

Department for Environment and Heritage
Management Plan



Stipiturus Conservation Park
2007



Government
of South Australia

This plan of management was adopted on **20 June 2007** and was prepared pursuant to section 38 of the *National Parks and Wildlife Act 1972*.



Government of South Australia

Department for Environment
and Heritage

Published by the Department for Environment and
Heritage, Adelaide, Australia

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ISBN: 1 921238 40 2

Cover Photography: A male Mount Lofty Ranges
Southern Emu-wren (*Stipiturus malachurus intermedius*)
(Courtesy of Marcus Pickett, Mount Lofty Ranges Southern
Emu-wren and Fleurieu Peninsula Swamps Recovery
Program, Conservation Council of South Australia)

This document may be cited as "Department for
Environment and Heritage (2007) *Stipiturus Conservation
Park Management Plan*, Adelaide, South Australia"

FOREWORD

Stipiturus Conservation Park (68.13 hectares) is located on the Fleurieu Peninsula, approximately 50 kilometres south of Adelaide and six kilometres west-south-west of the nearest town, Mount Compass. Purchased with support funding from the Natural Heritage Trust and Nature Foundation Inc, the park was proclaimed on 14 December 2006 under the *National Parks and Wildlife Act 1972*, without access under State mining legislation.

Less than one percent of the permanent wetlands of the Mount Lofty Ranges still remain. Hence, in 2003 the swamps of the Fleurieu Peninsula were listed by the Australian Government as a critically endangered ecological community under the *Environment Protection and Biodiversity Conservation Act 1999*. Stipiturus Conservation Park protects the largest remaining intact peat swamp ecosystem on the Fleurieu Peninsula, which provides habitat for the largest swamp-based population of the nationally endangered Mount Lofty Ranges Southern Emu-wren (*Stipiturus malachurus intermedius*).

Other species of conservation significance within the park include the nationally critically endangered Murfet's Leek Orchid (*Prasophyllum murfeti*), and endangered Southern Brown Bandicoot (*Isodon obesulus obesulus*) and Osborn's Eyebright (*Euphrasia collina* ssp. *osbornii*).

The management plan for Stipiturus Conservation Park focuses on the protection of important wetland habitat and species of conservation significance. Neighbouring land managers will be informed of the importance of suitable and sustainable hydrological regimes for healthy wetland systems, and cooperative management arrangements will be developed and maintained to help achieve management objectives.

The draft management plan for Stipiturus Conservation Park was released for public exhibition in December 2006. At the close of the comment period, four submissions were received, which addressed a variety of issues. Most comments provided corrections to species (and other) names or offered additional information about the park (eg drainage lines and pest plants). Other comments were made regarding the natural values of the park (eg Mt Lofty Ranges Southern Emu-wren and orchids), many of which provided support for the management plan and/or additional information about these values. All comments and concerns were considered by the Adelaide Region Consultative Committee and forwarded to the South Australian National Parks and Wildlife Council for advice before the plan was presented for adoption.

The plan of management for Stipiturus Conservation Park is now formally adopted under the provisions of section 38 of the *National Parks and Wildlife Act 1972*.



HON GAIL GAGO MLC

MINISTER FOR ENVIRONMENT AND CONSERVATION



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ACKNOWLEDGEMENTS

Various groups and individuals are acknowledged for their valuable assistance, information and comments during the production of this management plan.

1 PARK LOCATION AND FEATURES

Stipiturus Conservation Park is located on the Fleurieu Peninsula, about 50 kilometres south of Adelaide and approximately six kilometres west-south-west from the nearest town, Mount Compass (Figure 1). The park was proclaimed on 14 December 2006 under the *National Parks and Wildlife Act 1972*, without access under State mining legislation. Stipiturus Conservation Park consists of Allotment 40 of Deposited Plan 58969, Hundred of Myponga, is 68.13 hectares in extent and forms part of the Myponga Reservoir catchment. This management plan applies to the defined land parcel and all future additions to Stipiturus Conservation Park.

Stipiturus Conservation Park protects a high conservation value wet heath/sedgeland peat bog ecosystem, known as Glenshera Swamp (the largest remaining peat swamp on the Fleurieu Peninsula), with over 64% of native plants in and around the swamp having regional and/or state conservation ratings. The park contributes to the conservation of the first registered nationally threatened ecosystem found solely in South Australia, the 'Swamps of the Fleurieu Peninsula', and is home to one of the largest known swamp-based population of the nationally endangered Mount Lofty Ranges Southern Emu-wren (*Stipiturus malachurus intermedius*), after which the park was named.

The park was acquired as part of the National Reserve System Program of the Natural Heritage Trust to contribute to a comprehensive, adequate and representative reserve system (CARRS) for Australia. The program aims to make Australia's conservation reserve system representative of the range of ecosystems that exist on the continent. Support funding was also provided by the Nature Foundation SA Inc.

Stipiturus Conservation Park is located in the midst of land that was once predominantly used for agriculture (ie grazing and dairy), but is now increasingly being used for forestry plantation and extraction mining of sand. Prior to its purchase by DEH, the land comprising Stipiturus Conservation Park was utilised for grazing by sheep and cattle. Other National Parks and Wildlife Act reserves in the vicinity include Mount Magnificent, Nixon Skinner, Spring Mount and Yulte Conservation Parks (see Figure 1).

The climate of Southern Fleurieu Peninsula can be described as temperate, with characteristically warm dry summers and cool wet winters. The area is one of the wettest parts of South Australia (900 millimetres average annual rainfall). Most rainfall occurs during winter, with the highest gaugings in May and August.

Stipiturus Conservation Park is in the District Council of Yankalilla, the local government authority for the Southern Fleurieu Peninsula. The council area extends from the farming lands of Myponga, Inman Valley and Parawa, through to the coastlines of Rapid Bay and Deep Creek and on to the western tip of the peninsula at Cape Jervis.

The development plan for the District Council of Yankalilla designates the area occupied by Stipiturus Conservation Park as a Watershed Zone. Objectives for the Watershed Zone are to:

- maintain and enhance the natural resources of the zone;
- enhance the Myponga Reservoir watershed catchment as a source of high quality water;
- preserve and restore remnant native vegetation, including native vegetation associated with swamps, bogs, wetlands and watercourses;
- enhance the amenities and landscape for the enjoyment of residents and visitors;
- protect the Myponga Reservoir Watershed against pollution and contamination; and
- prevent development which could lead to a deterioration in the quality of surface or underground waters within the Myponga Reservoir Watershed.

