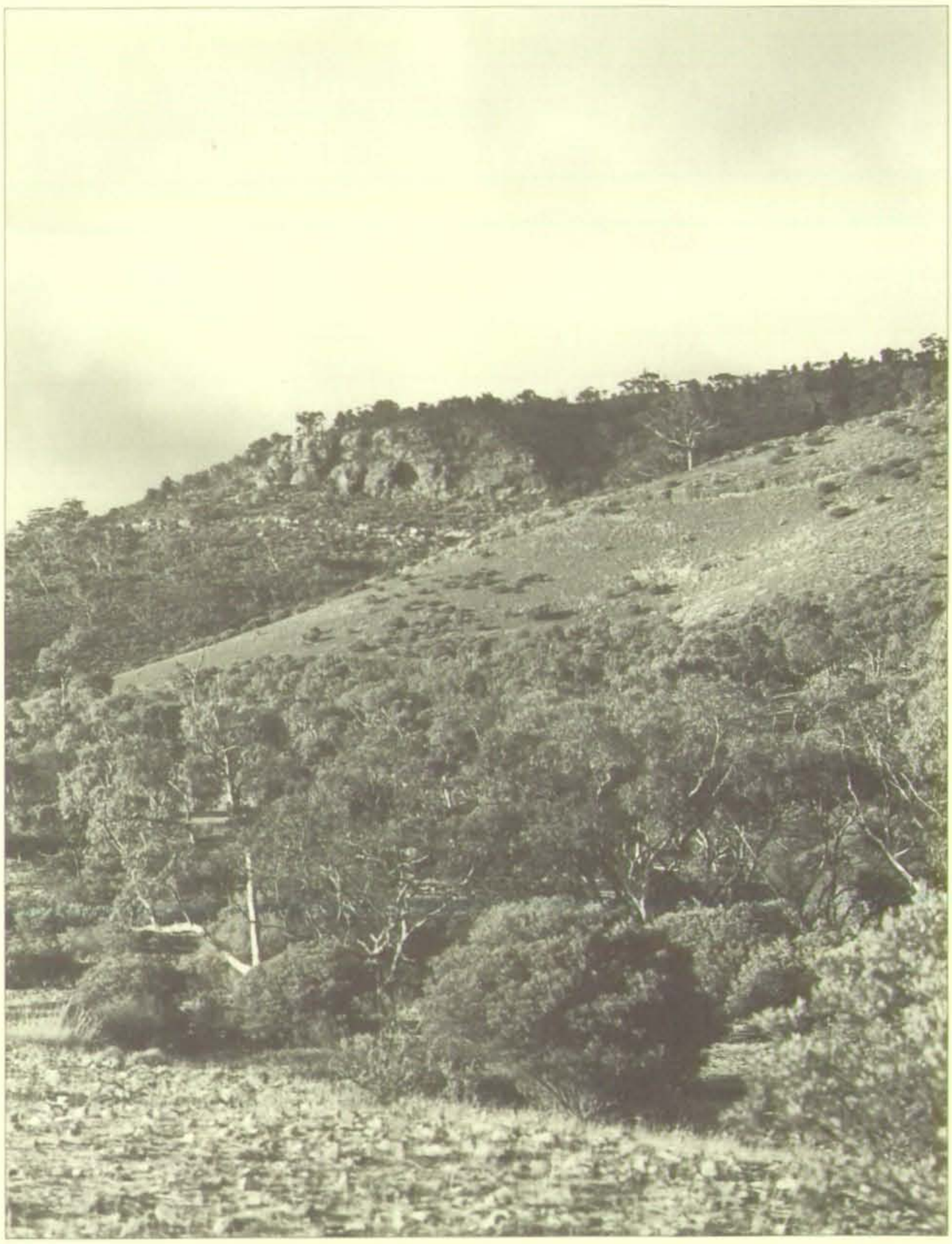
The Dutchmans Stern Conservation Park Management Plan

Flinders Ranges South Australia



National Parks and Wildlife SA
Government of South Australia

The Dutchmans Stern Conservation Park Management Plan

Flinders Ranges

South Australia

December 1999

Department for Environment, Heritage and Aboriginal Affairs

This plan of management has been prepared and adopted in pursuance of section 38 of the *National Parks and Wildlife Act 1972.*

Government of South Australia

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Foreword

The Dutchmans Stern Conservation Park is a prominent and beautiful area located in the southern Flinders Ranges not far from Quorn. It is one of a number of reserves for which staff of the North Region of the Department for Environment, Heritage and Aboriginal Affairs are responsible and includes remnant natural habitat of high biodiversity value and some fauna and flora species of conservation significance.

This plan of management has been prepared and adopted in accordance with Section 38 of the *National Parks and Wildlife Act 1972*. It was exhibited in draft form in 1995 for public consultation. At the close of the public comment period, eight written submissions had been received.

Those submissions were subsequently reviewed by the SA National Parks and Wildlife Council, who recommended appropriate changes to be made to the text. I have adopted the plan after considering all representations and advice presented to me, and fully support the management direction proposed for The Dutchmans Stern Conservation Park.

The plan establishes a number of objectives, within an over-arching goal of protecting biodiversity values and enhancing the natural assets of this park. Those objectives include:

- Managing the reserve's ecosystems to ensure there is no further loss of native species and undertaking active conservation programs to ensure that threatened species recover
- Controlling introduced species to minimise competition with, and alteration of, natural systems
- Excluding straying domestic stock with boundary fencing
- Minimising human impact whilst providing visitors with quality recreational experiences
- Undertaking fire protection and suppression planning and activities
- Developing, maintaining and using a database to record biological and physical data about the reserve.

