miliaceum*
Scabious[1]	*Scabiosa atropurpurea*
Sorrel	*Acetosella vulgaris*
Sparaxis	*Sparaxis bulbifera*
Spiny Rush	*Juncus acutus*
St John's Wort	*Hypericum perforatum*
Tall Wheatgrass	*Thinopyrum ponticum*
Tangier Pea	*Lathyrus tingitanus*
Texan Needlegrass	*Nassella leucotricha*
Topped Lavender	*Lavandula stoechas*
Tree Lucerne[1]	*Chamaecytisus palmensis*
Two-Leaf Cape Tulip	*Moraea miniata*
Wild Gladiolus	*Gladiolus* spp.
Yorkshire Fog	*Holcus lanatus*

+ Emerging weeds not yet in AMLR region; ^ Non-indigenous native species; * WONS; [1] Weed is considered a high regional priority

Weeds posing a moderate to high threat in Wetlands

Common Name	Scientific Name
Arum Lily	*Zantedeschia aethiopica*
Blackberry*	*Rubus* spp.
Blue Morning Glory	*Ipomoea indica*
Bridal Creeper*	*Asparagus asparagoides*
Montpellier Broom[1]	*Genista monspessulana*
Clover	*Trifolium* spp.
Cocksfoot	*Dactylis glomerata*
Fountain grass[1]	*Pennisetum setaceum*
Gorse*	*Ulex europaeus*
Hawthorn[1]	*Crataegus monogyna*
Jointed Rush	*Juncus articulatus*
Paspalum	*Paspalum dilatatum*
Phalaris	*Phalaris aquatica*
Radiata Pine	*Pinus radiata*
Spiny Rush	*Juncus acutus*
Watercress	*Rorippa nasturtium-aquaticum*
Yorkshire Fog	*Holcus lanatus*

* WONS; [1] Weed is considered a high regional priority

Weeds posing a moderate to high threat in Riparian vegetation

Common Name	Species Name
African Boxthorn	*Lycium ferocissmum*
African Feather Grass[1]	*Pennisetum macrourum*
African weed-orchid	*Disa bracteata*
Arum Lily	*Zantedeschia aethiopica*
Athel Pine*	*Tamarix aphylla*
Blackberry*	*Rubus* spp.
Blue Morning Glory	*Ipomoea indica*
Blue Periwinkle[1]	*Vinca major*
Boneseed*	*Chrysanthemoides monilifera* ssp. *monilifera*
Briar spp.[1]	*Rosa* spp.
Bridal Creeper*	*Asparagus asparagoides*
Montpellier Broom[1]	*Genista monspessulana*
Buckthorn[1]	*Rhamnus alaternus*
Bulbil Watsonia[1]	*Watsonia meriana* var. *bulbilifera*
Cocksfoot	*Dactylis glomerata*
Creeping Yellowcress	*Rorippa sylvestris*
Crow Garlic	*Allium vineale*
Desert Ash[1]	*Fraxinus angustifolia*
Edible Asparagus	*Asparagus officinalis*
English Ivy	*Hedera helix*
Fountain grass[1]	*Pennisetum setaceum*
Giant Reed	*Arundo donax*
Gorse*	*Ulex europaeus*
Hawthorn[1]	*Crataegus monogyna*
Jointed Rush	*Juncus articulatus*
Nasturtium	*Tropaeolum majus*
Olive[1]	*Olea europaea*
Soursob	*Oxalis pes-caprae*
Paspalum	*Paspalum dilatatum*
Phalaris	*Phalaris aquatica*
Ribwort	*Plantago lanceolata*
Sparaxis	*Sparaxis bulbifera*
Spiny Rush	*Juncus acutus*
Sweet Pittosporum[1]^	*Pittosporum undulatum*
Tangier Pea	*Lathyrus tingitanus*
Three-corner Garlic	*Allium triquetrum*

Common Name	Species Name
Tree Lucerne[1]	*Chamaecytisus palmensis*
Willows*	*Salix* spp.
Yorkshire Fog	*Holcus lanatus*

^Non-indigenous native species; * WONS; [1] Weed is considered a high regional priority

Weeds posing a moderate to high threat in Mallee

Common Name	Species Name
Boneseed*	*Chrysanthemoides monilifera* ssp. *monilifera*
Bridal Creeper*	*Asparagus asparagoides*
Bridal Veil[1]	*Asparagus declinatus*
Buckthorn[1]	*Rhamnus alaternus*
Crow Garlic	*Allium vineale*
Fountain grass[1]	*Pennisetum setaceum*
Longstyle Feathergrass[1]	*Pennisetum villosum*
Olive[1]	*Olea europaea*
Perennial Veldt Grass	*Ehrharta calycina*
Prickly Pear	*Opuntia* spp.
Scabious[1]	*Scabiosa atropurpurea*