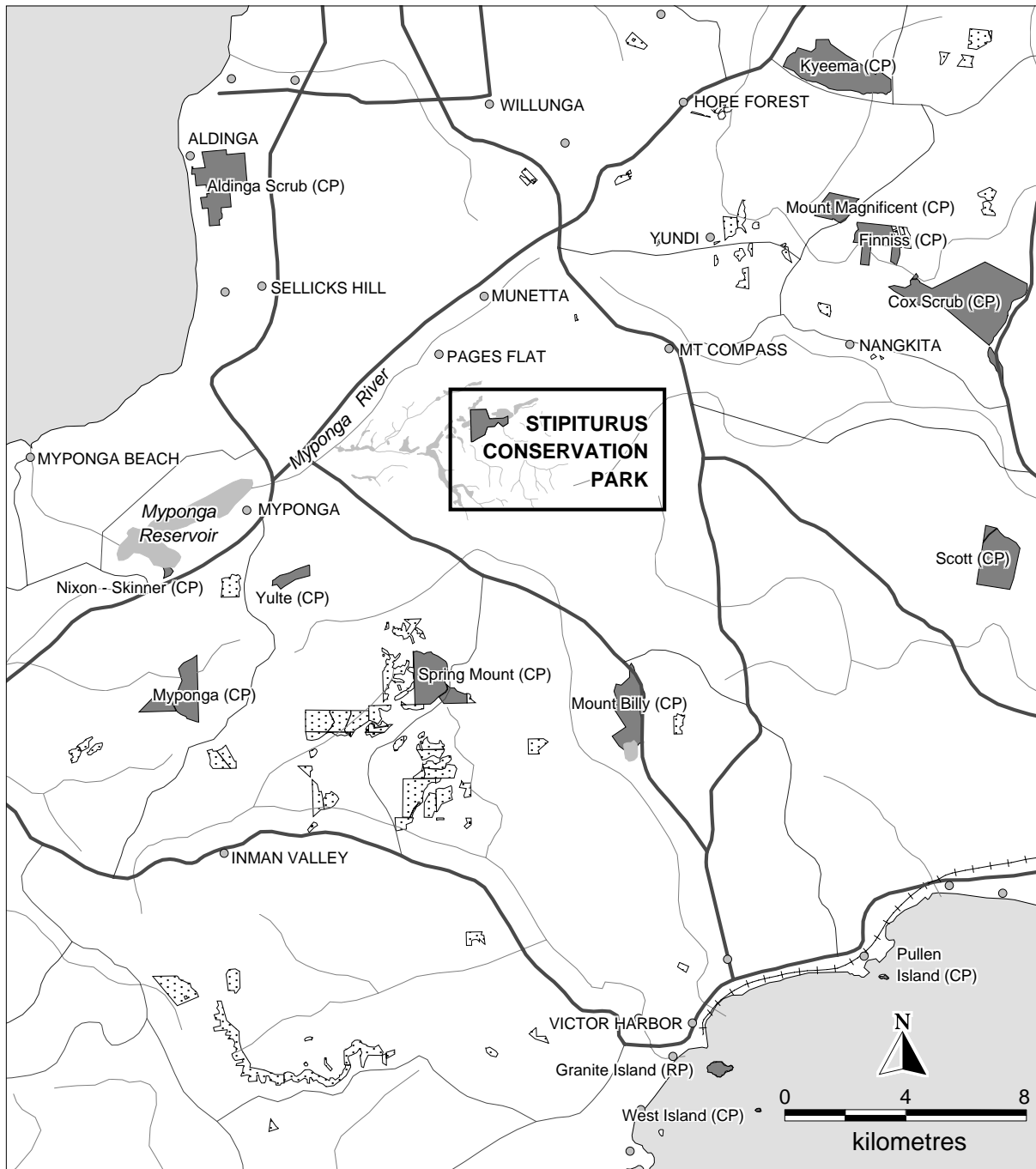







Figure 1

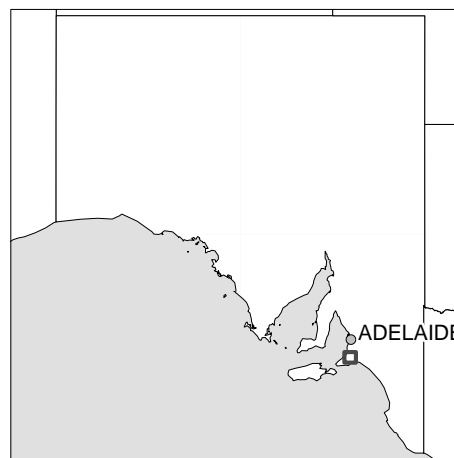
Stipiturus Conservation Park

Location

Map designed and created by Reserve Planning using PAMS
 Projection: MGA Zone 54 (GDA 94)
 Date: October 2006

LEGEND

- | | | | |
|---|--------------------|---|---------------------|
|  | DEH Reserve |  | Drainage |
|  | Heritage Agreement |  | Major & Minor Roads |
| (CP) | Conservation Park |  | Towns |
| (RP) | Recreation Park | | |



This map is indicative and only intended for the purposes of this management plan.

2 LEGISLATIVE FRAMEWORK

2.1 National Parks and Wildlife Act 1972

Reserves are managed by the Director of National Parks and Wildlife subject to any direction by the Minister for Environment and Conservation or the Chief Executive of the Department for Environment and Heritage (DEH). When managing reserves, the Director is required under section 37 of the *National Parks and Wildlife Act 1972* to have regard to, and provide actions that are consistent with, the following objectives of management stated in the Act:

- preservation and management of wildlife;
- preservation of historic sites, objects and structures of historic or scientific interest within reserves;
- preservation of features of geographical, natural or scenic interest;
- destruction of dangerous weeds and the eradication or control of noxious weeds and exotic plants;
- control of vermin and exotic animals;
- control and eradication of disease of animals and vegetation;
- prevention and suppression of bush fires and other hazards;
- encouragement of public use and enjoyment of reserves and education in, and a proper understanding and recognition of, their purpose and significance;
- generally, the promotion of the public interest; and
- preservation and protection of Aboriginal sites, features, objects and structures of spiritual or cultural significance within reserves.

Section 38 of the Act states that a management plan is required for each reserve. A management plan should set forth proposals in relation to the management and improvement of the reserve and the methods by which it is intended to accomplish the objectives of the Act in relation to that reserve.

In accordance with the Act, the provisions of this management plan must be carried out and no strategies undertaken unless they are in accordance with this plan. In order to achieve this, each year park managers, taking regional and district priorities into account, draw up work programs to implement strategies proposed in management plans. Implementation of these projects is determined by, and subject to, the availability of resources (eg staffing and funding).

2.2 Native Title Act 1993

Native Title describes the rights and interests Aboriginal and Torres Strait Islander People have in land and waters according to their traditional laws and customs. Commonwealth legislation, in the form of the *Native Title Act 1993*, was enacted to:

- provide for the recognition and protection of native title;
- establish ways in which future dealings affecting native title may proceed and to set standards for those dealings;
- establish a mechanism for determining claims to native title; and
- provide for, or permit, the validation of past acts, and intermediate period acts, invalidated because of the existence of native title.

This management plan is released and will be adopted subject to any native title rights and interests that may continue to exist in relation to the land and/or waters. Before undertaking any acts that might affect native title, DEH will follow the relevant provisions of the *Native Title Act 1993*.

2.3 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) establishes a Commonwealth approval process for assessment of proposed actions that are likely to have a significant impact on matters of national environmental significance.

Furthermore, in consultation with relevant State authorities, the Commonwealth Minister for the Environment and Heritage may develop and implement recovery plans for threatened species and ecological communities, and threat abatement plans for Key Threatening Processes listed under the EPBC Act. Where applicable, DEH should contribute to, and incorporate these plans into, park management regimes and operational procedures.

With regard to Stipiturus Conservation Park, the 'Swamps of the Fleurieu Peninsula' are listed as a critically endangered ecological community under the EPBC Act. Species of national significance that occur within the park include the critically endangered Murfet's Leek Orchid (*Prasophyllum murfeti*), and the endangered Mount Lofty Ranges Southern Emu-wren (*Stipiturus malachurus intermedius*) and Southern Brown Bandicoot (*Isodon obesulus obesulus*).

3 VISION

The vision for Stipiturus Conservation Park is to have a healthy wetland ecosystem that supports a flourishing Mount Lofty Ranges Southern Emu-wren population and that provides important habitat for other species of conservation significance.

4 ZONING

Section 39 of the *National Parks and Wildlife Act 1972* provides for the designation of zones in a reserve and constrains the use of land in those zones to the conditions specified in an adopted management plan. Zoning aims to ensure that public use and management strategies remain compatible with the protection of park values.

The management zones described below and shown in Figure 2, establish a framework for guiding management strategies (mainly related to the management of introduced plants and revegetation potential) during the life of this plan. They are designed to ensure that management strategies reflect the varying degrees of environmental sensitivity throughout the park.

High Conservation Zone

The High Conservation Zone is characterised by the high conservation value wet heath/sedgeland swamp vegetation community. To minimise environmental disturbance within this zone, foot access will be permitted and no vehicular access will be permitted. It will be particularly important to implement *Phytophthora* minimisation practices prior to entering the High Conservation Zone (see Section 5.3 Native Vegetation). Introduced plant species are to be controlled by careful hand-pulling or other low impact methods, such as cutting and hand-swabbing with herbicides or very careful spot-spraying techniques. Herbicides should only be bioactive and should be used with suitable surfactants (eg oil-based) to minimise impacts on aquatic fauna. Revegetation is not appropriate in this zone.

General Park Zone

Within the General Park Zone (the remainder of the park), management vehicle access will be allowed and methods for introduced plant control can include slashing (as well as hand-pulling and other low impact techniques) and the follow-up spraying of chemical herbicides. Grazing, burning and herbicide spraying may be appropriate as management techniques in parts of this zone. Revegetation may also be appropriate in parts of this zone. Public vehicular access will not be allowed in any areas of the park.

Objective

Zone Stipiturus Conservation Park to ensure appropriate land use, landscape protection and the conservation of wildlife habitats and cultural features.

Strategy

- Designate and adopt the management zones as described in Section 4 Zoning and shown on Figure 2.

