

SUMMARY

Biodiversity Plan

for the

South East

of South Australia

1999



Department for Environment
Heritage and Aboriginal Affairs
Government of South Australia



Land & Water
Resources
Research &
Development
Corporation

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Natural Heritage Trust
Helping Communities Helping Australia



Planning SA

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ACKNOWLEDGEMENTS

The authors are grateful to Professor Hugh Possingham, the Nature Conservation Society, and the South Australian Farmers Federation in providing the stimulus for the Biodiversity Planning Program and for their ongoing support and involvement

Dr Bob Inns and Professor Possingham have also contributed significantly towards the information and design of the South East Biodiversity Plan.

We also thank members of the South East community who have provided direction and input into the plan through consultation and participation in workshops

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ISBN 0 7308 5863 4

Cover Photographs (top to bottom)
Lowan phebalium (*Phebalium lowanense*) Photo: D.N. Kraehenbuehl
Swamp Skink (*Egernia coventryi*) Photo: J. van Weenen
Jaffray Swamp Photo: G. Carpenter
Little Pygmy Possum (*Cercartetus lepidus*) Photo: P. Aitken
Red-necked Wallaby (*Macropus rufogriseus*) Photo: P. Canty

Foreword

The conservation of our natural biodiversity is essential for the functioning of natural systems. Aside from the intrinsic importance of conserving the diversity of species many of South Australia's economic activities are based on the sustainable use, conservation and management of biodiversity.

Biodiversity Plans are able to provide a focus for the conservation and management of biodiversity within a region so that a strategic approach to implementing conservation actions can be achieved. This focus also provides a framework for integrating biodiversity conservation with other regional natural resource management issues and plans.

In recognition of this, the South Australian Government is developing a series of Regional Biodiversity Plans to assist in the management and rehabilitation of habitats. This program is being greatly assisted by the Commonwealth Government through the Natural Heritage Trust. Initial funding obtained from Environment Australia and the Land and Water Resources Research and Development Corporation enabled a pilot project to be undertaken in the South East of the State. The Biodiversity Plan for the South East of South Australia will serve as a model on which to base plans for other regions of the State.

A major component of the planning process is to involve the local community in the preparation of the plans, particularly in identifying issues and priorities and developing strategies for achieving on-ground conservation actions. Through this process the local community develops a sense of ownership and becomes involved in implementing the outcomes. During development of the South East Biodiversity Plan the community provided valuable input through a series of workshops held within the region and through individual contacts.

The South East Biodiversity Plan is not only an extremely valuable resource document for all those interested in the natural history of the region but it identifies conservation priorities, including significant biodiversity assets in the form of the plant communities/habitats and species of significance, and provides advice on management strategies and key conservation actions that can be undertaken.

The plan is intended to guide priority on-ground actions and can be used by government agencies involved in managing public lands, local government, private landholders and individuals and community groups within the region interested in the conservation of biodiversity.

I am pleased to endorse this document which I believe will provide a valuable contribution to conserving and maintaining the biodiversity of the South East of South Australia.



HON DOROTHY KOTZ MP



Biodiversity



P. Aitken

Little pygmy possum, considered rare in the South East Region

“Biodiversity is the variety of life “



Tim Croft

Bullock woodland (*Allocasuarina leuhmannii*)

What is it?

Biodiversity or biological diversity is the variety of all living things

- Plants
- Mammals
- Birds
- Reptiles
- Frogs
- Fish
- Invertebrate animals
- Aquatic fauna
- Micro-organisms
- Fungi

and includes the ecosystems of which they are a part. Biodiversity varies with climate, soil, geomorphology and geological history.

What else?

We all depend on biodiversity. Biodiversity is the foundation for sustainable living. Five of our most important industries - agriculture, pastoralism, forestry, fisheries and tourism as well as daily life rely on healthy functioning ecological processes and systems. If we look after biodiversity, the land and water will support us.

Conservation of biodiversity not only underpins our medium to long term economic prosperity but also ensures:

- clean air, soil and water
- maintenance of soil fertility, water sources and cycles
- breakdown of domestic, industrial and agricultural wastes
- control of pests, disease, soil erosion and salinity
- reduction of species loss resulting from habitat decline and land degradation

Commitment to Maintaining Biodiversity

The South Australian Government is committed to achieving conservation of biodiversity and maintenance of ecological processes and systems in South Australia.

The Government is therefore intent on working with the community and all spheres of government to ensure:

- Retention and restoration of existing native vegetation
- Restoration of degraded areas, particularly threatened plant communities
- Protective measures for threatened species
- Control and eradication of pest plants and animals

Biodiversity is considered essential:

- to maintain the health and function of the environment,
- for agricultural productivity, social and cultural well being, and
- for the ecologically sustainable use of natural resources.



Tim Croft

Black / River Box, Tatiara Creek, a threatened plant community in the South East region

The Biodiversity Plan for the South East has been developed to provide a regional strategy for promoting conservation, restoration and management of the region's biodiversity in the long term.

The aims are to:

- Provide a regional context for conservation
- Provide guidance for management actions and programs for conservation
- Increase community understanding and action
- Provide a regional framework for assessing proposals and integrate with other natural resource management plans

Native vegetation refers to all plant species and communities present at the time of European settlement.

South East of South Australia



D.N. Kraehenbuehl

Red gum swamp, South Killanoola

Special attributes of the South East include:

Geomorphological qualities

- Limestone caves and sinkholes
- Granite outcrops
- Relic volcanic areas
- Long parallel relic coastlines now known as the ranges

Coastal and Wetland qualities

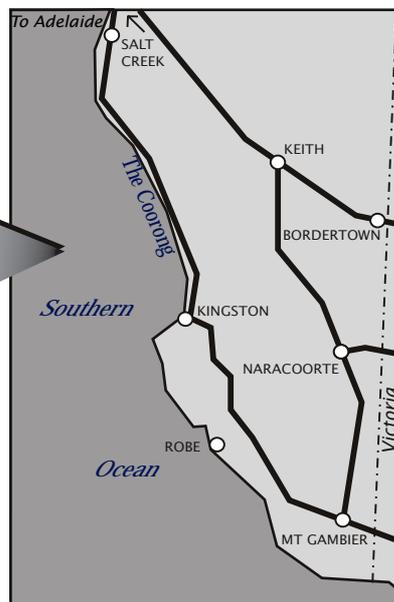
- Long exposed coastlines
- Saline lakes
- Swamps and lagoons
- Internationally important wetlands

Vegetation qualities

- Grasslands and grassy woodlands
- Western edge of the wetter habitat of South Eastern Australia's flora and fauna
- Southern limit of drier mallee vegetation

Biological qualities

- Unique place for certain species
- High diversity of species and habitats
- Significant areas for birds



South East Region of South Australia

Special Habitat Areas

The region's unique geomorphological features of limestone caves, sinkholes and granite outcrops create special habitat areas.