This plan of management for the Dutchmans Stern Conservation Park is now formerly adopted under the provision of Section 38 of the *National Parks and Wildlife Act 1972*. I urge you to read the plan, and visit and enjoy the park.

Hon Dorothy Kotz MP
Minister for Environment and Heritage

Synopsis

The following is a summary of the major details contained in this plan of management.

Reserve name and type:

The Dutchmans Stern Conservation Park

Management responsibility:

This reserve is in the care and control of the Senior Ranger, Southern Flinders District within North Region, National Parks and Wildlife SA

Location:

The Dutchmans Stern Conservation Park is located in the southern Flinders Ranges, approximately 25 km north-east of Port Augusta and 5 km north-west of Quorn (Figure 1). The reserve covers an area of 3,532 ha, comprising Section 126 and part Sections 89 and 92, Hundred of Crosier, and Sections 553, 554, 628, 629, 654, 655, 659, and 663, Hundred of Pichi Richi. Mt Brown Conservation Park to the south-east is the nearest conservation park.

Proclamation:

The reserve was dedicated in 1987 for the protection of its geological features, scenic values and native fauna and flora. The diversity of landforms and habitats in the reserve are significant factors contributing to its conservation value, particularly as much of the surrounding land has been used for grazing for over 100 years.

Major management objectives include:

Management of the reserve's ecosystems to ensure there is no further loss of native species and ensure that threatened species recover.

Minimising human impact whilst providing visitors with quality experiences.

Excluding domestic stock.

Controlling introduced species to minimise competition with, and alteration, of natural systems.

Undertaking fire protection and suppression planning and activities.

Undertaking active conservation programs for particular species.

Developing, maintaining and using a database containing reserve biological and physical data.

Key management actions include:

Zoning the reserve to ensure the most appropriate and sustainable use for each area and to provide protection of the reserve's natural assets and biodiversity values.

Monitoring changes to vegetation community structure.

Protecting areas of significant flora.

Protecting water catchments and watercourses within the reserve.

Monitoring, controlling and, where possible, eradicating pest animals.

Monitoring, controlling and, where possible, eradicating pest plants from the reserve, giving priority to control programs for those species that pose the greatest threats to reserve values.

Developing and implementing a fire management strategy for the reserve, consistent with protecting reserve values and neighbouring assets within the context of known regional fire patterns.

Phasing out wood fires in the open in the reserve.

Erecting and maintaining cost effective, stock proof boundary fencing, to ensure domestic stock are denied access to the reserve.

Providing a safe reserve environment whilst allowing for rewarding and high quality visitor experiences.

Providing safe and convenient all-weather, 2WD vehicle access to the reserve.

Minimising impact from vehicular use, risk to the public and maintenance costs on management tracks within the reserve.

Providing visitor accommodation in the reserve as an alternative to bush camping.

Encouraging public use of the Heysen Trail, by maintaining and developing the trail and the overnight facility and regulating their use in line with reserve management objectives.

Providing for high quality, low impact bushwalking and bush camping experiences in accordance with the reserve zones.

Promoting appreciation and understanding of conservation and the reserve itself as a community asset.

Seeking to provide a rubbish-free reserve environment.

Informing and advising reserve users and the general public of the attributes the reserve and the requirements for its use.

Maintaining and developing constructive relationships with Aboriginal groups who demonstrate an interest the reserve and its management.

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1 INTRODUCTION:

This management plan has been prepared in accordance with the *National Parks and Wildlife Act 1972* and sets the future direction for The Dutchmans Stern Conservation Park. It is one of a number of reserves for which staff of the North Region of the Department for Environment, Heritage and Aboriginal Affairs are responsible. As well as being a guide to managers, this document is also intended to provide readers with an overview of reserve values and assist in them understanding the various management proposals.

Section 38 of the Act states that a management plan is required for each reserve under the Minister's control and should "set forth proposals" in relation to the management and improvement of that reserve and the methods by which it is aimed to accomplish the objectives of the Act.

Upon completion of a draft plan, an announcement is made in the Government *Gazette* and the plan is placed on public exhibition for a minimum period of three months. During this time, any interested person may make representations which are then referred, with the draft plan, to the SA National Parks & Wildlife Council for independent comment and advice.

The Minister, after considering all representations and advice, may then adopt the management plan with or without alteration. Notice of such official adoption is published in the Government *Gazette* and copies of the final plan are made available for sale to the public.

Once a plan of management has been adopted, its provisions must be carried out and no operations undertaken unless they are in accordance with the plan. However, the Act does contain a provision for making amendments to, or substitutions for, adopted plans and this process, involving a period of public consultation, is similar to the one described above.

The reserve is located in the southern Flinders Ranges 25 km north-east of Port Augusta (figure 1). It receives moderate but increasing visitor use, with some visitors staying overnight. The reserve protects natural habitat of high quality and retains some significant fauna and flora species. This plan outlines proposals to balance the recreational use of the reserve whilst conserving its natural and cultural values.

It sets out actions that, in particular, highlight:

A commitment to preserving the reserve's natural features and systems, particularly the flora, fauna and landscape qualities and in particular, a commitment to providing protection for significant species within the reserve.

A commitment to excellence and conformity with high quality standards in developing facilities and services within the reserve, allowing for appropriate, low impact recreational activities and providing suitable public access and visitor information.