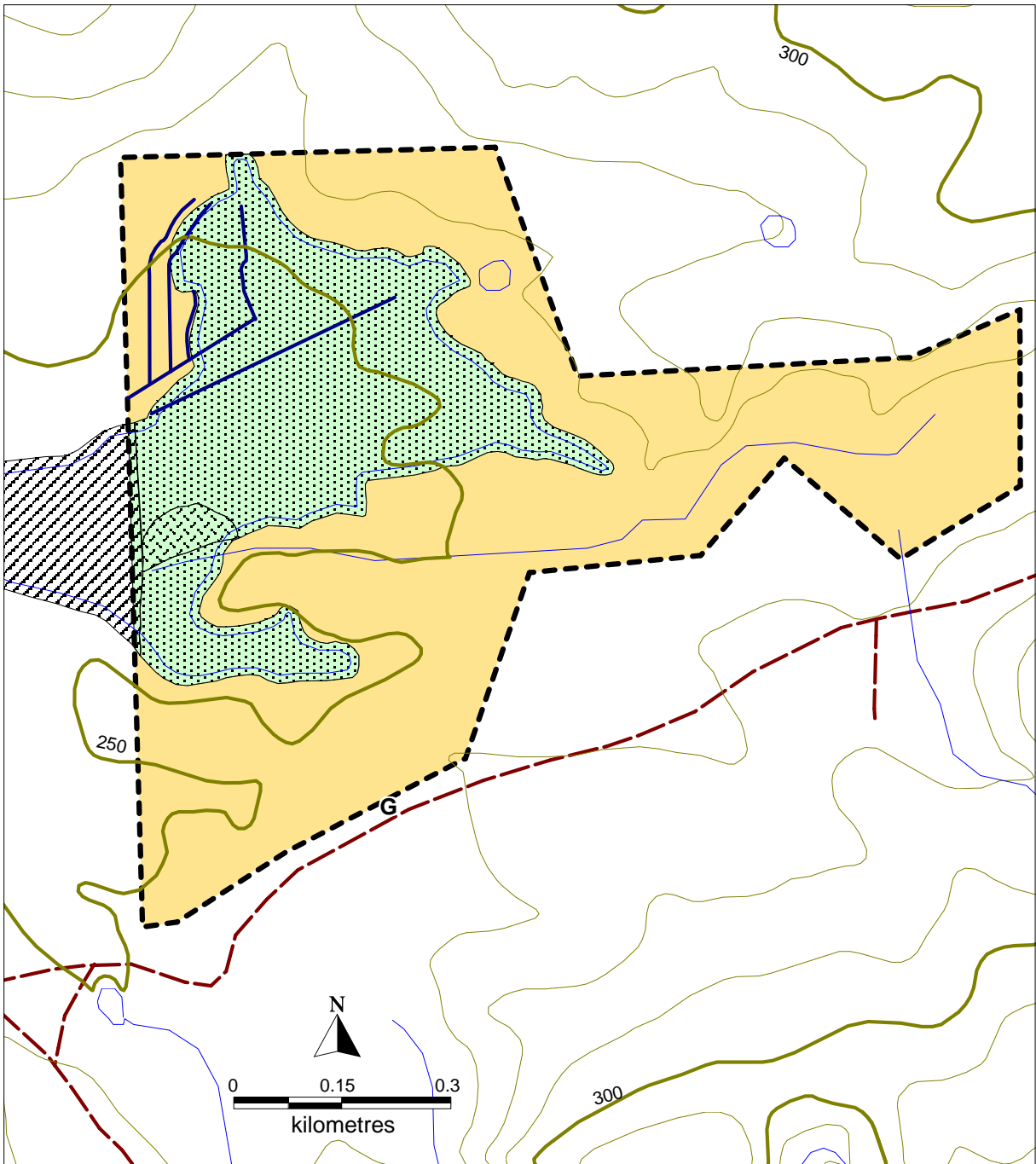












Figure 2

**Stipiturus Conservation Park
Features and Zoning**

Map designed and created by
Reserve Planning using PAMS
Projection: MGA Zone 54 (GDA 94)
Date: October 2006

This map is indicative and only intended
for the purposes of this management plan.

LEGEND

- | | | | |
|---|------------------------|---|---------------------|
|  | High Conservation Zone |  | Park Boundary |
|  | General Park Zone |  | Contour 10 m |
|  | Reedland |  | Unsealed Road |
|  | Degraded Swamp |  | Natural Drainage |
|  | Wet Heath / Sedgeland |  | Artificial Drainage |
| | | G | Gate |

5 MANAGING NATURAL HERITAGE

5.1 Geology, Soils and Landform

Stipiturus Conservation Park occurs in the Kanmantoo bioregion and the Fleurieu subregion (IBRA v5 – Environment Australia, 2001a). This area is defined as “temperate, well-defined uplands of Cambrian and Late Proterozoic marine sediments with eucalypt open forests and woodlands and heaths on mottled yellow and ironstone gravelly duplex soils in the wetter areas and red duplex soils in drier areas; now largely cleared for agriculture and urban development” (IBRA v5.1 – Thackway and Creswell, 2000).

The Kanmantoo bioregion comprises the ‘backbone’ of the southern and central Mount Lofty Ranges, the Fleurieu Peninsula and Kangaroo Island. Broadly speaking, the Kanmantoo bioregion forms a narrow region (averaging 20 kilometres wide), which extends from Truro in the north, through and around the townships of Tungkillo, Harrogate, Strathalbyn, then on to encompass the Fleurieu Peninsula and Kangaroo Island. The Kanmantoo bioregion consists of two subregions, Kangaroo Island and Fleurieu. Stipiturus Conservation Park is located within the Fleurieu subregion.

Within Stipiturus Conservation Park, the existing soil types and prevailing soil moisture regimes largely determine the distribution of species. The majority of Fleurieu Peninsula swamp soils are permanently waterlogged, infertile, acidic and peaty. Stipiturus Conservation Park contains sections of peat swamp, where the substrate is characterised as black, structureless and fibrous. Peat areas can be up to one metre thick and are saturated all year round.

A detailed understanding of soil structure within Stipiturus Conservation Park is yet to be documented and needs to be undertaken. As a matter of routine procedure, the potential impact on soil of any proposed landuse changes or management strategies should be ascertained before they are carried out.

Factors at both surface and groundwater catchment scales may have a bearing on the long-term status of the peaty swamp soils within Stipiturus Conservation Park. Maintaining the hydrological regime in as near a natural condition as possible is desirable to maintain the existing soil structure and achieve the conservation outcomes for the park. This will require DEH staff to liaise with the managers of surrounding properties (at surface and groundwater catchment scales) and other agencies, as factors influencing swamp soils may extend beyond park boundaries.

Objective

Manage geology, soils and landforms to ensure the protection of the park’s wetlands and associated flora and fauna.

Strategies

- Investigate the need for special management guidelines for peat soils and their relationship with the management of the park’s hydrology and vegetation.
- Liaise with neighbouring land managers (at surface and groundwater catchment scales) and other agencies to ensure external factors influencing swamp soils do not jeopardise the park’s soil moisture regimes.

5.2 Hydrology

Several drainage lines enter Stipiturus Conservation Park from the northern and eastern boundaries (see Figure 1). These drainage lines are the significant sources of water for the swamp, but it is also likely that groundwater intrusions make an important contribution.

In summer, extraction of groundwater is common throughout Fleurieu Peninsula but the impact of such extraction on the hydrology of Stipiturus Conservation Park is currently unknown. Therefore, the surface and sub-surface hydrological regimes and their requirements need to be ascertained. This is particularly important because the park includes a sensitive wetland system that is clearly subject to external influences.

Over-extraction, diversion of water into dams and changes in land use on adjacent properties are likely to affect the water balance of swamps and could change the water regime in the park. This can lead to changes in vegetation and habitat structure in the long term. Potential threats need to be investigated and documented, with steps taken to prevent adverse influences occurring.

Neighbouring land managers should be made aware that healthy wetland systems require suitable and sustainable hydrological regimes. Furthermore, they should be encouraged to create riparian linkages along drainage lines to connect with the swamps and wetlands within the park. Such linkages will help to conserve the hydrology of the park, thus protecting the wetland communities. It is also important that decision-making authorities are made aware of the hydrological requirements of the wetland area within the park.

The Mount Lofty Ranges formerly supported an extensive network of swamps and wetlands, mainly located along drainage lines and watercourses. Only one percent of permanent wetlands remain in the Mount Lofty Ranges, due mainly to drainage and clearance for agriculture and diversion and use of catchment areas upstream. On the Fleurieu Peninsula, peat swamps in higher rainfall areas have been particularly affected, with most being converted to dairy pasture. Stipiturus Conservation Park is one of the last remaining peat swamps in the Mount Lofty Ranges, although it was also subject to modification during its previous tenure as a dairy property. Such modification is evidenced by the artificial drainage lines to the north-west of the swamp (see Figure 2).

The swamps of the Fleurieu Peninsula are unique within South Australia as the overall species composition, structure, diversity, geology and soils are distinct from those found in the South East, Kangaroo Island, and Yorke and Eyre Peninsulas. Only four percent of this ecological community is conserved in the reserve system. The 'Swamps of the Fleurieu Peninsula' are listed under the *Environment Protection and Biodiversity Conservation Act 1999* as a critically endangered ecological community.

Baseline data are essential requirements for future monitoring. DEH staff will need to liaise with knowledgeable individuals and other agencies and institutions regarding water monitoring and ongoing management. Hydrological manipulation may have application in introduced plant control.

Objective

Maintain an appropriate hydrological regime to conserve the biological values of the park.

Strategies

- Undertake surface and groundwater investigations to establish baseline data and to improve DEH understanding of wetland requirements and support ongoing hydrological monitoring.
- Inform neighbouring land managers about the importance of suitable and sustainable hydrological regimes for the health of the park's wetlands.
- Investigate, document and minimise potential external threats to the hydrology of the park, and liaise with decision-making authorities to that end.
- Liaise with the Adelaide and Mount Lofty Ranges NRM Board and other relevant agencies and programs to inform them of the hydrological requirements of Stipiturus Conservation Park to ensure compatibility of on ground work programs in the catchment.
- Investigate the possibility of inducing changes to the hydrological regime, to assist in managing internal threats such as weeds (eg blackberries), providing that this does not adversely affect other conservation values.

5.3 Native Vegetation

Stipiturus Conservation Park is an important refuge for biodiversity as it contains plant species and vegetation communities of conservation significance. At least 38 plant species of conservation significance (see Appendix A for Conservation Status Codes) have been recorded in the park, most of which are wetland species, such as:

- Coral Fern (*Gleichenia microphylla*) (SA:R; SL:R);
- Creeping Raspwort (*Gonocarpus micranthus* ssp. *micranthus*) (SA:R; SL:R);
- Forked Sundew (*Drosera binata*) (SA:R; SL:R);
- Hairy Beard-heath (*Leucopogon hirsutus*) (SA:R; SL:R);
- Moose Orchid (*Cryptostylis subulata*) (SA:V; SL:E);
- Murfet's Leek Orchid (*Prasophyllum murfeti*) (AUS:CE; SA:R; SL:E);

- Native Broom (*Viminaria juncea*) (SA:R; SL:R);
- Osborn's Eyebright (*Euphrasia collina* ssp. *osbornii*) (AUS:E; SA:E; SL:E);
- Pale Twig-rush (*Baumea acuta*) (SA:R; SL:R);
- Slender Bog-rush (*Shoenus lepidosperma* ssp. *lepidosperma*) (SA:R; SL:R);
- Slender Twig-rush (*Baumea gunnii*) (SA:R; SL:R);
- Small Bladderwort (*Utricularia lateriflora*) (SA:V; SL:E);
- Swamp Daisy-bush (*Olearia glandulosa*) (SA:V; SL:E);
- Swamp Honey-myrtle (*Melaleuca squamea*) (SA:R; SL:V);
- Sweet Onion Orchid (*Microtis rara*) (SA:R; SL:R); and
- Veined Sun-orchid (*Thelymitra venosa*) (SA:E; SL:E).