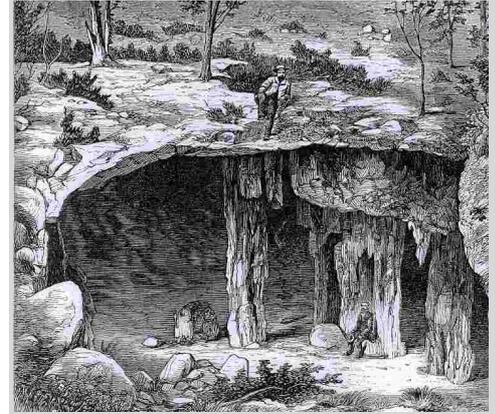
Limestone Caves and Sinkholes

Such caves and sinkholes in the Lower South East create specialised habitat for a number of species including the State threatened ferns tender brake (*Pteris tremula*) and lance water-fern (*Blechnum chambersii*).



Tender brake, Yallum Cave

D.N Kraehenbuehl



Caves, Mosquito Plains, from Rev. J.E. Woods, Geological Observations in South Australia (1862)

Granite Outcrops

The granite outcrops of the Upper South East provide habitat for a number of plant species of high conservation significance at the State level including the Nationally endangered Monarto mintbush (*Prostanthera eurybioides*).



Granite Outcrop, Willalooka District

Tim Croft

"Stop, look and wonder"

"Worth caring for"

What was the South East like originally?

At the time of European settlement, the South East was a complex mosaic of vegetation communities from grasslands to forests.

Early government surveyors described the country as “...very peculiar, no large river exists and there are no high mountains to form a watershed and force the drainage by a strong fall into any particular channel. The consequence of this is a number of lakes, lagoons, and swamps which in winter are of considerable depth and in summer, by evaporation and soakage are nearly dry...”

(Hanson, Parliamentary Papers, 1863)



D.N. Kraehenbuehl

Marsh's Swamp, a relict freshwater wetland

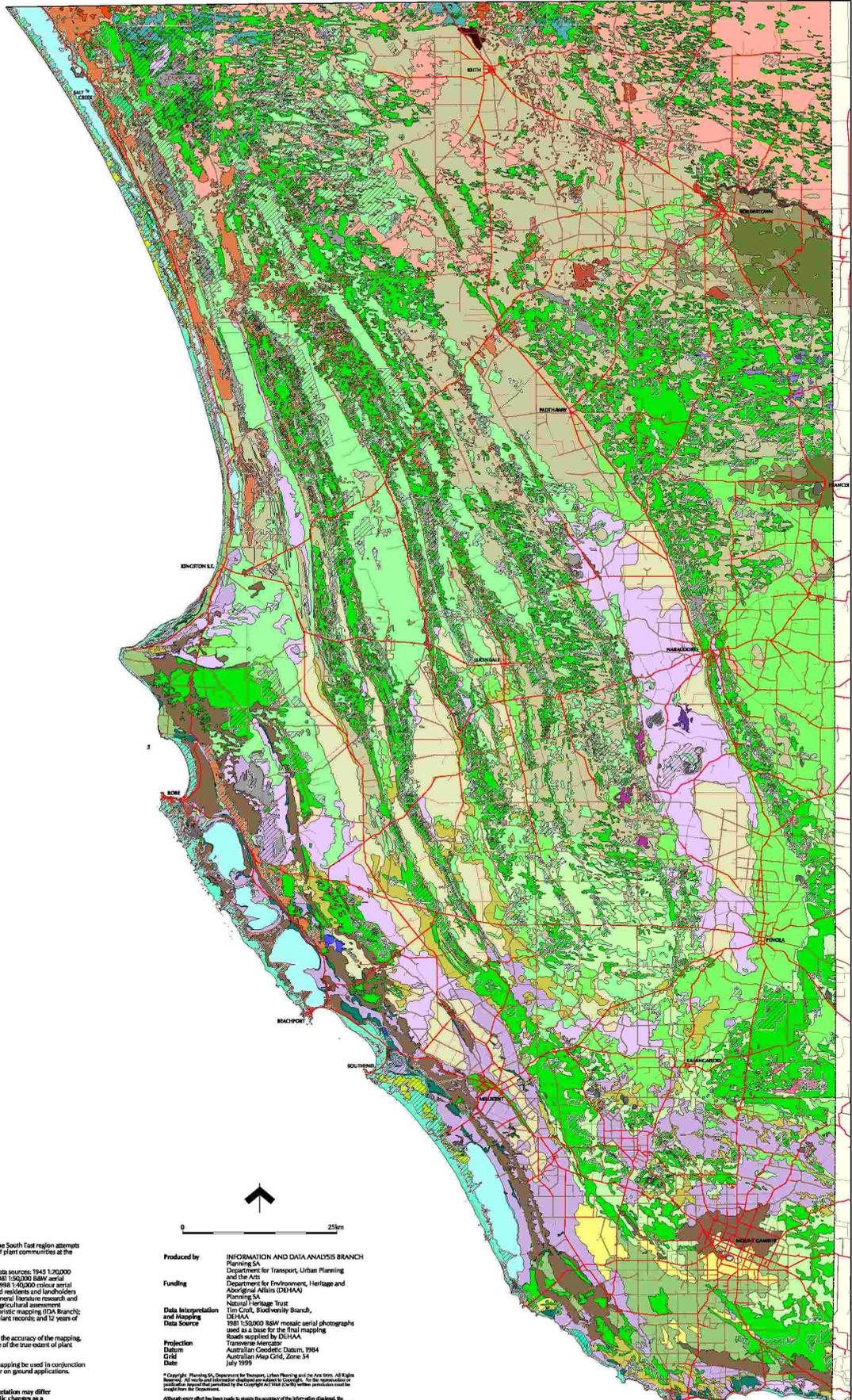
Original percentage of the States' species in the South East:

- 77% of birds
- 53% of mammals
- 42% of plants
- 42% of frogs
- 24% of freshwater fish

As part of the Biodiversity Plan, pre-European plant community coverage has been mapped from such accounts and from land surveys, aerial photography from 1945 onwards, landholder information and remnants of the original vegetation. For instance this mapping indicates that 64% of the region was made up of woodlands and forest.

At this time the region supported high numbers of South Australia's birds, mammals, plants, frogs and freshwater fish.

Pre-European Settlement Floristic Vegetation Mapping South East Region



Mapping

The pre-European vegetation mapping for the South East region attempts to depict the probable patterns and extent of plant communities at the time of European settlement in the region.

The mapping was based on the following data sources: 1945 1:20,000 BWV K&A aerial photography; 1965 and 1981 1:50,000 BWV aerial photograph mosaics; 1985, 1987, 1987 and 1988 1:40,000 colour aerial photographs; accounts of early travellers and residents and landholders of the region; land surveys for Hundreds, general literature research and the CSIRO (now CSIRO) 1945 and 1950 agricultural assessment potential report surveys; existing regional floristic mapping (DA Branch); Forestry SA Information Biological Survey plant records and 12 years of extensive ground truthing.

While every effort has been made to ensure the accuracy of the mapping, in some areas it is difficult to be exactly sure of the true extent of plant communities prior to their clearance.