A commitment to controlling pest animals and plants throughout the reserve.

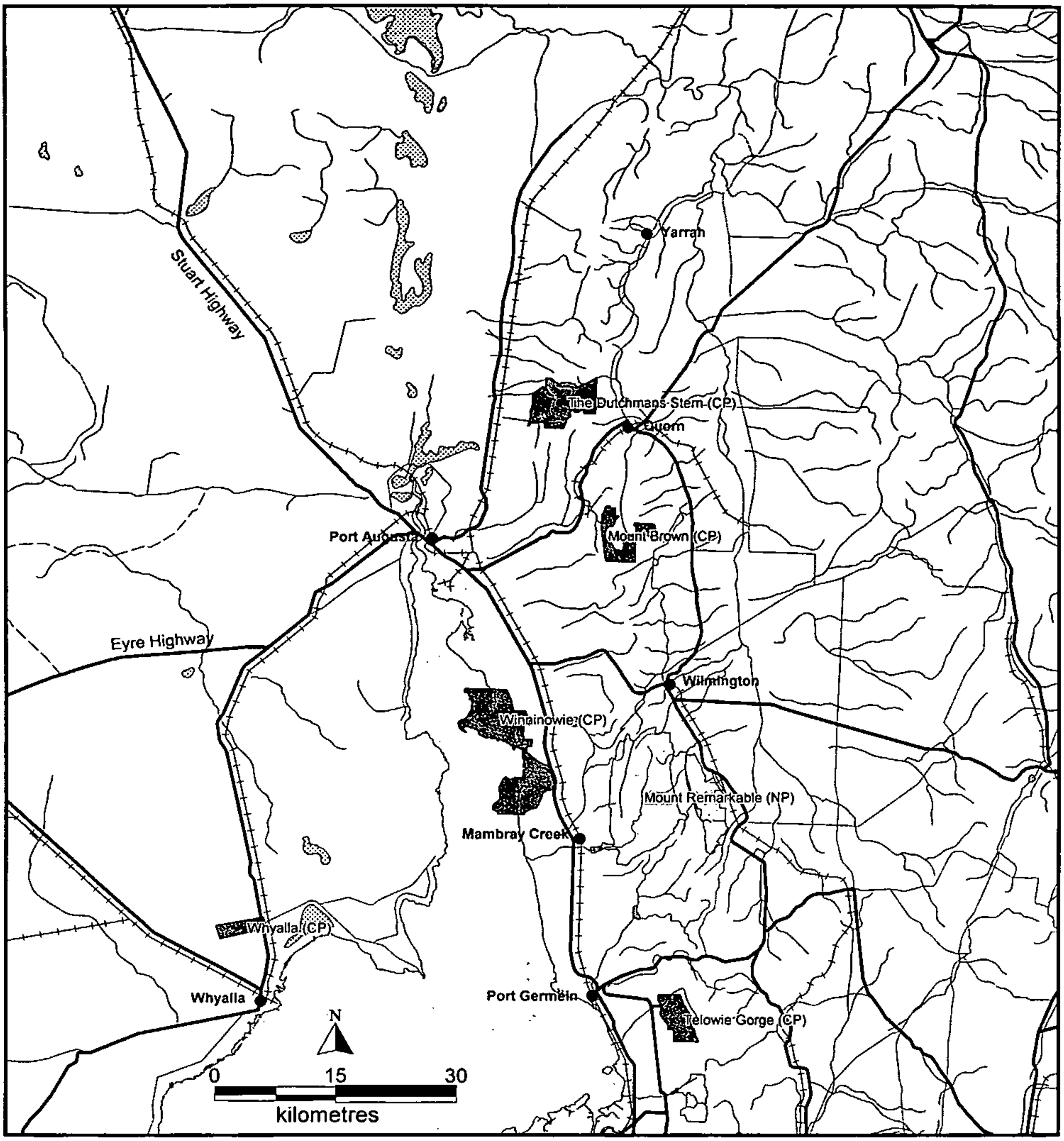
A commitment to controlling and preventing wildfires within the reserve.

A commitment to minimising intrusion by domestic stock from neighbouring properties.

Those readers who have an interest in obtaining more detailed information on the natural and cultural resources of The Dutchmans Stern Conservation Park can contact either the Northern District Office of National Parks and Wildlife SA at Port Augusta, or the Southern Flinders District Office at Mount Remarkable National Park. Staff based at these offices are responsible for maintaining reserve records and hold resource information that can be accessed by the general public.

Enquiries in the first instance should be directed to:

District Ranger Southern Flinders
Department for Environment, Heritage and Aboriginal Affairs
PMB 7
Mambray Creek via PT PIRIE SA 5540
Telephone (08) 8634 7068 Fax (08) 8634 7085



South Australia Protected Areas

- Conservation Parks
- National Parks
- Drainage
- Roads
- Railway

Fig 1. Location map
The Dutchmans Stern Conservation Park

This map designed and created by Reserve Planning using PAMS.
Date: December 1999

National Parks and Wildlife SA
Government of South Australia

2 BACKGROUND INFORMATION

2.1 RESERVE DESCRIPTION

The Dutchmans Stern Conservation Park is located in the southern Flinders Ranges, approximately 25 km north east of Port Augusta and 5 km north-west of Quorn (figure 1). The reserve covers an area of 3,532 ha, comprising Section 126 and part Sections 89 and 92, Hundred of Crosier, and Sections 553, 554, 628, 629, 654, 655, 659, and 663, Hundred of Pichi Richi.