Being one of the wettest parts of South Australia, many of the more significant species occurring on Southern Fleurieu Peninsula depend on high rainfall and wetland habitats, an example being the Swamp Gum (*Eucalyptus ovata*). Littlely and Cutten (1994) estimated from a 1993 survey that of approximately 2,100 hectares of swamp that existed on the Fleurieu Peninsula at the time of European settlement, 25 percent had disappeared, 49 percent was degraded and only 26 percent remained in relatively good condition. Most (75 percent) of the latter was in fragments less than five hectares in area.

The critically endangered 'Swamps of the Fleurieu Peninsula' are defined as "localised wetlands occurring in high rainfall areas. They are densely vegetated and occur adjacent to waterlogged soils around low-lying creeks and flats. The swamps are typified by their reedy or heathy vegetation growing on peat, silt, peat silt, or black clay soils" (Department of the Environment and Heritage, 2007). Stipiturus Conservation Park contributes significantly to the conservation of this nationally threatened ecological community. The park is an outlier of the peat wetlands that are more common along the east coast of Australia. Many of the species recorded in the park are near the western limits of their respective ranges. The vegetation associations within Stipiturus Conservation Park consist of swamp and woodland associations as described below (information obtained from National Parks and Wildlife South Australia, 2001).

Swamp vegetation associations:

- Swamp Wattle (*Acacia provincialis*) with Red-fruit Cutting Grass (*Gahnia sieberiana*);
- Swamp Honey-myrtle with Slender Bog-rush and Coral Fern;
- Prickly Tea-tree (*Leptospermum continentale*) with Totem-poles (*Melaleuca decussata*);
- Native Broom with sparse Swamp Honey-myrtle;
- *Baumea* sp. with Sphagnum Moss (*Sphagnum novo-zelandicum*) in the very wet areas; and
- Silky Tea-tree (*Leptospermum lanigerum*) swamp with Soft Water Fern (*Blechnum minus*) and Swamp Sword-sedge (*Lepidosperma longitudinale*). Possibly endangered vegetation community both state-wide and regionally.

Woodland vegetation associations:

- Brown Stringybark (*Eucalyptus baxteri*) and Messmate Stringybark (*E. obliqua*) with Bracken (*Pteridium esculentum*) +/- Cup Gum (*E. cosmophylla*); and
- Swamp Gum (*E. ovata*) on creeklines +/- Marsh Gum (*E. paludicola*) + Swamp Gum low open forest and low woodland (both with heath understorey). Priority 8 (Neagle, 1995): 2. moderately conserved interstate, 2. 2. poorly conserved in SA, 2. 2. 2. Several examples still remain in South Australia but with the threat of too frequent fires reducing species richness of understorey.

To maintain the health and protection of the park's wetland ecosystems, active management of vegetation communities may be required. Several vegetation management tools may be suitable for use within Stipiturus Conservation Park, including hand removal of weeds, slashing, burning, broad-scale and targeted herbicide application (used in conjunction with appropriate surfactants), revegetation and grazing.

The *Swamp Management Guidelines for the Fleurieu Peninsula* (Duffield and Hill, 2002) state that controlled, light grazing can be beneficial in a swamp as it can:

- allow native swamp plants that are low in numbers to re-establish;
- help retain a greater variety of species, particularly plants of conservation significance;
- maintain a swamp with a variety of habitat types (called a patchy or “heterogeneous” swamp);
- help control the growth of some weed species;
- help maintain small non-woody plants;
- prevent species such as Tea-tree and Coral Fern from crowding out the swamp; and
- keep the swamp open enough to allow control of some weeds, such as Blackberry, by people.

Should applied grazing or prescribed fire be implemented in Stipiturus Conservation Park, it will occur under the guidance of the Mount Lofty Ranges Southern Emu-wren and Fleurieu Peninsula Swamps Recovery Program (and the Fire Management Plan; see Section 6 Managing Fire) to ensure appropriate intensity, frequency and timing.

To effectively manage the natural habitat of Stipiturus Conservation Park, additional biological inventory data (ie more detailed vegetation surveying and mapping) are required to produce a vegetation management plan. This delegate plan will detail the key issues, short- and medium-term priorities, and proposed management strategies and locations, together with a calendar of activities.

The vegetation management plan will be based upon a consideration of the biodiversity assets (such as significant habitats, conservation rated plant species and communities) as well as the perceived threats to those assets (such as weeds and their significance). It will recommend appropriate management practices (noting the prescriptions in section 4 Zoning) and the resources needed for implementation. Key components of the vegetation management plan will be the establishment of guidelines to direct the use of herbicides within the swamp, and the replacement of very weedy areas with revegetation of locally occurring native species, according to the vegetation that was originally found in this area (most probably stringybark woodland/forest over heath). It will also address vegetation management options such as applied grazing and prescribed fire, and hydrological manipulation. Any grazing applied as a management tool will occur under the strict terms and conditions of a short-term licence. As the nationally critically endangered Murfet’s Leek Orchid (*Prasophyllum murfeti*) and endangered Osborn’s Eyebright (*Euphrasia collina* ssp. *osbornii*) occur in the park, the employment of vegetation management techniques will be subject to a comprehensive study of these species and their potential threats.

While applied grazing techniques may be beneficial for swamp environments, uncontrolled grazing can have a negative impact on their biodiversity. Hence, intact boundary fencing at Stipiturus Conservation Park is very important. DEH will liaise with the managers of neighbouring properties on an ongoing basis with regard to boundary fence maintenance.

Phytophthora

Cinnamon Fungus (*Phytophthora cinnamomi*) and other species of *Phytophthora* are introduced plant pathogens that cause disease and death in a range of native plant species. *Phytophthora* is recognised by the Australian Government as a key threat to the survival of our native plants and animals, and has developed a National Threat Abatement Plan (Environment Australia, 2001b).

Symptoms of *Phytophthora* dieback have not been observed in Stipiturus Conservation Park, but are present elsewhere in the region. Plant species susceptible to *Phytophthora* are also present in the park. Unfortunately, there is no cure for infected plants and it is extremely difficult to prevent the spread of *Phytophthora* from an infested area. However, the risk of human activity spreading *Phytophthora* into new areas can be minimised using the management strategies outlined in the DEH Standard Operating Procedures for *Phytophthora* Threat Management, which apply to all users of reserves. These strategies are aimed at minimising the transfer of *Phytophthora* in soil, water and plant roots by controlling access, adopting hygiene procedures, modifying work plans and ensuring awareness of *Phytophthora*.

Objectives

Manage native vegetation to conserve and protect the threatened wetland communities within Stipiturus Conservation Park.

Prevent the introduction and spread of *Phytophthora* in the park.

Strategies

- Undertake a detailed vegetation survey of Stipiturus Conservation Park.
- Undertake vegetation mapping and map associated soils and soil moisture within Stipiturus Conservation Park to illustrate the locations of vegetation associations, threatened species and invasive, introduced flora.
- In cooperation with the Mount Lofty Ranges Southern Emu-wren and Fleurieu Peninsula Swamps Recovery Program, and relevant bodies, prepare and implement a vegetation management plan that includes guidelines and strategies for the conservation of natural habitats and threatened flora found within Stipiturus Conservation Park, and include programs for coordinated pest plant control, habitat rehabilitation and regeneration.
- Liaise with the managers of neighbouring properties regarding maintenance of boundary fencing.
- Monitor the park for the presence of introduced pathogens and implement control measures as necessary.
- Increase awareness among DEH staff, volunteers, contractors and visitors of the potential for introduction and establishment of *Phytophthora*, the plant species susceptible to it (particularly *Eucalyptus obliqua*) and indicators of its presence.
- Minimise the risk of introducing and spreading *Phytophthora* in the park by following the management strategies outlined in the DEH Standard Operation Procedures for *Phytophthora* Threat Management.

5.4 Native Fauna

Stipiturus Conservation Park provides habitat for a diversity of native birds. At least 65 species have been recorded, four of which are of conservation significance (see Appendix A for Conservation Status Codes):

- Golden-headed Cisticola (*Cisticola exilis exilis*) (SA:R; ML:R);
- Latham's Snipe (*Gallinago hardwickii*) (SA:V; ML:V; protected under the Japan-Australia Migratory Birds Agreement);
- Lewins Rail (*Rallus pectoralis pectoralis*) (SA:V; ML:V); and
- Mount Lofty Ranges Southern Emu-wren (*Stipiturus malachurus intermedius*) (AUS:E; SA:E; ML:E).

The Peregrine Falcon (*Falco peregrinus*) (SA:R; ML:R) and Yellow-tailed Black Cockatoo (*Calyptorhynchus funereus xanthanotus*) (SA:V; ML:V) have been sighted flying over the park.

Stipiturus Conservation Park contains one of the largest swamp-based populations of the Mount Lofty Ranges Southern Emu-wren. These insectivorous birds are relatively poor fliers that tend to hop, flutter and scramble through their habitat, which is characterised by dense, low vegetation (Mount Lofty Ranges Southern Emu-wren Recovery Team, 1998). Given their inability to disperse between the fragmented wetland habitats on Fleurieu Peninsula, appropriate habitat is essential to the long-term survival of the emu-wren population at Stipiturus Conservation Park. A recovery plan has been developed for the Mount Lofty Ranges Southern Emu-wren (Mount Lofty Ranges Southern Emu-wren Recovery Team, 1998). The objectives and strategies identified in this management plan to achieve the protection and maintenance of a healthy wetland ecosystem at Stipiturus Conservation Park complement this recovery plan and other activities of the Mount Lofty Ranges Southern Emu-wren and Fleurieu Peninsula Swamps Recovery Program (see Section 5.1 Geology, Soils and Landform, Section 5.2 Hydrology and Section 5.3 Native Vegetation). DEH staff and volunteers will maintain liaison with personnel from the Mount Lofty Ranges Southern Emu-wren and Fleurieu Peninsula Swamps Recovery Program to ensure ongoing integration of management activities and monitoring programs.