It is recommended that this pre-European mapping be used in conjunction with the remnant floristic vegetation map for on ground applications.

Please note: Existing remnant native vegetation may differ from pre-European vegetation due to floristic changes as a result of altered fire regimes, drainage and/or disturbance due to agricultural development.

Produced by INFORMATION AND DATA ANALYSIS BRANCH
Planning SA
Department for Transport, Urban Planning
and the Arts

Funding Department for Environment, Heritage and
Aboriginal Affairs (DEHAA)
Planning SA
National Heritage Trust

**Data Interpretation
and Mapping** Tim Croft, Biodiversity Branch,
DEHAA

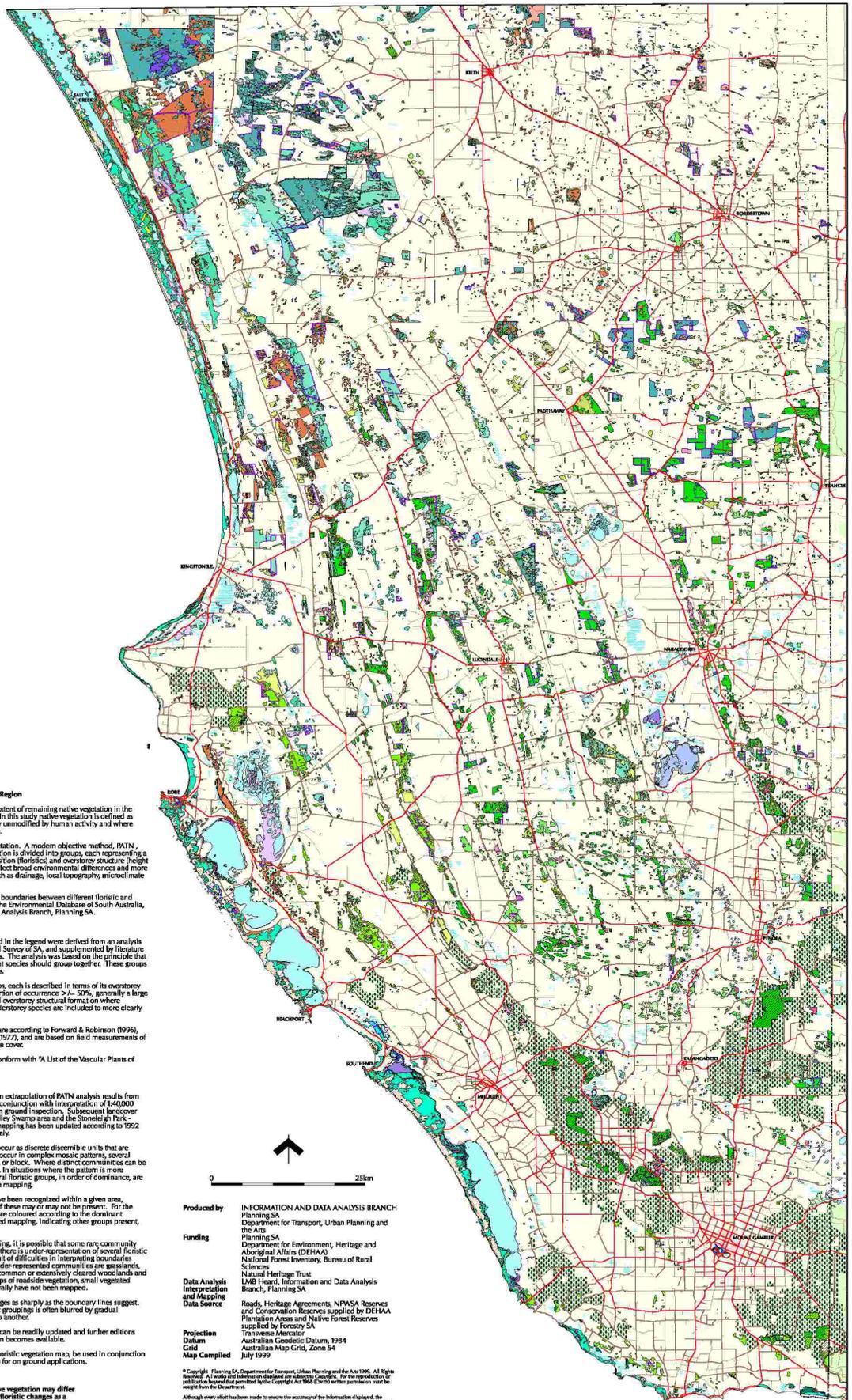
Data Source 1981 1:50,000 BWV mosaic aerial photographs
used as a base for the final mapping
Roads supplied by DEHAA
Transverse Mercator
Australian Geodetic Datum, 1984
Australian Map Grid, Zone 54
Date July 1999

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Floristic Vegetation Mapping of South Australia South East Region



Floristic Vegetation of the South East Region

This map shows the distribution and extent of remaining native vegetation in the South East Region of South Australia. In this study native vegetation is defined as those areas which appear to be largely unmodified by human activity and where indigenous plant species predominate.

There are various ways to classify vegetation. A modern objective method, PATN (Rehlin 1991) is used here. The vegetation is divided into groups, each representing a major change in plant species composition (floristic) and overstorey structure (height and projective foliage cover). They reflect broad environmental differences and more subtle changes in the environment such as drainage, local topography, microclimatic and fire history.

All vegetation and site data, including boundaries between different floristic and structural vegetation types, is held in the Environmental Database of South Australia, maintained by the Information Data & Analysis Branch, Planning SA.

Legend

The floristic groups briefly summarised in the legend were derived from an analysis of 762 survey sites, from the Biological Survey of SA, and supplemented by literature references and unpublished field notes. The analysis was based on the principle that sites with similar combinations of plant species should group together. These groups then become known as floristic groups.

To differentiate between floristic groups, each is described in terms of its overstorey dominants, defined as having a proportion of occurrence 25%–50%, generally a large lifeform size and high abundance; and overstorey structural formation where possible. In some cases dominant understorey species are included to more clearly describe the floristic groups.

The structural formation classes used are according to Forward & Robinson (1996), adapted from Specht (1970) and Muir (1977), and are based on field measurements of overstorey height and projective foliage cover.

The plant names used in the legend conform with 'A List of the Vascular Plants of South Australia' (Lesop 1993).

Mapping

The floristic mapping has resulted from extrapolation of PATN analysis results from the vegetation survey site locations in conjunction with interpretation of 1:40,000 1967 colour aerial photography and on ground inspection. Subsequent landcover changes may have occurred. In the Tilley Swamp area and the Stowellsleigh Park–Bunbury Swamp area the vegetation mapping has been updated according to 1992 and 1997 aerial photography respectively.

As native vegetation does not always occur as discrete discernible units that are mappable but may be intergrading or occur in complex mosaic patterns, several groups may occur in a delineated area or block. Where distinct communities can be recognised they have been delineated. In situations where the pattern is more complex, forming a mosaic, then several floristic groups, in order of dominance, are indicated in the original 1:40,000 scale mapping.