The reserve was dedicated in 1987 for the protection of its geological features, scenic values and native fauna and flora. The diversity of landforms and habitats in the reserve is a significant factor contributing to its conservation value; particularly as much of the surrounding land has been used for grazing for over 100 years.

Mt Brown Conservation Park, located to the south-east, is the closest NPWSA reserve.

Laut et al. (1977) classify the reserve as being in the Buckaringa Environmental Association, in the Flinders Ranges Environmental Region. This association is dominated by northerly-trending hogback ridges and valleys, with a cover of low open woodlands, and an understorey of grasses and ephemeral herbs.

Reserves in the District are under the care, control and management of the Southern Flinders District, a unit of the North Region, Heritage and Biodiversity Division of the Department for Environment, Heritage and Aboriginal Affairs (DEHAA).

The Dutchmans Stern Conservation Park is currently not subject to any proclamations allowing prospecting, exploration or mining access. However, an area of 120 ha (part Section 658, Out of Hundreds) pending addition to the reserve, will be proclaimed subject to mining access.

The bluff of the Dutchmans Stern, a resistant quartzite ridge which rises more than 850 m above sea level, dominates the area. The reserve itself includes a section of approximately north to south trending range country, extending from the pediment slope in the west into rolling hills east of the Dutchmans Stern range.

The landscape is generally rugged, with cliff faces and steep-sided gorges. Scree slopes are abundant. Rock outcrop and rock fragments form a significant part of the surface environment. Soils are mostly skeletal.

Rainfall increases dramatically from west to east, while interactions of climate, topography, aspect and lithology within the reserve create many different habitats. Stream channel pattern is mainly tributary and provides a network of corridors of River Red Gum communities that enhance the area both aesthetically and in terms of biological diversity. Streams are predominantly ephemeral, although permanent soaks and springs occur in three main locations throughout the reserve.

The reserve is an important conservation area, with many species of plants and animals found within it being at, or near, the limits of their geographic distributions. It exhibits a considerable diversity of flora, the plant list comprising well over 150 species.

Although grazed since 1881, the relatively low stocking rates have probably allowed biodiversity to be maintained. It is however relatively small (3,532 ha) and surrounded by land used for agriculture and grazing, although there is continuation of the range landform beyond its boundaries both southwards and northwards.

2.2 CLIMATE

The climate of the area is typically Mediterranean, with hot, dry summers and cool, wet winters. Summer daytime temperatures are high, while nights are balmy and pleasant. Winter days are predominantly sunny. Night frosts are frequent from April until September.

Average rainfall for Quorn, some 5 km to the south-east, is 328 mm, most of which falls from late summer to late spring. Rainfall in the reserve itself increases dramatically eastwards due to the orographic effect of the range. No rainfall records are available for the

reserve itself, but average figures from Depot Flat, a pastoral property to the north, increase from 200 mm on the western plain to 375 mm at the homestead (K Fitzgerald pers comm).

Rainfall pattern can be quite variable with sudden deluges common. This markedly influences run-off and erosion.

The southern Flinders Ranges experience frequent electrical storms in summer. Lightning strike is the most common cause of fires and an important factor in all aspects of reserve management.

2.3 LANDSCAPE AND GEOLOGY

The Dutchmans Stern Conservation Park is situated on the western edge of the Adelaide Geosyncline. The Flinders Ranges landform represents the stumps of a synclinal belt comprised of late Precambrian and Cambrian sedimentary rocks of the Geosyncline. The Flinders Ranges landscape is the remains of a vast mountain range eroded to expose its roots. These are the highly compressed and therefore resistant folds formed during the Cambrian or Ordivician Delamerian Orogeny. Adjustment processes accompanying millions of years of erosion have uplifted these stumps and contributed to the formation of the spectacular gorges, which are characteristic of the Flinders. Such watercourses expose rock sequences in stream valley walls. Creek beds display the spectacular mix of rock types in a jumble of water-borne and weathered stones with a great variety of colours, textures and forms.

The Stern itself is the northern apex of a south plunging syncline, open ended to the south. The reserve area is structurally relatively simple, faults being easily discernible from high points in the landscape.

The rocks within the reserve, like elsewhere in the Flinders, reflect a variety of depositional environments from over 1 billion to about 570 million years ago, decreasing in age from west to east. Fossil ripple marks and mud cracks are abundant in sandstones and quartzites indicating beach environments. Stromatolites occur in carbonate rocks.

As the mountain belt rises from the plain, the oldest part of the sequence of late Proterozoic rocks begins with diapiric breccias, pebbly quartzites and siltstone of the Callana Group. The quartzite of the Emeroo Range dominates the western landscape and marks the beginning of the Burra Group. Skillogalee Dolomite, dolomitic shales and quartzites occur eastwards. The Umberatana Group begins with the interesting Appila Tillite - glacial material stripped from the ancient continent to the west and deposited in the sea during the Sturtian glaciation. A jumble of recognisable fragments including Sleaford Complex gneiss, granitic gneisses of the Lincoln Complex and Gawler Range volcanics are bound in a grey silty matrix. The tillite is followed by siltstone of the Tapley Hill Formation, and Brighton Limestone. Changes in vegetation indicate different underlying rocks.