Two native mammals have been recorded at Stipiturus Conservation Park: the Southern Brown Bandicoot (*Isodon obesulus obesulus*) (AUS:E; SA:V) and Western Grey Kangaroo (*Macropus fuliginosus*). Fauna surveys are likely to discover more native mammals residing in the park. The Western Grey Kangaroo is common in the region and a population increase may lead to overgrazing of the native flora within the park. DEH will assess total grazing pressure within Stipiturus Conservation Park. Due to the park's small size and swamp vegetation, successful management of its kangaroo population may only be achieved when managed as part of a regional program, in liaison with surrounding landowners.

Little is currently known of the native invertebrates within Stipiturus Conservation Park, except that two butterfly species of conservation significance have been recorded: the Donnysa Sedge-skipper (*Hesperilla donnysa donnysa*) (regionally significant) and Flame Sedge-skipper (*Hesperilla idothea clara*) (vulnerable in South Australia) (see Grund (1998) for conservation status descriptions). The Action Plan for Australian Butterflies (Sands and New, 2002) identifies habitat reduction and degradation as major threatening processes for these species. The Recovery Plan for the Mount Lofty Ranges Southern Emu-wren (Mount Lofty Ranges Southern Emu-wren Recovery Team, 1998) recognises that insects comprise a large component of the species' diet. However, the recovery plan does not recommend that invertebrate surveys need to be conducted in emu-wren habitats to provide greater understanding of the species' diet or food availability. DEH will liaise with the Mount Lofty Ranges Southern Emu-wren and Fleurieu Peninsula Swamps Recovery Program to determine whether invertebrate surveys would be beneficial at Stipiturus Conservation Park. If such surveys are deemed appropriate, the feasibility of conducting them will be assessed when the vegetation surveys are conducted. Any invertebrate surveys conducted in the park will be undertaken in conjunction with expert entomologists.

In a park of this type, where biodiversity conservation and the protection of threatened species are major goals, fauna surveys and ongoing population monitoring should be undertaken. Where necessary, species management plans should be developed and implemented to ensure their conservation.

Objective

Identify, manage and protect all native fauna inhabiting or using the park and in particular, ensure the conservation of the Mount Lofty Ranges Southern Emu-wren population in the park.

Strategies

- Undertake fauna surveys and population monitoring to ensure the park's biodiversity is conserved, and encourage the involvement of appropriate volunteer groups and individuals.
- Assess total grazing pressure and its effects on the flora and fauna within the park.
- Identify and protect significant fauna habitats and integrate habitat restoration with native revegetation efforts, weed management programs and species recovery plans.
- Develop and implement management guidelines appropriate for the conservation of the Mount Lofty Ranges Southern Emu-wren in conjunction with the Mount Lofty Ranges Southern Emu-wren and Fleurieu Peninsula Swamps Recovery Program.
- If deemed appropriate, through liaison with the Mount Lofty Ranges Southern Emu-wren and Fleurieu Peninsula Swamps Recovery Program, and feasible, through assessment during vegetation surveys, conduct invertebrate surveys with the involvement of expert entomologists.

5.5 Introduced Plants

Weeds are regarded as one of the major threats to indigenous plant communities, and weed invasion is seen as both a symptom and cause of their degradation. Stipiturus Conservation Park contains several introduced plant species that threaten the integrity of the native vegetation communities, some of which are declared pest species that require control under section 181 of the *Natural Resources Management Act 2004*. Most notable are Blackberry (*Rubus* spp.), Montpellier Broom (*Genista monspessulana*) and Gorse (*Ulex europaeus*), being particularly invasive species. Other species that could be a threat to the understorey include Lesser Hawkbit (*Leontodon saxatilis*), Lotus sp. and Yorkshire Fog (*Holcus lanatus*).

The management of non-indigenous vegetation within the park will be guided by the vegetation management plan (see Section 5.3 Native Vegetation). It will provide a strategic approach to

conservation management and will recommend strategies to control introduced plants, focussing on the communities of most conservation significance and outlining 'best practice' strategies to ensure their survival. It is most important that weed control activities do not inadvertently impact the native communities and species they are intended to benefit, and the zoning prescriptions in Section 4 Zoning are a response to perceived environmental sensitivities.

DEH also has an interest in liaising with landowners adjacent to the park in managing weeds on their properties (particularly in any remnant native vegetation and along watercourses) to ensure that control activities protect and improve natural biodiversity and improve catchment water quality.

To effectively control the spread and threat of weeds, a regional integrated weed control program needs to be developed, involving the surrounding property owners and managers, the District Council of Yankalilla, Adelaide and Mount Lofty Ranges NRM Board, DEH, the Mount Lofty Ranges Southern Emu-wren and Fleurieu Peninsula Swamps Recovery Program, and any other relevant bodies. Weed control programs should be coordinated according to priorities outlined in the aforementioned vegetation management plan and the legal requirements of the *Natural Resources Management Act 2004*.

In areas of high conservation significance within Stipiturus Conservation Park (see Figure 2), introduced plant management should use minimal disturbance methods. However, other methods may be used in more degraded sections of the park. Contractors and DEH staff will need information on the locations of flora with conservation significance and the techniques that are appropriate in the different vegetation associations.

One of the most significant weed infestations is on the northern side of the swamp. This area is dominated by Montpellier Broom, with some Gorse. Three distinct zones can be recognised:

- the swamp fringe itself, with scattered broom amongst dense swamp vegetation;
- the area directly adjoining the swamp, with dense broom and other weeds amongst bracken and a few other native species; and
- the sandy rises on the far side of the previous area, with dense broom infestation amongst mostly weed species.

The zoning prescriptions for weed management outlined in section 4 Zoning of this plan take this information into account.

Significant Montpellier Broom infestations also occur on sandy rises to the south-east and east of the wetland area. Blackberry infestation is dense within the well-drained parts of the wetland. In terms of weed invasion in the swamp itself, blackberry is the more immediate threat to biodiversity. An option for blackberry control may be hydrological manipulation, through the use of a series of temporary weirs. This would locally raise soil water levels in drained and infested areas, which may result in the replacement of blackberry by local wetland species.

Applied fire and prescribed grazing could also be inexpensive options for the management of the weed issues adjacent to the swamp. However, there is the risk that if the impacts of these activities were to disturb the swamp, presently peripheral weeds could become established further into the swamp.

To reduce the risk of aiding weed establishment in the swamp itself, it may be preferable to achieve the control of the weeds prior to the use of grazing or burning as a swamp habitat management tool.

Objective

Control, and eradicate if possible, introduced plants within the park, especially those known to invade native vegetation.

Strategies

- Map the locations of invasive pest plants as an integral part of vegetation mapping in the park.
- Fulfil the obligations of the *Natural Resources Management Act 2004*.
- Investigate funding opportunities to support pest plant control.

- Liaise with the Adelaide and Mount Lofty Ranges NRM Board, the Mount Lofty Ranges Southern Emu-wren and Fleurieu Peninsula Swamps Recovery Program, and neighbouring property owners to develop integrated, catchment-based pest plant management programs, in conjunction with native plant revegetation efforts on neighbouring land.

5.6 Introduced Animals

A detailed survey and assessment of the impacts of introduced fauna within Stipiturus Conservation Park has not been undertaken to date. However, observations by DEH staff and Mount Lofty Ranges Southern Emu-wren and Fleurieu Peninsula Swamps Recovery Program personnel indicate only a minimal presence of the Red Fox (*Vulpes vulpes*) and Feral Cat (*Felis catus*). These predators can have considerable impacts on native mammals, birds and reptiles. Fallow Deer (*Dama dama*) have been observed moving and grazing throughout the swamp.

A number of introduced mammal species occur in the wild throughout the Mount Lofty Ranges and probably inhabit the park from time to time. The European Rabbit (*Oryctolagus cuniculus*), Brown Hare (*Lepus capensis*), House Mouse (*Mus musculus*) and Black Rat (*Rattus rattus*) are all likely to be found in Stipiturus Conservation Park.

Careful management, through integrated pest control programs, is the best way to ensure pest animal numbers are reduced with minimal impact on native flora and fauna. As Stipiturus Conservation Park is a small remnant of vegetation within an agricultural landscape, any pest plant and animal management restricted to the park is unlikely to provide long-term protection. There may be opportunities in the future to undertake control programs in cooperation with neighbouring landowners, benefiting both DEH and landowners. In the interim, DEH staff should eliminate introduced animals as opportunity permits. Fox baiting will be undertaken in line with the DEH Standard Operating Procedure on Fox Control for Biodiversity Conservation, which specifies the requirements for the implementation of fox baiting programs for biodiversity conservation and "good neighbour" purposes on both protected areas and on other public or private lands.

Objective

Control and manage introduced fauna within Stipiturus Conservation Park.

Strategies

- Assess the extent of introduced animal populations and their impacts on native flora and fauna.
- Develop control programs for introduced animals in accordance with priorities, taking into account the benefits to biodiversity versus the costs of possible adverse impacts on native wildlife and other off-target impacts of such programs.
- If control programs prove necessary, work in cooperation with adjoining landowners, the Adelaide and Mount Lofty Ranges NRM Board and the District Council of Yankalilla to achieve effective district-wide pest animal control.