In a mosaic up to 5 categories may have been recognized within a given area, however, at any given location some of these may or may not be present. For the purposes of this scale mapping areas are coloured according to the dominant (primary) group only. For more detailed mapping, indicating other groups present, finer scale maps must be used.

Despite extensive sampling and mapping, it is possible that some rare community types have been missed. In particular there is under-representation of several floristic communities in this mapping as a result of difficulties in interpreting boundaries from aerial photography. The most under-represented communities are grasslands, sedgeland/ meadows and some less common or extensively cleared woodlands and open forest communities. Narrow strips of roadside vegetation, small vegetated areas (< 1ha) and scattered trees generally have not been mapped.

In addition, the vegetation rarely changes as sharply as the boundary lines suggest. The distinction between some floristic groupings is often blurred by gradual transition from one community type to another.

Due to the techniques used, this map can be readily updated and further editions are envisaged as additional information becomes available.

It is recommended that this remnant floristic vegetation map, be used in conjunction with the pre-European vegetation map for on ground applications.

Please note: Existing remnant native vegetation may differ from pre-European vegetation due to floristic changes as a result of altered fire regimes, drainage and/or disturbance due to agricultural development.

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Department for Transport, Urban Planning and
the Arts

Funding Planning SA
Department for Environment, Heritage and
Aboriginal Affairs (DEHAA)
National Forest Inventory, Bureau of Rural
Sciences
Natural Heritage Trust
LMB Field, Information and Data Analysis
Branch, Planning SA

Data Analysis Interpretation and Mapping Data Source Roads, Heritage Agreements, NPWSA Reserves and Conservation Reserves supplied by DEHAA
Plantation Areas and Native Forest Reserves supplied by Forestry SA

Projection Transverse Mercator
Datum Australian Geodetic Datum, 1984
Grid Australian Map Grid, Zone 54
Map Compiled July 1999

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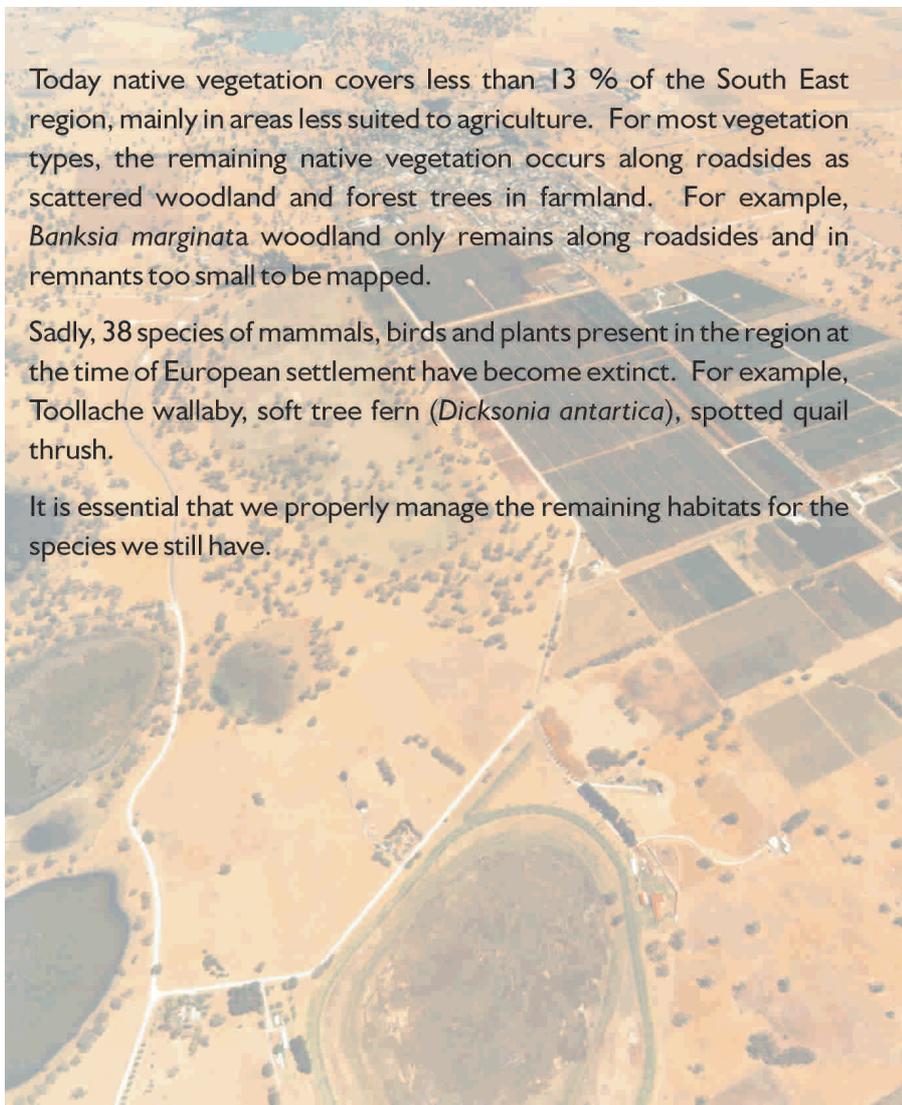


What is the South East like now?

Current plant community cover has been prepared by Planning SA from a number of native vegetation surveys beginning in 1991 and compared with their Pre-European settlement distribution

Such comparisons allow determination of

- The area and location of rare or threatened plant communities
- The area of plant communities conserved in government reserves
- Appropriate plants to re-establish native vegetation

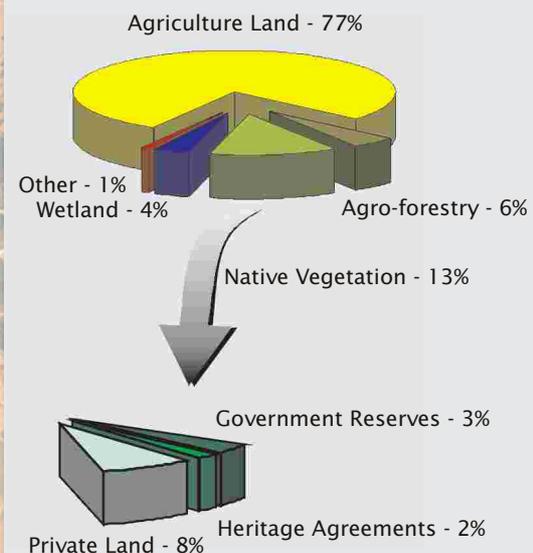


Today native vegetation covers less than 13 % of the South East region, mainly in areas less suited to agriculture. For most vegetation types, the remaining native vegetation occurs along roadsides as scattered woodland and forest trees in farmland. For example, *Banksia marginata* woodland only remains along roadsides and in remnants too small to be mapped.

Sadly, 38 species of mammals, birds and plants present in the region at the time of European settlement have become extinct. For example, Toolache wallaby, soft tree fern (*Dicksonia antarctica*), spotted quail thrush.