Willochra Subgroup underlies the belt of steep hills considerably lower than the Dutchmans Stern and extending northwards making conspicuous the break in the quartzite bluff to the north of the reserve. The unit comprises calcareous sandstone, siltstone and gritty limestone. A narrow band of sandstones of the Elatina Formation also skirt the base of the prominent ridge. Pinkish Nuccaleena Formation with its distinctive weathering pattern marks the beginning of the Wilpena Group. It crops out near the homestead and at the base of the red and green shales of the Brachina Formation. These shales are easily distinguished by their highly fractured nature, forming excellent track surfaces and a welcome soft layer sandwiched between sandstone and quartzite.

The high ridges of Dutchmans Stern Range are composed of ABC Range Quartzite, visible as spectacular reddish outcrops and bluffs. This rock, resulting from strongly compressed sandy sediments, has proved more resistant than other types in the sequence. Scree slopes appear on upper slopes, illustrating erosional processes in a semi arid climate. The action of water, gravity and living organisms has transported material from the ancient range for millions of years throughout climatic successions. A final uplift phase continues in conjunction with erosional processes.

2.4 SOILS

Soils throughout the reserve are chiefly brown, calcareous earths, mostly skeletal. Coarse fragments are abundant. Where soil development has occurred on lower slopes and the bases of gullies, they reflect the parent material from which they are weathered and the extent of soil forming processes which have occurred. Aspect has a major influence on these soil-forming processes. Subsequently, soil type and vegetation is locally variable.

2.5 BIOLOGICAL RESOURCES

2.5.1 Vegetation

Vegetation on low hills and slopes is often grassland dominated by porcupine grass (*Triodia irritans*) with Mt Lofty Grass Tree (*Xanthorrhoea quadrangulata*), small herbaceous species and other native grasses. A low shrubland of Rosemary Bush (*Cassinia laevis*), Quorn Wattle (*Acacia quornensis*) and Christmas Bush (*Bursaria spinosa*) shares these slopes. Low woodland of Peppermint Box (*Eucalyptus odorata*) and Mallee Box (*E. porosa*) grades into low open woodlands of Drooping Sheoak (*Allocasuarina verticillata*) and woodland/open forest of South Australian Blue Gum (*E. leucoxylon*). Higher slopes and ridges on the eastern side of the reserve are often dominated by open forest of Sugar Gum (*E. cladocalyx*) of surprising size and with an understorey of mainly *X. quadrangulata* and *Cassinia laevis*. Low open shrubland of Flinders Ranges Bottlebrush (*Callistemon teretifolius*), Mt Lofty Grass Tree, a spyridium (*Spyridium phlebophyllum*) and Sticky Hop Bush (*Dodonaea viscosa*) also occurs on exposed sites of high slopes and ridges.

River Red Gums (*E. camaldulensis*) are a feature of creek lines in association with an array of other shrubs, grasses, and herbs. Corridors formed by watercourses are important in adding to the diversity of life in the reserve.

2.5.2 Birds

The fauna of the reserve is as varied as its vegetation. At least 51 bird species have been recorded. Those for which the reserve is believed to be their northern limit include the Yellow-faced Honeyeater (*Meliphaga chrysops*), Scarlet Robin (*Petroica multicolor*), Laughing Kookaburra (*Dacelo novaegineae*), Adelaide Rosella (*Platycerus elegans* 'Adelaidae') and Grey Currawong (*Strepera versicolor*).

Information regarding the distribution and ecology of some species such as the Chestnut-rumped Hylacola (*Hylacola pyrrhopygia*), Southern Scrub Robin (*Drymodes brunneopygia*), Elegant Parrot (*Neophema elegans*), Diamond Firetail (*Emblema guttatum*), Redthroat (*Pyrrholaemus brunneus*) and Black-eared Cuckoo (*Chrysococcyx osculans*), is very scant but their presence in the reserve is considered geographically significant.

Populations of Grey Shrikethrush (*Colluricincla harmonica*) and Mallee Ringneck (*Barnardius zonarius barnardi*) are intermediates or hybrids of their western and eastern subspecies.

2.5.3 Mammals

Euros (*Macropus robustus*) are common in the reserve. Western Grey Kangaroos (*Macropus fuliginosus*) can be seen in the less rugged terrain and plains, while Red Kangaroos (*Macropus rufus*) are common on the western side of the reserve. The uncommon Yellow-footed Rock Wallaby (*Petrogale xanthopus*) is present on the Dutchman range.

Three species of bat have been recorded in the reserve; White-striped Mastiff-bat (*Tadarida australis*); Gould's Wattled Bat (*Chalinolobus gouldii*) and Little Mastiff-bat (*Mormopteris planiceps*).

The Echidna (*Tachyglossus aculeatus*) has been observed several times and diggings are quite common.

Other small native mammals could inhabit the area, but have not been observed.

2.5.4 Amphibians and Reptiles

Several amphibians would be expected to inhabit creek lines and watercourses within the reserve. A new taxon (race or subspecies) of the Brown Toadlet (*Pseudophryne bibronii*) has been found in creeks flowing eastward from the Stern, as have *Crinia riparia* and *Lymnodynastes tasmaniensis*.

The carpet python (*Morelia spilota*) occurs in the reserve. A number of other species inhabit the prime reptile real estate. A short list appears in Appendix 1.

2.5.5 Invertebrates

The Dutchmans Stern Conservation Reserve is the only reserve in which the Spotted Skipper Butterfly (*Trapezites luteus luteus*) has been recorded. Its presence here represents an extension of its previously known range. (R Fisher pers comm).

Its status within the reserve needs to be determined and a management strategy put into place. Major threats to the survival of these insects are likely to be from habitat destruction and collectors.