*WONS; [1] Weed is considered a high regional priority

Weeds posing a moderate to high threat in the Coastal vegetation

Common Name	Species Name
-	*Oxalis brasiliensis*
African Boxthorn	*Lycium ferocissimum*
African Orchid	*Disa bracteata*
Berry Seablite	*Suaeda baccifera*
Boneseed*	*Chrysanthemoides monilifera* ssp. *monilifera*
Bridal Creeper*	*Asparagus asparagoides*
Bridal Veil[1]	*Asparagus declinatus*
Buckthorn[1]	*Rhamnus alaternus*
Coast Tea-tree^	*Leptospermum laevigatum*
Common Ice Plant	*Mesembryanthemum crystallinum*
Dune Onion Weed	*Trachyandra divaricata*
False Caper	*Euphorbia terracina*
Gazania[1]	*Gazania* spp.
Golden pallenis	*Pallenis spinosa*
Golden Wreath Wattle^	*Acacia saligna*
Gorse*	*Ulex europaeus*
Hottentot Fig	*Carpobrotus edulis*
Lavatory Creeper	*Dipogon lignosus*
Marguerite Daisy	*Argyranthemum frutescens*
Mirror-bush	*Coprosma repens*
Myrtle-leaf Milkwort	*Polygala myrtifolia*
Olive[1]	*Olea europaea* ssp. *europaea*
Perennial Veldt Grass	*Ehrharta calycina*
Pyp Grass	*Ehrharta villosa* var. *maxima*
Scabiosa	*Scabiosa atropurpurea*
Sea Spurge	*Euphorbia paralias*
Soursob	*Oxalis pes-caprae*
Spiny Rush	*Juncus acutus*
Sydney Golden Wattle^	*Acacia longifolia* ssp. *longifolia*
Tufted Honey-flower	*Melianthus comosus*
Western Coastal Wattle	*Acacia cyclops*
White Arctotis	*Arctotis stoechadifolia*

^Non-indigenous native species; * WONS; [1] Weed is considered a high regional priority

References

1. Adelaide and Mount Lofty Ranges Natural Resources Management Board (2007). *Creating A Sustainable Future. A Natural Resources Management Plan for the Adelaide and Mount Lofty Ranges Region*. Draft Consultation Document, Adelaide.

2. Conservation Action Planning (CAP) Working Group (2007). *Conservation Action Planning. Developing Strategies, Taking Action, and Measuring Success at Any Scale. Overview of Basic Practices*. The Nature Conservancy.

3. Daniels, C. B. and Tait, C. J. (2005). *Adelaide. Nature of a City: The Ecology of a Dynamic City from 1836 to 2036*. BioCity, Adelaide.

4. Department for Environment and Heritage (2001). *Provisional List of Threatened Ecosystems of South Australia (unpublished and provisional). Updated 2005.*

5. Department for Environment and Heritage (2008). *State of the Environment Report Working Draft*. Department for Environment and Heritage, South Australia.

6. Department of Water, Land and Biodiversity Conservation (2006). *State Natural Resources Management Plan 2006*. Department of Water, Land and Biodiversity Conservation, South Australia.

7. Glanznig, A. (1995). *Native Vegetation Clearance, Habitat Loss and Biodiversity Decline: an overview of recent native vegetation clearance in Australia and its implications for biodiversity*. Biodiversity Series. Biodiversity Unit.

8. Government of South Australia (2007). *Planning Strategy for Metropolitan Adelaide*. Government of South Australia, Adelaide.

9. Government of South Australia (2007). *Planning Strategy for the Outer Metropolitan Adelaide Region*. Government of South Australia, Adelaide.

10. Griffin, T. and McCaskill, M., eds. (1986). *Atlas of South Australia*. South Australia Jubilee 150 Board and Wakefield Press, Adelaide.

11. IUCN and CMP (2006). *Unified Classification of Direct Threats Version 1.0*. IUCN. Available from http://www.iucn.org/themes/ssc/sis/classification.htm (accessed June 2008).

12. Kraehenbuehl, D. N. (1996). *Pre European Vegetation of the Adelaide Region: A Survey from Gawler River to Hallet Cove*. Nature Conservation Society of South Australia, Adelaide.

13. Lawler, J. J., Campbell, S. P., Guerry, A. D., Kolozsvary, M. B., O'Connor, R. J. and Seward, L. C. N. (2002). The Scope and Treatment of Threats in Endangered Species Recovery Plans. *Ecological Applications* 12 (3): 663-667.

14. Planning SA (2004). *Hills Face Zone Review*. Department of Transport and Urban Planning, Adelaide.

15. Salafsky, N., Salzer, D., Ervin, J., Boucher, T. and Ostlie, W. (2003). *Conventions for Defining, Naming, Measuring, Combining, and Mapping Threats in Conservation. An Initial Proposal for a Standard System. Draft Version*.

16. The Nature Conservancy (2007). *Conservation Action Planning (CAP) Resources*. Available from http://conserveonline.org/workspaces/cbdgateway/cap/resources (accessed July 2007).

17. Whitelock, D. (1985). *Conquest to Conservation: History of human impact on the SA Environment*. Wakefield Press, Adelaide.

18. Williams, M. (1974). *The making of the South Australian landscape; a study in the historical geography of Australia*. Academic Press, London.