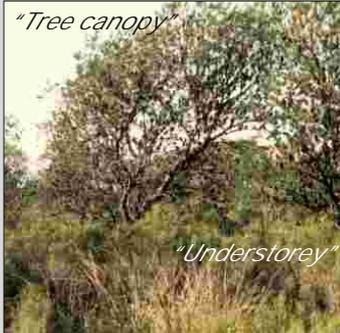
It is essential that we properly manage the remaining habitats for the species we still have.

"Biodiversity enriching the world"



Mapland

Biodiversity and the South East



Banksia marginata low woodland

"Protect and manage native vegetation"

"Restore and revegetate habitats"

To achieve conservation of biodiversity, we need to understand the major threats and work together to implement action.

Major Threats to the Biodiversity of the South East

MAJOR THREATS	Threat leads to
Loss of Trees	<ul style="list-style-type: none"> t Loss of nesting hollows t Loss of food resources t Loss of habitat t Loss of species
Loss of Understorey Plants	<ul style="list-style-type: none"> t Loss of habitat (nesting sites and food sources) t Weed invasion t Loss of species t Disturbance and loss of soil
Weed Invasion	<ul style="list-style-type: none"> t Displacement and smothering of native plants t Competition for scarce nutrients and soil moisture
Problem Animals	<ul style="list-style-type: none"> t Loss of small and ground frequenting birds and animals to predators t Prevention of regeneration of native plants t Loss of native species
Fire Damage	<ul style="list-style-type: none"> t Loss of local animal, bird and plant populations t Increases the opportunity for weed invasion by plants such as phalaris
Human Impact	<ul style="list-style-type: none"> t Weed invasion resulting from dumped garden rubbish t Removal of habitat through wood collection t Disturbance of nesting sites t Destruction of rare and threatened plants

Through implementing action, threats to biodiversity can be reduced and wildlife habitats conserved.

Actions to Reduce Threats

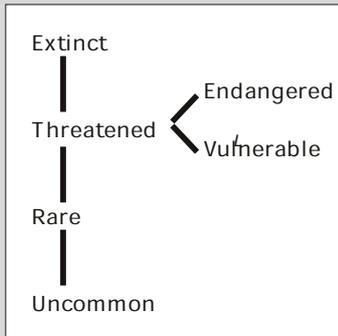
"Improve and provide linkages between remnants"

"Conserve threatened species and communities"

Actions to reduce threats	How you can help
t Retain existing trees and plant more trees with local native seeds	t Keep paddock trees, including dead trees, with hollows
t Fence off trees to allow re-generation	t Promote regeneration of local species in paddocks
t Plant buffers of trees and shrubs of local native seeds	
t Retain a mixed age structure in tree populations	
t Erect stock proof fencing	t Restore the understorey with local species
t Reduce levels of grazing in sensitive areas	t Retain leaf litter, fallen logs and branches in habitat areas
t Control weeds	t Remove stock from native vegetation
t Revegetate areas with local native seed	t Remove weeds from native vegetation
t Control rabbits and goats	t Control problem animals
t Control and eradicate weeds from native vegetation	t Remove weeds from native vegetation
t Control problem animals such as fox and rabbits across the district	t A joint campaign with the neighbours to control foxes and rabbits
t Create links to other nearby blocks of native vegetation so animals and birds can recolonise	t Plant tree and shrub corridors and stepping stones to other blocks of native vegetation
t Stop dumping of rubbish into native vegetation	t Remove rubbish and relocate rubbish dumps out of native vegetation
t Limit wood collection in native vegetation	t Fence off native vegetation along roads
t Restrict vehicles on beaches (eg hooded plovers nesting time)	t Warn people of the nesting of hooded plovers
t Ensure future development avoids rare and threatened species	t Relocate or plan development away from rare and threatened species

"Rehabilitate and manage wetlands"

Examples of Threatened Species in the South East



Conservation Rating System

More than 278 species of plants, mammals, birds, reptiles and freshwater fish are threatened at least regionally in the South East. It is possible to carry out actions to protect particular species, and these actions benefit other species.

Examples are:

Red-tailed Black Cockatoo

The south-eastern red-tailed black cockatoo, is a subspecies restricted to the eastern part of the South East of South Australia and neighbouring areas of western Victoria. The red-tailed black cockatoo is a relatively large bird which eats the seeds of stringybark and in late summer and early autumn, bulloak. Nesting occurs in the large hollows of big old eucalypt trees (including dead standing trees), nearly always within 2 km of areas of remnant stringybark larger than 5 hectares in size.

Threats:

- limited bulloak feeding habitat, (only 2% of bulloak low woodland remains)
- fire destroys stringybark habitat or affects seed production
- decline in the number of big old eucalypts with suitable hollows for nesting
- increased competition from other hollow nesting cockatoos

Actions:

- retain mature and dead eucalypt trees which contain suitable nesting hollows
- retain a mixed age of eucalypts including new saplings
- retain areas of feeding habitat through fencing and destocking
- encourage the growth of bulloak

Benefits:

- protect and increase habitat for a wide range of wildlife
- species such as:
 - chestnut
 - rumped heathwren
 - southern brown bandicoot
 - eastern pygmy possum
- farm management



Red-tailed black cockatoo, inhabits stringybark forests.

Swamp Skink

The swamp skink is restricted to an area extending from south-eastern New South Wales through southern Victoria to the Lower South East of South Australia. It was not recorded in South Australia until a coastal biological survey in the early 1980's but has been subsequently found in a number of locations in the Lower South East. Its' habitat is dense vegetation of sedges and tea-tree in low-lying marshes and lagoon margins, and swamp paper-bark swamps. It feeds on insects, small snails and crustaceans, flowers and fruits.



Jason van Weenen

Swamp skink, considered rare, its habitat has been extensively cleared.

Threats:

- fragmentation of habitat through clearance, road and drain construction
- drainage of habitat
- clearance of suitable habitat
- changed water quantity and quality
- predation by feral predators

Actions :

- retention of all marshes, lagoon margins and swamps
- protect areas of silky teatree
- encourage regeneration of silky teatree
- control fox and feral cats across the district

Benefits:

- protect and increase habitat for a number of species of high conservation significance
- species such as:
 - olive whistler
 - swamp antechinus
- farm management



"Biodiversity the Web of Life"

These examples are included in the Biodiversity Plan for the South East of South

Australia. The Plan considers a further 47 species in detail:

- 17 plant species
- 10 mammal species
- 16 bird species
- 1 reptile
- 3 freshwater fish

Rare or Threatened Plant Communities

Regionally rare and threatened plant communities:

- 14 Endangered
- 7 Vulnerable
- 6 Rare

In order to better understand the distribution of habitats across the region, the estimated pre-European settlement distribution of plant communities has been mapped based on historical and current information. The present distribution of the plant communities has also been mapped based on state government native vegetation surveys beginning in 1991. Comparison of the pre-European settlement and present plant community mapping allows for the calculation of the regions rare and threatened plant communities based on their past and current distributions. Agricultural development favoured areas of better agricultural soils and areas more readily cleared such as the grassy woodlands and grasslands. Drainage of the interdunal flats allowed full agricultural development of these areas as well. It is these areas where the regions rare and threatened plant communities are concentrated such as honeysuckle, grey box, and bullock woodlands, and cutting grass sedgeland.