2.6 HISTORY AND CULTURAL SIGNIFICANCE

The reserve's curious name is derived from the landform's similarity to Dutch sailing ships of the eighteenth century. Outcropping quartzite and talus slopes at the apex of the syncline are reminiscent of the reverse stern of these vessels.

The prominent landmark of the Stern and its range, which flanks the Pichi Richi Pass, is an important factor in the special physical influence which the landscape exerts on all who live in, or visit, the Quorn area.

Recent work by Ralph Grandison has identified one, or perhaps two, landscapes within the reserve which were painted by the artist S.T. Gill while on an expedition with the eminent botanist Baron von Mueller in 1851 (R. Grandison pers comm).

The Nukunu people are the Aboriginal group believed to have affiliation with this area. There may be overlap with the Adnyamathanha to the north and with the Parnkalla to the west. Information on mythology and significance is being sought from Aboriginal people.

The Dutchman was a pastoral lease from the 1880s until it was acquired for conservation in 1985. Yards, tracks, buildings and fences are reminders of this past land use. A range of associated activities such as wood cutting, wattle stripping and Yacca resin collecting (from grass trees) have taken place (D. Paynter pers comm). Many local people have a degree of attachment with the reserve through work, family or recreation activities over many years.

The reserve is utilised as a water catchment area. Stoney Creek is diverted to an engineered channel at the edge of the reserve, from where it runs to the Mount Arden dam to supplement the Quorn water supply. Much of the area in the west of the reserve drains into South Creek from where it is piped to serve properties on the western side of the range.

The mining company UTAH carried out exploration work throughout the ranges in the 1960s. The Dutchman Valley track was constructed at this time. Many other exploration scars are apparent, particularly in the Emeroo Range to the west.

3 MANAGEMENT FRAMEWORK

3.1 MANAGEMENT CONTEXT

This plan has been prepared in accordance with the legislative requirements of the *National Parks and Wildlife Act 1972.*

The Department for Environment, Heritage and Aboriginal Affairs is required by Section 37 of the Act to ensure that, when managing reserves, strategies and actions consistent with the following objectives are put into place:

a) The preservation and management of wildlife

b) The preservation of historic sites, objects and structures of historic and scientific interest

c) The preservation of features of geographical, natural or scenic interest

d) The destruction of dangerous weeds and the eradication or control of noxious weeds and exotic plants

e) The control of vermin and exotic animals

f) The control and eradication of disease of animals and vegetation

g) The prevention and suppression of bushfires and other hazards

h) The encouragement of public use and enjoyment of reserves and education in, and a proper understanding and recognition of, their purpose and significance

and

i) The promotion of the public interest.

Within this context, the following management objectives are central to this plan.

The preservation of sites and structures of scientific interest. This includes sites of geomorphological interest with features not as yet fully identified. These may include important fossil or sub-surface features.

The preservation of features of geographical, natural or scenic interest. This has particular relevance to the populations of plants and animals mentioned previously in section 2.5 as being restricted in distribution or at the northernmost limits of their range.

The encouragement of public use and enjoyment of reserves and education in, and a proper understanding and recognition of, their purpose and significance. This places a requirement on the agency to make provision for public access to the reserve and to provide advice and guidance to reserve visitors.

Generally the promotion of the public interest. This includes making appropriate arrangements for operators in the regional tourism industry to access the reserve under license.

The prescriptions which follow take those major management objectives into account.

4 MANAGEMENT PRESCRIPTION

4.1 ZONING

Zoning of reserves is a tool that can provide a framework for future reserve management. A zoning strategy can be important in achieving a balance between developments, visitor requirements and conservation needs, by specifying areas for particular purposes and by defining appropriate conditions of use for each area.

Many of the known significant plant and animal species are found in the easternmost section of The Dutchmans Stern Conservation Park. This also happens to be the area of most visitor activity and the main point of public access.

Objective

Zoning of The Dutchmans Stern Conservation Park to ensure the most appropriate and sustainable use and to provide protection for the reserve's natural assets.

Actions

Legally adopt the zoning plan, as a component of this plan of management, for the reserve to be managed according to the prescriptions in the plan. Figure 2 defines three zones.

Development zone

Lies within the north-eastern corner of the reserve and contains present visitor facilities. In the future, built developments may occur within this zone.

Conservation zone

This area comprises the section of the reserve from the main range ridge top eastwards, excluding the development zone. The Stoney Creek catchment that supplements the Quorn water supply is within this zone. Visitors will be required to confine their use to established walking trails. There will be no camping except at designated site(s) or at wilderness cabin(s) in this zone. The conservation zone will also have fire protection priority.

General Reserve zone

Comprises the remainder of the reserve westwards from the Dutchman range ridge top. There will be walking access only within this zone, except for limited use of reserve management tracks by authorised vehicles. Bush camping will be allowed within this zone, monitored and subject to a bush camping code, and may be limited to designated sites.

Water catchments and watercourses will be given special consideration and conservation, especially South Creek.

To Depot Flat
via Thompson Gap
(Private)

To Quorn

Homestead

Day Visitor
Car Park

'Emeroo'
Internal Tracks
(Private)

South Creek

Rocky Outcrop

Weir

The Dutchmans Stern (CP)

Stoney Creek

Rocky Outcrop

N

0 1 2
kilometres

Legend

- Park Boundary
- Heysen Trail
- Walking Trail
- Roads and Tracks
- Conservation Zone
- Development Zone
- General Park Zone
- Drainage

Fig 2. Park Features and Zoning
The Dutchmans Stern Conservation Park

This map designed and created by
Reserve Planning using PAMS.
Date: December 1999

National Parks and Wildlife SA
Government of South Australia

4.2 NATURAL RESOURCES

In the Quorn area, conservation is a minor land use, represented by this one relatively small reserve. The location of the reserve and the number of significant species of plants and animals occurring within it, means that conservation is an especially important consideration in all management issues. This is reflected in its conservation park status.