6 MANAGING FIRE

The use of prescribed fire as a management tool in maintaining habitat diversity within the Fleurieu Peninsula swamps has been recognised. For example, fire (in addition to prescribed grazing) could be an effective and inexpensive option for the management of weeds adjacent to the swamp. However, there is the risk that if these activities were to disturb the ecology, weeds, which are currently restricted to the swamp margins, could become established further into the swamp. To reduce the risk of aiding weed establishment in the swamp itself, it may be preferable to achieve the control of the weeds prior to the use of burning (or grazing) as a swamp habitat management tool.

The role of fire in the maintenance of biodiversity is highly complex. Experimental burns in some swamps were conducted in 1997 as part of the Mount Lofty Ranges Southern Emu-wren Recovery Program. The aims of these trials included determining optimum frequency, intensity and seasonality of burns. Preliminary findings and general guidelines for the application of controlled burns have been incorporated into the *Swamp Management Guidelines for the Fleurieu Peninsula* (Duffield and Hill, 2002). The guidelines indicate that a prescribed burn can be beneficial in a swamp as it can:

- allow the regeneration of plant species from roots and seeds;
- promote recruitment of species;
- reduce the overall extent of weed number and cover; and
- allow plant communities to recover structurally.

The Mount Lofty Ranges Southern Emu-wren and Fleurieu Peninsula Swamps Recovery Program will trial the recommendations from the experiments at locations external to Stipiturus Conservation Park and oversee the implementation of manipulative treatments such as fire, should these treatments be used within the park.

In 1993 a fire approximately 1 kilometre x 0.5 kilometre in extent burnt a large area of Stipiturus Conservation Park. After the fire, good regeneration was recorded and Mount Lofty Ranges Southern Emu-wrens were observed using the unburnt swamp edges (Milne and Telfer, 2000). The Mount Lofty Ranges Southern Emu-wren and Fleurieu Peninsula Swamps Recovery Program has recognised the potential role of fire in maintaining good vegetation structure that, in turn, provides habitat for Mount Lofty Ranges Southern Emu-wrens to move and feed throughout their home range (Marcus Pickett, pers. comm. 2002).

Apart from using fire as a habitat management tool, DEH has an obligation in the management of reserves to have bushfire management strategies in place. DEH has an annual fire management program includes grass slashing, which is used as a management tool to strategically manage fuel loads on the reserve perimeter.

A fire management plan will be prepared for the park, in consultation with the Country Fire Service (CFS), the District Bushfire Prevention Committee and the Mount Lofty Ranges Southern Emu-wren and Fleurieu Peninsula Swamps Recovery Program, to integrate district fire management. Stakeholders and the wider community will also be consulted to ensure an understanding of the fire risks and mitigating strategies being proposed or undertaken in the park.

Fire management planning will:

- identify fire related risk to natural and cultural heritage values and built assets;
- define objectives for fire management in the planning area; and
- identify strategies to achieve these objectives, including:
 - a framework for the management of bushfire suppression, including identification of strategic fire access and infrastructure; and
 - a framework for prescribed burning to assist in built asset protection and for ecological management purposes.

Objective

Manage fire to ensure the protection of life and property, the maintenance of biodiversity and the protection of natural, cultural and built values.

Strategies

- Develop, implement and review fire management plans in association with CFS and other stakeholders.
- Continue to work with the relevant District Bushfire Prevention Committee and CFS to minimise risk to life and property within and surrounding the park.
- Suppress bushfire as soon as practicable, so as to minimise impacts on the park's structural diversity, while also minimising the risk to neighbouring property and infrastructure.
- In consultation with the Mount Lofty Ranges Southern Emu-wren and Fleurieu Peninsula Swamps Recovery Program, investigate the use of applied fire for biodiversity conservation, weed control or hazard reduction, and undertake if feasible.

7 MANAGING CULTURAL HERITAGE

7.1 Indigenous Heritage

Kaurna and Ngarrindjeri Culture and Heritage

The land comprising Stipiturus Conservation Park was traditionally associated with Kaurna people and Ngarrindjeri people (Tindale, 1974).

The land and waters of the Coorong and the lower Fleurieu Peninsula have a strong connection with the Kaurna and Ngarrindjeri people. The area around Encounter Bay and the Fleurieu Peninsula encompasses trade routes, by which goods were traded up to the Flinders Ranges, Southern Lake Eyre Region and up to South West Queensland. Before European settlement the Kaurna and Ngarrindjeri people managed and preserved the coastal and inland environment, which provided important seasonal food resources. Corroborees and meetings were held to settle disagreements, to share stories and experiences, whilst dreaming stories and ceremonies were also important to Kaurna and Ngarrindjeri people.

Following colonial settlement, the Kaurna and Ngarrindjeri populations were substantially reduced as a result of introduced diseases, dispersal, dispossession of their land and water supplies, and sometimes through violent conflict.

Today, Kaurna and Ngarrindjeri people live in several country centres and in Adelaide, forming one of the largest Aboriginal communities in southern Australia. Kaurna and Ngarrindjeri people still have a strong physical and spiritual connection to their country. Today they are continuing to live on their traditional country, and continue to practice their culture, language and traditional associations.

Given the lack of existing information, it is considered important that further research be undertaken in order to gain a better understanding of the Aboriginal occupancy and use of the area, however, this must be undertaken in a culturally sensitive manner. For historical or cultural reasons, any knowledge of the cultural heritage of the region may be privileged to selected Kaurna and Ngarrindjeri people and therefore unable to be recorded.

Aboriginal Heritage Act 1988

The purpose of the *Aboriginal Heritage Act 1988* is the protection and preservation of Aboriginal sites, objects and remains. 'Aboriginal site' and 'Aboriginal object' are defined under the Act as 'an area of land or an object that is of significance according to Aboriginal tradition; or that is of significance to Aboriginal archaeology, anthropology or history'. The Aboriginal Affairs and Reconciliation Division (AARD) of the Department of the Premier and Cabinet maintains a Central Archive, including the Register of Aboriginal Sites and Objects.

While no Aboriginal sites or objects have been found on the park to date, and no sites are listed on the Central Archive for Stipiturus Conservation Park, archaeological deposits may be discovered in the future, which may have cultural significance for contemporary Aboriginal people. Some may also have scientific significance. To promote better cultural heritage management at Stipiturus Conservation Park further research needs to be undertaken to identify and record sites of significance on the park.

To ensure the protection of sites and to avoid inadvertent damage, DEH will consult with AARD, Kaurna and Ngarrindjeri people, and other traditional owners, before commencement of any development works.

Objective

Ensure that any Aboriginal sites, objects and remains are protected and preserved in accordance with the *Aboriginal Heritage Act 1988*.

Strategies

- Consult with Kaurna and Ngarrindjeri people, other traditional owners, native title claimants and relevant Government Aboriginal heritage authorities in decisions regarding the management of Aboriginal heritage.
- Identify and protect any Aboriginal sites, objects and remains in cooperation with Kaurna and Ngarrindjeri people, other traditional owners, AARD and other relevant authorities.

- In consultation with the Kurna and Ngarrindjeri community and other relevant authorities, research cultural sites and stories that relate to the park.

7.2 Non-Indigenous Heritage

Prior to acquisition, Stipiturus Conservation Park was part of a large cattle grazing property called Glenshera (hence the swamp being known as Glenshera Swamp). This land is thought to have been drained and developed for dairying, which is evidenced by the artificial drainage lines that have been formed around the wetland, particularly to the north-west (see Figure 2). It would be useful for the accumulated knowledge of previous owners to be recorded, particularly as a guide to what ecosystems may have existed prior to agricultural development, and the impacts of these activities. The incidence of bushfire (and deliberate burns) would also be valuable information.

There are currently no known sites or objects of non-indigenous cultural significance on the park. The development of a record of the land use history of the area, and landowners since 1836, is therefore a worthy topic for a historic research project.

Objective

Ensure any significant non-indigenous heritage sites discovered within the park are conserved and protected.

Strategies

- In cooperation with the Heritage branch of DEH and other relevant authorities, protect sites of historical significance located in the park.
- In cooperation with the Heritage branch of DEH and other relevant authorities, research historic sites and stories that relate to the park. All sites should be recorded to the standards set by the Heritage branch of DEH.

8 MANAGING TOURISM AND RECREATION

8.1 Visitor Use and Access

Stipiturus Conservation Park has very high conservation values, containing threatened ecosystems, and plant and animal species of conservation significance. Having been acquired primarily to conserve this biodiversity, the considerable efforts required to achieve and maintain this is such that biodiversity conservation programs should be given first priority for the limited resources available for park management. Consequently, the park cannot readily provide for public enjoyment at this time and visitor access should remain limited for the term of this management plan.

DEH staff, contractors, researchers, approved volunteers and special interest groups are likely to comprise the majority of visits. A limited number of specialist tour groups may be permitted. Access arrangements for special interest groups and specialist tour groups may be organised through contact with DEH staff. The conditions imposed on such access will be determined on a case-by-case basis. Vehicular access will be restricted to management vehicles only. Construction of car parks, walking trails, board walks or day visit facilities (eg picnic sites) will not occur during the term of this management plan. No interpretive information will be provided, however a minor entrance sign will be necessary to identify the area as a Conservation Park.

A nearby swamp in Mount Compass already contains an interpretive walking trail and bird hide. For the interim, visitors who wish to learn more about swamp habitats can go to this location (adjacent to the Mount Compass Area School) and use the public facilities there. It is also possible to observe Mount Lofty Ranges Southern Emu-wrens from the walking track and fire access track network in Deep Creek Conservation Park.