Grey Box Woodland

A grassy woodland found in the Upper South East from Kybybolite to Bordertown and west to Mundulla.

The 4 "R's"

Retain

- natural bush areas

Remove

- threats

Restore

- natural processes

Revegetate

- buffers, stepping stones and corridors

Threats:

- very small fragmented areas still remaining due to selective agricultural clearances
- weed invasion such as phalaris and olives
- problem animals such as hares preventing regeneration
- grazing domestic stock preventing regeneration

Actions :

- link remaining areas by revegetating corridors and stepping stones
- control weeds beginning from best areas
- control problem animals in the district
- restore areas through fencing and destocking

Benefits:

- habitat
- species such as
 - bush thick-knee
 - white-winged chough
 - hoary rush

Significant Management Areas in the South East

There are three significant management areas which are important to conserving biodiversity in the region, they are:

- Wetlands
- Coastal Systems
- Key Biodiversity Areas

Wetlands

Wetlands are a major feature of the South East of South Australia, with the Coorong, Bool Lagoon Game Reserve and Hack's Lagoon Conservation Park listed as Wetlands of International Importance under the Ramsar convention. They are significant as waterbird habitat and as an Australian drought refuge.

For instance Bool and Hack's Lagoons are of special importance as a summer habitat for the brolga and at least 79 species of waterbird, including 48 known to have bred there. There are 20 migratory species listed under international treaties which regularly visit the South East.

Coastal Systems

Coastal Systems in the South East are characterised as high wave energy coastlines, with few sheltered bays and harbours. The coastline is not extensively developed and has about half conserved in Government reserves. The coastline is important to a number of threatened species, such as the hooded plover and orange-bellied parrot.

Ten Priority Areas

Whilst conservation of biodiversity is something we should strive to achieve throughout the South East region, there are ten priority areas in the South East region of South Australia which should be recognised as being of particular importance to the conservation of biodiversity.

Priority areas include five large remnant areas and five threatened habitat areas. The significance of these ten areas, the threats to each area and suggested actions are detailed on the following pages.



South Australian swamp paperbark wetland.

Glyn Aslman

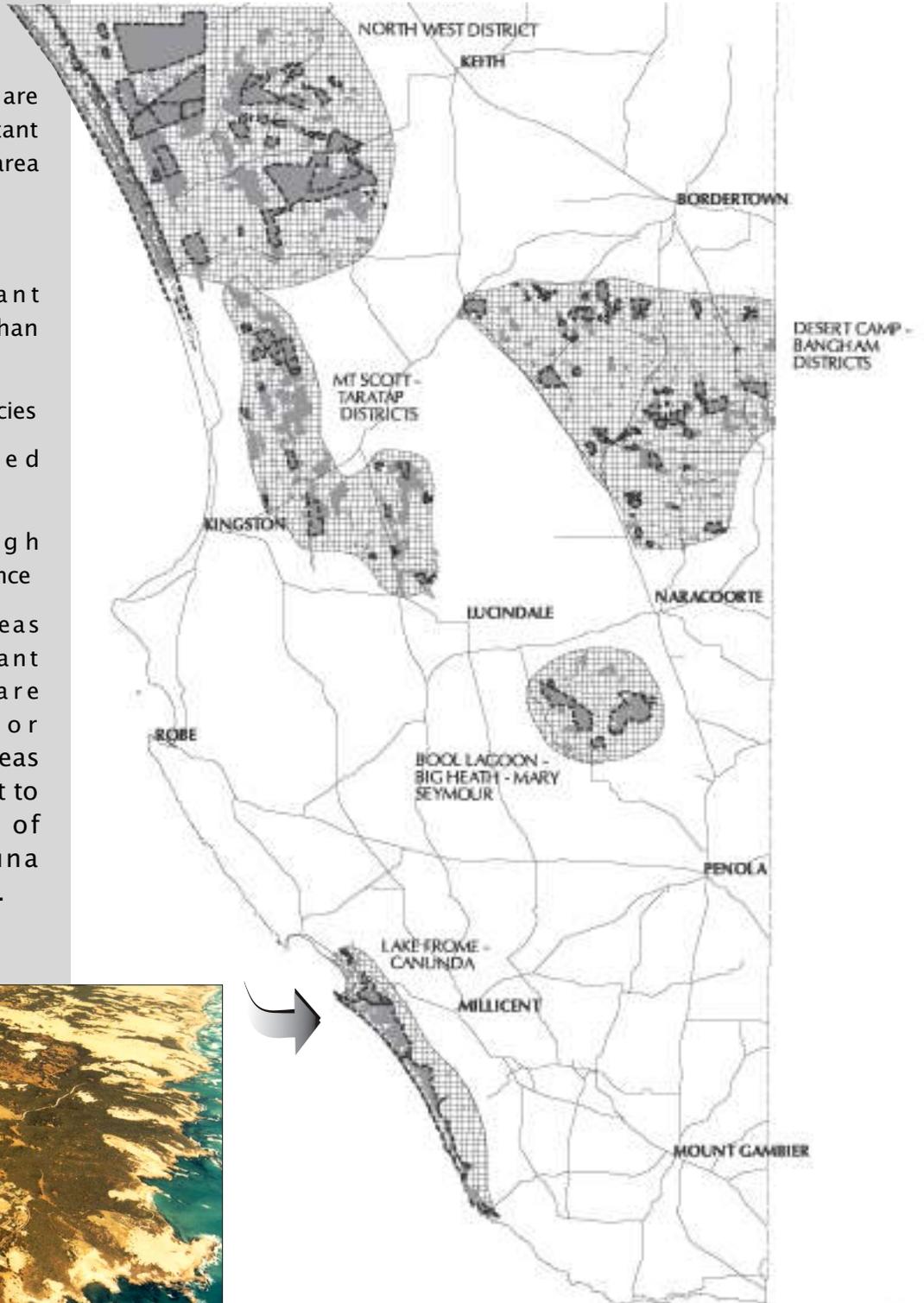
"People make a difference"

Large Remnant Areas

Five large remnant areas are considered highly important in the South East. Each area contains:

- High habitat value
- Blocks of remnant vegetation greater than 1 000 hectares
- High numbers of species
- Good estimated population sizes
- Species of high conservation significance

The large remnant areas generally contain plant communities that are relatively intact or undisturbed. These areas provide sufficient habitat to sustain populations of most vertebrate fauna species in the long term.