The reserve has not been surveyed extensively, but a body of knowledge is building from opportunistic sightings and minor surveys. Viewed in the context of information on visitor activities and feedback, a strategy is clearly needed to protect the reserve's natural assets.

These broad strategies are:

Manage reserve ecosystems to ensure there is no further loss of native species and ensure that threatened species recover

Minimise human impact whilst providing visitors with high quality experiences

Exclude domestic stock with boundary fencing

Control introduced species to minimise competition with, and alteration of, natural systems

Undertake fire protection and suppression planning and activities

Undertake active conservation programs for particular species

Develop, maintain and use a database containing reserve biological and physical data.

4.3 WILDLIFE

Whilst common and abundant species and systems are not to be undervalued, the reserve's known significant species require special attention. Many of the latter are at the limits of their distributions, in isolated populations or poorly understood. Many are to be found in the conservation zone. Management actions to date have been broad-scale, and obvious measures to improve the integrity of the reserve and conserve its natural assets are required. Actions such as boundary fencing, fire protection, pest animal and plant control and visitor management are a priority.

A list of fauna species of conservation significance and known to occur in the reserve is included in appendix 2.

Objective

Manage and protect reserve ecosystems to ensure there is no further loss of native species and ensure recovery of threatened species.

Actions

Enter and maintain reserve records on the DEHAA developed PAMS (Protected Area Management System) database/geographic information system. Utilise this information in reserve management.

Record sightings, with location and habitat details.

Develop survey, monitoring, management or recovery programs as necessary and as resources permit.

Maintain the walking trail route within the conservation zone to avoid the main wallaby habitat, in order to minimise human impact and disturbance.

Establish a monitoring program for Yellow-footed Rock Wallabies within the reserve, utilising existing knowledge, volunteers and reserve staff.

Develop a fox-baiting program in the vicinity of the known colony.

Provide for protection of wallaby habitat in the fire suppression plan to safeguard their habitat and retain refuge areas.

4.3.1 Spotted Skipper Butterfly

The Dutchmans Stern Conservation Park is the only reserve in which the Spotted Skipper Butterfly (*Trapezites luteus luteus*) has been recorded, its presence here representing an extension of its previously known range (R. Fisher pers comm).

Major threats to the long term survival of these insects are likely to be from habitat destruction and collectors, and management is required to safeguard them.

Objective

Undertake research into the prevalence of, and take measures to ensure the preservation of, this rare species

Actions

Conduct surveys that include searching for larvae in known habitats in order to establish the status of Spotted Skippers within the reserve.

In conjunction with the SA Museum, prepare an action plan for the conservation of the species.

4.4 VEGETATION

Although many species of conservation significance are found within the reserve and may require specific attention, common and abundant plants and plant communities should not be overlooked.

Conservation of plant species and associations is complex because vegetation reflects fire regimes which may be unknown or have changed over time, and because species often occur in a continuum throughout their range rather than in discrete populations.

Strong emphasis on fire protection is placed in the conservation zone, although wildfire will not be possible to prevent if, and when, the conditions for it are right. Wildfire may indeed be beneficial or essential to the survival of some species.

Limited numbers of a scrubby groundsel *Senecio megaglossus*, a threatened species, occur in the northern part of the reserve. Significant numbers also occur on a neighbouring property, Depot Flat. Enclosures and control plots have been established within the reserve as part of a threatened species program and are monitored each year by reserve staff and volunteers.

Appendix 3 lists plants of conservation significance recorded from within the reserve.

Objectives

Monitor changes to vegetation community structure over time.

Protect areas of significant flora.

Actions

Maintain existing and establish new photo points and monitoring mechanisms, including measures of species abundance.

Undertake ongoing recording of vegetation species and entry onto the PAMS database and GIS.

Continue control of major weed species.

Continue to monitor Senecio megaglossus and prepare an action plan for its long term conservation.

Record plant fire responses where appropriate.

4.5 WATER CATCHMENTS AND WATERCOURSES

The reserve includes two main water catchments. Water from Stoney Creek, on the eastern side of the reserve, is channelled from a weir at the eastern boundary into the Mount Arden dam where it is sometimes used to supplement the Quorn bore water supply. Water from South Creek in the reserve's west once supplemented the Port Augusta water supply, but nowadays only limited volumes are utilised on nearby stations.

Most streamlines within the reserve are ephemeral but two springs are present. River Red Gum communities indicate groundwater proximity in watercourses. Streamlines and permanent water are an extremely important part of the reserve's natural environment.

Several dams remain from the era of pastoral use. Only in years of exceptional rainfall do these hold water throughout the summer. The dam adjacent to the upper eastern track is useful for trapping goats in early summer and is well utilised by a great variety of wildlife.

Objective

Protect water catchments and watercourses within the reserve.

Actions

Survey and monitor selected watercourses and permanent water sites within the reserve as resources allow, giving priority to the Stoney and South Creeks.

Investigate and record current, and historical use of water, which flows from the reserve.

Investigate the possibility of retaining un-utilised water in South Creek to benefit and perhaps reinstate natural systems.