While visitors on foot will not be legally excluded from Stipiturus Conservation Park, they will not be encouraged either. Should significant numbers of visitors access the park despite the lack of directional signage or facilities and pose a threat to native wildlife, there is provision under section 42 of the *National Parks and Wildlife Act 1972* for declaring part of the park a Prohibited Area. Visitor numbers and impacts should be casually monitored by DEH staff, in cooperation with personnel from the Mount Lofty Ranges Southern Emu-wren and Fleurieu Peninsula Swamps Recovery Program, and volunteers that undertake management activities on the park, in order to guide management.

The presence of a relatively large and virtually intact remnant wetland on the Fleurieu Peninsula may prove of interest to those visitors who have a special interest in nature conservation and threatened species management. During a trip to the Fleurieu Peninsula, a visit to Stipiturus Conservation Park may offer the discerning tourist the experience of combining observation/appreciation of a rare species in its natural environment, with other tourism and recreation activities.

In the future there may well be a role for the park in catering for this specialist, niche market and there may be a requirement at Stipiturus Conservation Park for the construction of visitor facilities. This would require an amendment to this plan of management.

Due to the high conservation values contained within Stipiturus Conservation Park, vehicle access will be limited to management vehicles and authorised volunteers, using the maintained fire break around the park boundary. Public vehicle access will not be permitted (including bicycles and horses).

The operator of any vehicle entering the park needs to be made aware of the *Phytophthora* threat management procedure developed by DEH and the requirement to comply with this procedure (see Section 5.3 Native Vegetation).

Given the low public profile of Stipiturus Conservation Park, it is not intended to produce extensive interpretive information during the term of this management plan. The success or otherwise of the management activities in support of the Mount Lofty Ranges Southern Emu-wren will be reported under the umbrella of the Mount Lofty Ranges Southern Emu-wren and Fleurieu Peninsula Swamps Recovery Program. Information may be provided to the community regarding the impacts of introduced plants and animals and the importance of regional control programs. Other information with interpretive potential that may come to light (eg archaeology, history, geology, biology) will be reserved for future use if, and when, public access to the park is taken up as an

option. There may be general references made to the park in the context of regional documentation.

Objectives

Allow for limited, low-key visitor access that does not impact upon the swamp ecosystem or threatened species and address any threats to biodiversity and public risk issues associated with visitor use of the park.

Provide vehicle access for management vehicles only along designated fire tracks.

Provide suitable information to raise community awareness of the natural values and management programs being undertaken at Stipiturus Conservation Park.

Strategies

- In cooperation with volunteers and key stakeholders, casually monitor visitor numbers, and take whatever steps are necessary to ensure protection of the park environment and associated wildlife.
- Maintain vehicle access tracks for authorised vehicles only.
- Continue to assess the need for interpretive information, and if required develop interpretive signage and documentation as necessary for Stipiturus Conservation Park.

9 INVOLVING THE COMMUNITY

DEH supports and promotes partnerships and cooperative management arrangements to ensure integrated natural resources management. This requires the development of substantial working relationships with Government agencies, local authorities, special interest groups and local communities.

Management of the park must consider the broader, developing regional pattern of land use, and the importance of coordinating management efforts with neighbouring landowners. Issues such as pest plant and animal control, water catchment and soil conservation, fire management and other regionally based land management practices require an integrated approach for the protection of the park and surrounding properties.

The following listing identifies some of the parties who are currently (or in future may be) involved with Stipiturus Conservation Park.

Aboriginal Partnerships

DEH is committed to reconciliation and to the development of partnerships with the Kurna and Ngarrindjeri communities to effectively manage Stipiturus Conservation Park in a way that respects both contemporary and traditional culture, knowledge and skills. Partnerships involve the delivery of programs that promote reconciliation, cultural awareness, indigenous employment and training, cooperative management and indigenous cultural heritage management in parks.

At this stage, there are no arrangements in place regarding Stipiturus Conservation Park.

District Council of Yankalilla

There are a number of key areas where ongoing liaison with the District Council of Yankalilla would be very beneficial. The Council is the major development control authority over the area surrounding the park, and it is important that nearby land uses remain compatible with the park's natural values. The Council is also actively involved with pest plant and bushfire management, both issues of vital concern to park managers.

Adelaide and Mount Lofty Ranges Natural Resources Management Board

The Adelaide and Mount Lofty Ranges Natural Resources Management Board should be made aware of the conservation significance of Stipiturus Conservation Park. This information can then be incorporated into on-ground programs within the catchment. This contact is particularly important, given the dependence of the park's ecosystem on hydrology. The possibility of engaging with catchment management programs and sourcing funds from these programs for on-park works should not be discounted.

Mount Lofty Ranges Southern Emu-wren and Fleurieu Peninsula Swamps Recovery Program

The members of the Mount Lofty Ranges Southern Emu-wren and Fleurieu Peninsula Swamps Recovery Program had significant input into the initiative to acquire and proclaim Stipiturus Conservation Park. There is potential to utilise the assistance of volunteers through the Mount Lofty Ranges Southern Emu-wren and Fleurieu Peninsula Swamps Recovery Program (Friends of Swamps) to undertake activities, such as vegetation mapping. This would include mapping of critical areas for the Mount Lofty Ranges Southern Emu-wren as well as significant species or habitats, in association with the threats (such as weeds). There may also be the potential to obtain volunteers through the Mount Lofty Ranges Southern Emu-wren and Fleurieu Peninsula Swamps Recovery Program to undertake the minimum disturbance weed removal work in the High Conservation Zone (see Section 4 Zoning). Most importantly, the Mount Lofty Ranges Southern Emu-wren and Fleurieu Peninsula Swamps Recovery Program can provide information and advice regarding Mount Lofty Ranges Southern Emu-wren and swamp management.

Local Community and Park Neighbours

The adjacent communities to Stipiturus Conservation Park are important stakeholders and potential partners. Local community members are often active in Friends groups. It is vital that the local community is made aware of the conservation values of Stipiturus Conservation Park, to further their appreciation of the park. Within a 15 kilometre radius of Stipiturus Conservation Park are several private properties, protected by Heritage Agreements under the *Native Vegetation Act 1991*, which assist with the preservation of biodiversity in the Fleurieu Peninsula (see Figure 1).

These protected areas provide links that facilitate movement of species, thereby improving genetic diversity and ecosystem sustainability.

Friends Group and Volunteers

The Friends of Swamps group has been involved in the park. Friends group volunteers play a vital role in assisting DEH in achieving on-ground works and also provide an essential mechanism in gaining funding from Government and non-government agencies.

Objectives

Create opportunities to develop and maintain partnerships between state and local government, statutory bodies, non-government organisations, special interest groups and the community generally, in the management of the park and adjoining land, that assist with the management of the park and help fulfil its potential without compromising its natural values.

Raise community awareness of Stipiturus Conservation Park in the surrounding catchment area.

Strategies

- Encourage and contribute to the development of partnership arrangements to integrate biodiversity and recreation management in the region, with organisations and individuals that have an interest in contributing to the sustainable management of the park.
- Involve the Kurna and Ngarrindjeri communities, native title claimants and the nominated Aboriginal Heritage Committee(s) in the cooperative management of the park and the preservation of their indigenous cultural heritage.
- Discuss options and strategies for raising community involvement in Stipiturus Conservation Park with the Mount Lofty Ranges Southern Emu-wren and Fleurieu Peninsula Swamps Recovery Program, and the relevant Adelaide and Mount Lofty Ranges NRM Board programs.
- Support volunteer groups and encourage them and other suitable volunteers to contribute to park management.
- Encourage and facilitate the involvement of local schools and universities in research and volunteer programs.

SUMMARY OF MANAGEMENT STRATEGIES

ZONING
<ul style="list-style-type: none"> Designate and adopt the management zones as described in Section 4 Zoning and shown in Figure 2.
MANAGING NATURAL HERITAGE
<p>Geology, Soils and Landform</p> <ul style="list-style-type: none"> Investigate the need for special management guidelines for peat soils and their relationship with the management of the park's hydrology and vegetation. Liaise with neighbouring land managers (at surface and groundwater catchment scales) and other agencies to ensure external factors influencing swamp soils do not jeopardise the park's soil moisture regimes.
<p>Hydrology</p> <ul style="list-style-type: none"> Undertake surface and groundwater investigations to establish baseline data and to improve DEH understanding of wetland requirements and support ongoing hydrological monitoring. Inform neighbouring land managers about the importance of suitable and sustainable hydrological regimes for the health of the park's wetlands. Investigate, document and minimise potential external threats to the hydrology of the park, and liaise with decision-making authorities to that end. Liaise with the Adelaide and Mount Lofty Ranges NRM Board and other relevant agencies and programs to inform them of the hydrological requirements of Stipiturus Conservation Park to ensure compatibility of on ground work programs in the catchment. Investigate the possibility of inducing changes to the hydrological regime, to assist in managing internal threats such as weeds (eg blackberries), providing that this does not adversely affect other conservation values.
<p>Native Vegetation</p> <ul style="list-style-type: none"> Undertake a detailed vegetation survey of Stipiturus Conservation Park. Undertake vegetation mapping and map associated soils and soil moisture within Stipiturus Conservation Park to illustrate the locations of vegetation associations, threatened species and invasive, introduced flora. In cooperation with the Mount Lofty Ranges Southern Emu-wren and Fleurieu Peninsula Swamps Recovery Program, and relevant bodies, prepare and implement a vegetation management plan that includes guidelines and strategies for the conservation of natural habitats and threatened flora found within Stipiturus Conservation Park, and include programs for coordinated pest plant control, habitat rehabilitation and regeneration. Liaise with the managers of neighbouring properties regarding maintenance of boundary fencing. Monitor the park for the presence of introduced pathogens and implement control measures as necessary. Increase awareness among DEH staff, volunteers, contractors and visitors of the potential for introduction and establishment of <i>Phytophthora</i>, the plant species susceptible to it (particularly <i>Eucalyptus obliqua</i>) and indicators of its presence. Minimise the risk of introducing and spreading <i>Phytophthora</i> in the park by following the management strategies outlined in the DEH Standard Operation Procedures for <i>Phytophthora</i> Threat Management.