Mapland

Threats

Loss of trees and understorey

- Long term degradation of habitat
- Loss of mammals, birds and reptiles
- Isolation and fragmentation of larger blocks of native vegetation
- Reduced long term viability for small fauna species including reptiles
- Physical barriers to movement and dispersal of animals

Weed invasion

- Invasion of weeds such as bridal creeper resulting in smothering of understorey plants and preventing regeneration
- Long term degradation of habitat

Introduced animals

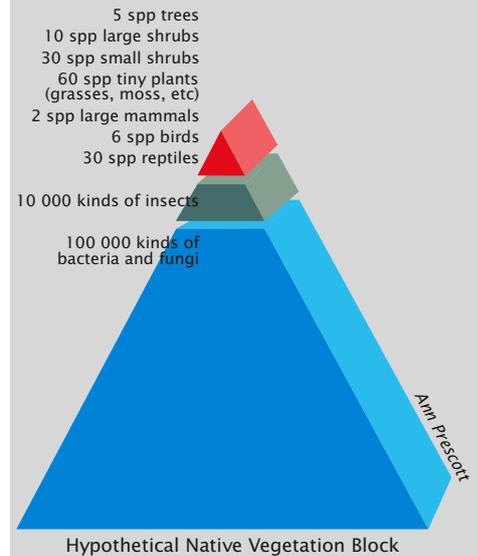
- Loss of mammals, birds and reptiles through predation by foxes and cats
- Rabbit disturbance and grazing of native vegetation

Fire damage

- Loss of species
- Can result in total loss of habitat

Priority Actions

- Develop linkages between remnant areas along existing surveyed roads, railway and drainage reserves
- Broad district control of foxes and cats, to assist in the survival of malleefowl, painted button quail, southern emu-wren, beautiful firetail and other ground dwelling species
- Broad district control of rabbits
- Strategic control of weeds, particularly targeting new infestations of bridal creeper and controlling Phalaris in native grasslands and revegetated areas
- Create wetland waterlinks along watercourses
- Ensure provision of 'wildlife crossings' or design drains to allow easy crossing for wildlife, where drains are to be constructed through native vegetation
- Restore degraded areas of native vegetation such as on the watercourses, by fencing off or destocking damaged areas
- Avoid revegetating with trees and shrubs in native grassland and sedgeland communities
- Plant local native species



Jason van Weeren

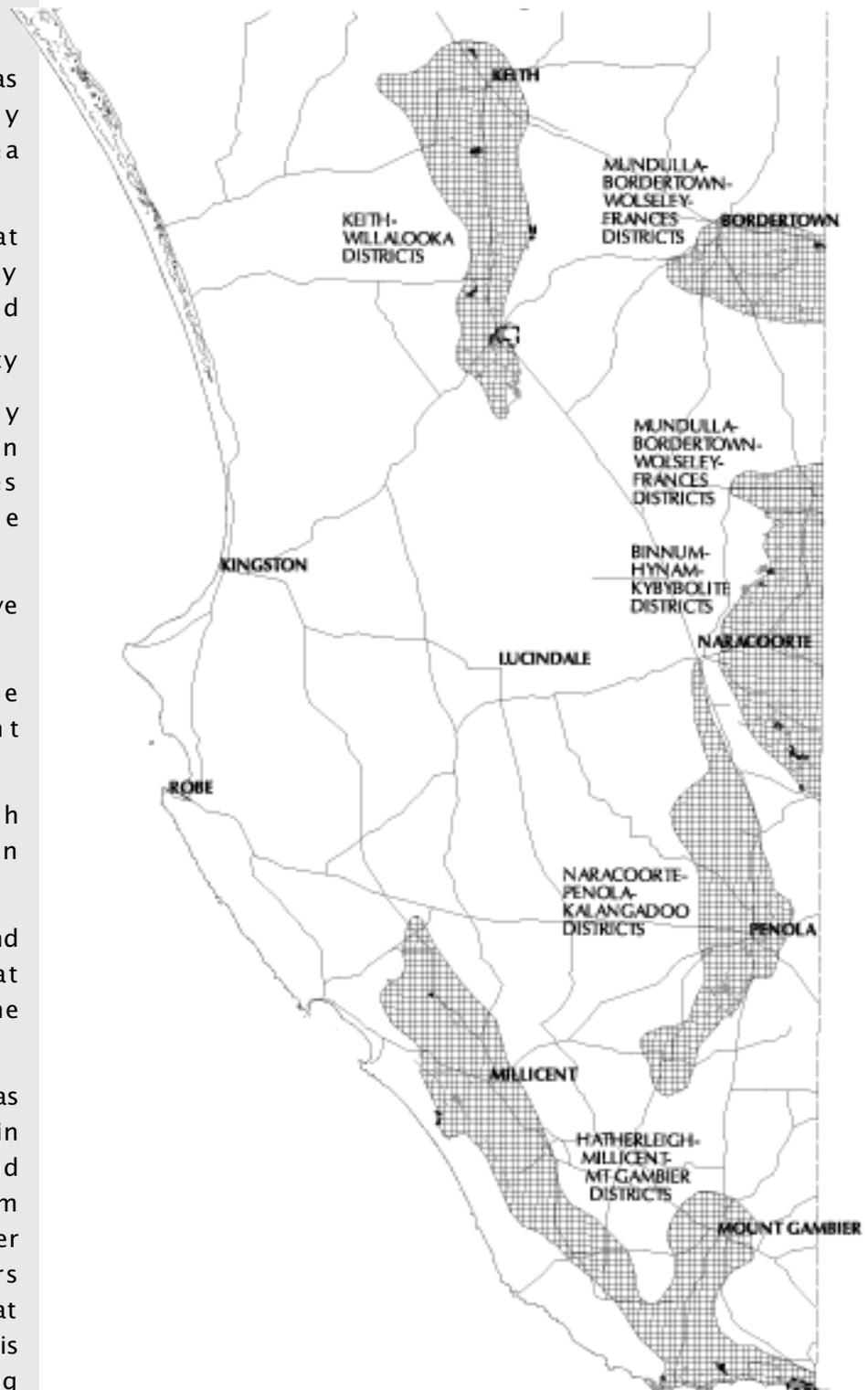
Swamp antechinus, inhabits dense, wet shrublands, tussock grasslands and sedgelands

Threatened Habitat Areas

Five threatened habitat areas are considered highly important. Each area contains:

- Vegetation types that have been selectively cleared and modified
- Low habitat remnancy
- Habitats poorly conserved in government reserves and Heritage agreements
- Small blocks of native vegetation
- Regionally or State threatened plant communities
- Species of high conservation significance
- Species populations and ecosystems at threat from extinction in the shorter term

The threatened habitat areas are considered to contain species populations and ecosystems at threat from extinction. In the shorter term (less than 50 years time), we may lose habitat and species, unless action is taken to conserve existing habitats and rehabilitate and restore the native vegetation cover.