Native Fauna

- Undertake fauna surveys and population monitoring to ensure the park's biodiversity is conserved, and encourage the involvement of appropriate volunteer groups and individuals.
- Assess total grazing pressure and its effects on the flora and fauna within the park.
- Identify and protect significant fauna habitats and integrate habitat restoration with native revegetation efforts, weed management programs and species recovery plans.
- Develop and implement management guidelines appropriate for the conservation of the Mount Lofty Ranges Southern Emu-wren in conjunction with the Mount Lofty Ranges Southern Emu-wren and Fleurieu Peninsula Swamps Recovery Program.
- If deemed appropriate, through liaison with the Mount Lofty Ranges Southern Emu-wren and Fleurieu Peninsula Swamps Recovery Program, and feasible, through assessment during vegetation surveys, conduct invertebrate surveys with the involvement of expert entomologists.

Introduced Plants

- Map the locations of invasive pest plants as an integral part of vegetation mapping in the park.
- Fulfil the obligations of the *Natural Resources Management Act 2004*.
- Investigate funding opportunities to support pest plant control.
- Liaise with the Adelaide and Mount Lofty Ranges NRM Board, the Mount Lofty Ranges Southern Emu-wren and Fleurieu Peninsula Swamps Recovery Program, and neighbouring property owners to develop integrated, catchment-based pest plant management programs, in conjunction with native plant revegetation efforts on neighbouring land.

Introduced Animals

- Assess the extent of introduced animal populations and their impacts on native flora and fauna.
- Develop control programs for introduced animals in accordance with priorities, taking into account the benefits to biodiversity versus the costs of possible adverse impacts on native wildlife and other off-target impacts of such programs.
- If control programs prove necessary, work in cooperation with adjoining landowners, the Adelaide and Mount Lofty Ranges NRM Board and the District Council of Yankalilla to achieve effective district-wide pest animal control.

MANAGING FIRE

- Develop, implement and review fire management plans in association with CFS and other stakeholders.
- Continue to work with the relevant District Bushfire Prevention Committee and CFS to minimise risk to life and property within and surrounding the park.
- Suppress wildfire as soon as practicable, so as to minimise impacts on the park's structural diversity, while also minimising the risk to neighbouring property and infrastructure.
- In conjunction with the Mount Lofty Ranges Southern Emu-wren and Fleurieu Peninsula Swamps Recovery Program, investigate the use of applied fire for biodiversity conservation, weed control or hazard reduction, and undertake if feasible.

MANAGING CULTURAL HERITAGE

Indigenous Heritage

- Consult with Kurna and Ngarrindjeri people, other traditional owners, native title claimants and relevant Government Aboriginal heritage authorities in decisions regarding the management of Aboriginal heritage.
- Identify and protect any Aboriginal sites, objects and remains in cooperation with Kurna and Ngarrindjeri people, other traditional owners, AARD and other relevant authorities.
- In consultation with the Kurna and Ngarrindjeri community and other relevant authorities, research cultural sites and stories that relate to the park.

Non-Indigenous Heritage

- In cooperation with the Heritage branch of DEH and other relevant authorities, protect sites of historical significance located in the park.
- In cooperation with the Heritage branch of DEH and other relevant authorities, research historic sites and stories that relate to the park. All sites should be recorded to the standards set by the Heritage branch of DEH.

MANAGING TOURISM AND RECREATION

Visitor Use and Access

- In cooperation with volunteers and key stakeholders, casually monitor visitor numbers, and take whatever steps are necessary to ensure protection of the park environment and associated wildlife.
- Maintain vehicle access tracks for authorised vehicles only.
- Continue to assess the need for interpretive information, and if required develop interpretive signage and documentation as necessary for Stipiturus Conservation Park.

INVOLVING THE COMMUNITY

- Encourage and contribute to the development of partnership arrangements to integrate biodiversity and recreation management in the region, with organisations and individuals that have an interest in contributing to the sustainable management of the park.
- Involve the Kurna and Ngarrindjeri communities, native title claimants and the nominated Aboriginal Heritage Committee in the cooperative management of the park and the preservation of their Indigenous cultural heritage.
- Discuss options and strategies for raising community involvement in Stipiturus Conservation Park with the Mount Lofty Ranges Southern Emu-wren and Fleurieu Peninsula Swamps Recovery Program, and the Mount Lofty Ranges Catchment Program.
- Support volunteer groups and encourage them and other suitable volunteers to contribute to park management.
- Encourage and facilitate the involvement of local schools and universities in research and volunteer programs.

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APPENDIX A: CONSERVATION STATUS CODES

Australian Conservation Status Codes

The following codes are based on the current listing of species under section 179 of the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act).

- EX Extinct:** there is no reasonable doubt that the last member of the species has died.
- EW Extinct in the Wild:** known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
- CE Critically Endangered:** facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
- E Endangered:** facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.
- V Vulnerable:** facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.
- CD Conservation Dependent:** the species is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years.

Note: Prescribed criteria as defined under the IUCN Red List of Threatened Species.

South Australian Conservation Status Codes

The following codes are based on the current listing of species under Schedules of the *National Parks and Wildlife Act 1972*, as amended in 2000. To align with other States, Territories and the Commonwealth (EPBC Act) listing categories and ratings, the IUCN criteria were used as a basis for determining threatened species status under the *National Parks and Wildlife Act 1972*. For IUCN criteria see:

IUCN (1994) *IUCN Red List Categories*. Prepared by the IUCN Species Survival Commission. IUCN, Gland, Switzerland (www.redlist.org).

IUCN (2001) *IUCN Red List Categories and Criteria: Version 3.1*. IUCN Species Survival Commission. IUCN, Gland, Switzerland and Cambridge, United Kingdom (www.redlist.org).

- E Endangered:** (Schedule 7) in danger of becoming extinct in the wild.
- V Vulnerable:** (Schedule 8) at risk from potential or long term threats which could cause the species to become endangered in the future.
- R Rare:** (Schedule 9) low overall frequency of occurrence (may be locally common with a very restricted distribution or may be scattered sparsely over a wider area). Not currently exposed to significant threats, but warrants monitoring and protective measures to prevent reduction of population sizes.

Regional Status Codes

The categories below apply to the species distribution at a regional level. There are no regional conservation status categories developed for mammals, reptiles or amphibians to date.

Birds

Regional conservation status for birds follow:

Carpenter and Reid (1998) *The Status of Native Birds in the Agricultural Areas of South Australia*. Unpublished and regularly updated database.

The regions are defined as follows:

ML	Mount Lofty	MN	Mid-North	SE	South-Eastern	KI	Kangaroo Island
MM	Murray Mallee	EP	Eyre Peninsula	YP	Yorke Peninsula		

Plants

Regional conservation ratings for plants follow:

Lang, PJ and Kraehenbuehl, DN (2001) *Plants of Particular Conservation Significance in South Australia's Agricultural Regions*.

Department for Environment and Heritage (undated) *Florlist*. Unpublished and regularly updated database.

The regions are as defined by the State Herbarium (Plant Biodiversity Centre), illustrated in the front cover of:

Barker, WR, Barker, RM, Jessop, JP and Vonow, HP (Eds) (2005) *Census of South Australian Vascular Plants. Fifth Edition. J. Adelaide Bot. Gard. Supplement 1*. Botanic Gardens of Adelaide and State Herbarium, Adelaide.

NW	North-Western	FR	Flinders Ranges	NL	Northern Lofty	SL	Southern Lofty
LE	Lake Eyre	EA	Eastern	MU	Murray	KI	Kangaroo Island
NU	Nullarbor	EP	Eyre Peninsula	YP	Yorke Peninsula	SE	South-Eastern
GT	Gairdner-Torrens						

In order of decreasing conservation significance:

- X Extinct/Presumed extinct:** not located despite thorough searching of all known and likely habitats; known to have been eliminated by the loss of localised population(s); or not recorded for more than 50 years from an area where substantial habitat modification has occurred.
- E Endangered:** rare and in danger of becoming extinct in the wild.
- T Threatened:** (*Plants only*) likely to be either Endangered or Vulnerable but insufficient data available for more precise assessment.
- V Vulnerable:** rare and at risk from potential threats or long term threats that could cause the species to become endangered in the future.
- K Uncertain:** likely to be either Threatened or Rare but insufficient data available for a more precise assessment.
- R Rare:** has a low overall frequency of occurrence (may be locally common with a very restricted distribution or may be scattered sparsely over a wider area). Not currently exposed to significant or widespread threats, but warrants monitoring and protective measures to prevent reduction of population sizes.
- U Uncommon:** less common species of interest but not rare enough to warrant special protective measures.
- Q Not yet assessed:** but flagged as being of possible significance.
- N Not of particular significance:** (*Plants only*) also indicated by a blank entry.
- C Common:** (*Birds only*) also indicated by a blank entry.
- O Occasional Visitor Only:** (*Birds only*) not considered of conservational status.