Threats

- Continued isolation of vegetation and wildlife populations
- Grazing and disturbance of native vegetation
- Infestations by bridal creeper and phalaris, olives and dog rose
- Introduced animals, particularly hares and rabbits
- Predation by fox and cat on small, ground dwelling fauna
- Clearance of vegetation, including road works
- Continued loss of scattered trees

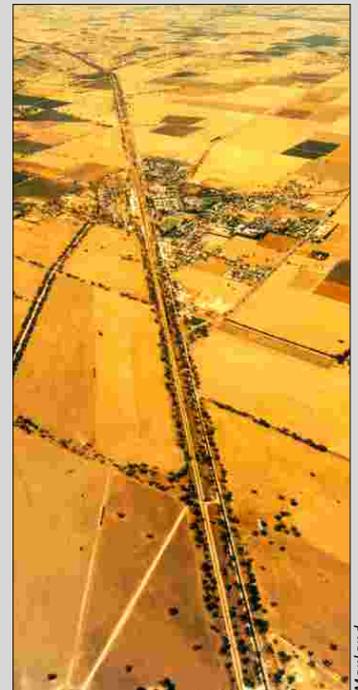
Priority Actions

- Restore degraded areas of native vegetation through fencing and destocking
- Re-establish trees and shrubs around existing native vegetation blocks to create buffers or to enlarge them, or create linking corridors
- Strategic control of weeds, particularly targeting new infestations of bridal creeper and controlling phalaris and olive
- Broad district control of introduced predators, fox and cat, to assist the survival of small and ground frequenting fauna species
- Eradicate hares and rabbits
- Identify and mark threatened species populations and significant areas for council workers and others working in roadside vegetation
- Retain mature and dead trees with nesting hollows
- Retain a mixed age of trees in development
- Plant local native species as scattered trees or blocks of vegetation



Red-necked wallaby, fox predation of young animals is a problem.

P. Carty



Roadside vegetation corridors containing remnant grassy woodlands along Dukes Highway, Keith

Mapland

Biodiversity Plan — Achieving Action

The Biodiversity Plan is a guide for the community and government agencies. It provides information on strategic action to assist in maintaining the biodiversity for the future. Below are some examples of how you can help individually, as a group or at a district level.

Individual Action



- Fence native vegetation and keep out the stock to allow regeneration
- Plant local native species around blocks of native vegetation to form a buffer and additional habitat
- Plant local native species next to road reserves with native vegetation particularly where it links other native vegetation blocks
- Plant local native species along drainage lines and dune crests
- Remove weeds such as olives and bridal creeper from native vegetation
- Join Land for Wildlife for information assisting wildlife on your property
- Place native vegetation areas under Heritage Agreement to gain financial help in managing the block
- Include local native trees and shrubs in planting shelter belts

Group Action



- Look after a local native vegetation block or roadside native vegetation through the Bushcare Program
- Help look after the local conservation park by joining a Friends Group to help with spraying bridal creeper
- Become involved and form a group with neighbours to gain funding to jointly fence native vegetation blocks, control weeds and problem animals, or look after a local reserve, or conserve a threatened species
- Protect the local coastline, remove weeds, revegetate blow outs, remove rubbish, join a Coastcare group

District Action



- With the neighbours, control rabbits and foxes. Coordinated control is effective
- Co-ordinate replanting with native plants to minimise the salinity and rising water table in the Upper South East
- Plant corridors linking areas of native vegetation in adjacent areas

Biodiversity Projects - Examples

Action in the South East region may relate to a particular area or theme. Below are two examples of Biodiversity projects which could be implemented in the region.

PROJECT 1: Kingston SE to Naracoorte Railway Corridor

The Kingston SE to Naracoorte railway line runs east-west across the region. The railway line passes through heavily cleared and developed agricultural land, often containing the only remnant vegetation in some districts. The corridor also links larger areas of native vegetation, including five areas under Heritage Agreement, and provides a seed source for local revegetation projects.

The railway line is now disused and dismantled, but the surviving corridor provides an excellent opportunity for re-establishment of native vegetation to develop an important east-west wildlife corridor.

Actions

- Determine and secure ownership (eg as Crown Land)
- Ensure fences are in stockproof condition
- Hire expert botanist to identify sections of greatest biodiversity importance
- Initiate weed control beginning from most weed free areas
- Re-establish appropriate native vegetation to the landform

Outcomes

- Provide a corridor for a number of animal and bird species including southern emu-wren, thornbill species, yellow-tailed black cockatoo
- Re-establish up to 75 km of native vegetation
- Restore up to 60 km of degraded native vegetation
- Link eight separate areas of remnant native vegetation
- Create a bigger genetic pool for species
- Facilitate recolonisation of areas in advent of catastrophic events (eg fire)

PROJECT 2: Manna Gum Habitat Re-establishment in Lower South East Area

The Lower South East area is an important habitat for the yellow-bellied glider and sugar glider. The area contains threatened plant species and is highly fragmented and disjointed. The area provides an opportunity to retain threatened woodland community, re-establish strategic links and increase habitat size.

Actions

- Fence off the threatened woodland communities to allow regeneration
- Collect seed from native vegetation within 5 km of the site for planting
- Control weeds in the area
- Revegetate areas that link blocks of vegetation
- Develop incentives to re-establish native vegetation

Outcomes

- Provide increased habitat, food resources and links for mammals, birds and other species including the yellow-bellied glider and sugar glider
- Re-establish strategic links and expand remnant blocks of native vegetation



Information and Contacts



A detailed version of the Biodiversity Plan for the South East of South Australia is available at:

- Government District Offices:-
 - DEHAA Mt Gambier and Naracoorte Caves Conservation Park
 - PIRSA Struan and Keith
- District Council Offices in the South East
- State Library of South Australia
- Local libraries and schools
- The Environment Shop, 77 Grenfell Street, Adelaide, 8204 1910



There are a number of government and non-government agencies and people located in the region who can assist the community in implementing the Plan.

Government & Non-government Assistance for Biodiversity Management

Location	Organisation	Telephone
Mount Gambier	DEHAA	8735 1111
	District Council of Grant	87210444
	City of Mount Gambier	8721 2555
Robe	DEHAA	8768 2003
	Coastcare	8768 2003
	District Council of Robe	8768 2003
Struan	PIRSA Greening Australia Bushcare Support	8764 7419
Keith	PIRSA	8755 3166
Naracoorte	NPWSA DEHAA	8762 3412
	District Council of Naracoorte	8762 2133
Kingston	District Council of Lacepede	8767 2033
Lucindale	District Council of Lucindale	8766 2002
Bordertown	District Council of Tatiara	8752 1044
Millicent	Wattle Range Council	8733 2177
Meningie	The Coorong District Council	8575 1008
South End	National Parks & Wildlife SA	8735 6053
Salt Creek	National Parks & Wildlife SA	8575 7014
Adelaide	DEHAA	8204 8888
	PIRSA	8303 9500
	Greening Australia (revegetation)	8207 8757
	Native Vegetation Council (clearance of native vegetation)	8204 8379
	State Tree Centre (revegetation)	8207 8767
	Planning SA (vegetation mapping)	8303 0715
	Transport SA, Environmental Unit (roadside vegetation mapping)	8343 2281

- DEHAA - Department for Environment, Heritage and Aboriginal Affairs (Bush Management, Environmental Management, Biodiversity Planning, Wetlands Management, National Parks & Wildlife, Watchwatch Co ordination, Coastcare, Heritage Agreements Scheme, Land for Wildlife)
- PIRSA - Primary Industries Resources South Australia (Natural Heritage Trust Co-ordination, Revegetation Management, Property Management, Planning, Animal and Plant Control Commission)