Promote the protection of watercourse communities by discouraging and precluding inappropriate visitor use.

Maintain the dam near the eastern boundary track. Other dams will not be maintained.

Ensure that wastewater and effluent from current, and future use within the development zone does not adversely affect adjacent watercourses.

4.6 PEST ANIMALS AND PLANTS

4.6.1 Pest Animals

The obligation on NPWSA to control feral animals in reserves is the same as for other landowners.

The species of feral animal which have priority for control are those which most affect the values of the reserve. These are goats, foxes and cats, while rabbits are present in small numbers.

Since 1991 goat control has been carried out on a regular basis by a variety of means. To the end of March 1996 more than 3,500 animals had been removed from the reserve by shooting, trapping or mustering. Helicopter shooting has included adjacent land where land holders have given approval.

Members of the Sporting Shooters Association of Australia (Hunting and Conservation Branch) have been integral to the feral animal control program in the reserve. Their club accreditation process, insurance arrangements and other organisational aspects are an advantage to reserve management. The NPWSA North Region has a policy, which applies to all volunteer goat shooters, that ensures effective and humane culling as well as public safety.

However, effective long term control of goats, in particular, requires an integrated, cooperative and concerted effort by all land holders throughout the region.

Objective

Monitor, control and where possible eradicate pest animals.

Actions

Continue the goat control program by shooting, mustering and trapping as appropriate.

Encourage other land holders to control goats by fostering cooperation in mustering and shooting activities.

Continue opportunistic control of other feral animals.

Develop a fox-baiting program for the reserve.

4.6.2 Pest Plants

African Boxthorn (*Lycium ferocissimum*) is a class 2(c) species under the *Animal and Plant Control Act 1986.* It is the pest plant, which has highest priority for control in the reserve. Control by spraying, cutting and swabbing has been carried out along tracks and watercourses as a first stage of a control program.

Plants are also destroyed opportunistically by cutting and swabbing in more remote areas and on walking trails. Friends groups, volunteers and reserves staff undertake this work.

Localised control of Horehound (*Marrubium vulgare*) along some tracks and around the homestead is undertaken regularly to minimise its spread. The *Animal and Plant Control Act* requires that this species be controlled along fenced road reserves in the Kanyaka-Quorn District Council (now Flinders Ranges Council) area.

Other weeds, for example Star Thistle (*Centaurea calcitrapa),* are present but are not a current priority, as their impact is considered insufficient to justify the effort and resources required to control them.

Objective

Monitor, control and where possible eradicate pest plants from the reserve. Emphasise control for those species that pose the greatest threat to reserve values.

Actions

Prepare a weed inventory for the reserve.

Prepare a weed control plan.

Continue to undertake control measures for the known significant species including African Boxthorn.

Consult with officers of the Animal and Plant Control Commission, local Soil Board and District Council, to ensure a regional approach to pest plant control.

4.7 FIRE MANAGEMENT

The reserve is in an area of high risk from lightning strikes. The high value habitat of the reserve makes fire protection and prevention an important issue.

Fire management in the reserve may differ significantly from that of other land in the area, due to the primary consideration of conservation of natural systems. This is in line with the requirements under the *National Reserves and Wildlife Act 1972.*

The reserve has, during its pastoral history, been burnt regularly, although this has not been well documented. (D. Blesing pers comm) stated that landowners burnt regularly and consistently from the 1960s until 1975, and that a major fire also occurred during this time. A wildfire in 1988 extended just into the south-eastern end of the reserve before it was controlled. Other fire scars are apparent.

An annual program of fire protection works is carried out. Considerable upgrading of tracks and construction of new tracks has also been undertaken since 1991. The difficult terrain

however, makes the construction of access tracks in much of the reserve impossible or prohibitively expensive and of doubtful benefit.

Draft fire suppression and prevention plans have been prepared for the reserve. These documents outline what is known of fire history, risks, hazards, fire protection/prevention works and resources. They propose strategies for fire suppression and the fire fighting options available in the event of fire within the reserve.

The Department depends heavily on local CFS resources for any suppression activities within the reserve.

Objective

Develop and implement a fire management strategy for the reserve, consistent with protecting reserve values and neighbouring assets within the context of known regional fire patterns.

Actions

Finalise the fire suppression plan and combine with the fire prevention plan.

Maintain liaison with local CFS brigade and group.

Maintain DEHAA representation on Quorn Bushfire Prevention Committee.

Encourage research that will lead to a better understanding of fire behaviour and effects within the reserve, including monitoring vegetation response to fire.

Maintain and develop an annual fire protection works program.

Maintain fire suppression equipment, including water supplies, at 1996 levels and review requirements biennially.

4.7.1 Campfires and Wood Fires

A total fire ban is declared in the reserve from 1 November to 30 April each year. Outside the fire danger season, wood fires in the open are discouraged. Use of gas cookers and spirit stoves are the preferred options.

Visitors using the built accommodation are required to provide their own wood for the wood stoves (wood gathering in the reserve is discouraged). Compliance with this requirement is improving. A gas barbecue is included as part of the accommodation equipment to eliminate the need for wood fires for cooking outside.

Informal visitor and community feedback indicates considerable support for a year-round ban on wood fires in the open in the reserve. Campfires are undesirable from a conservation viewpoint, and there is a risk of escape. Progression towards a situation where wood fires in the open are totally prohibited is seen as preferable.

Objective

Phase out wood fires in the open in the reserve.

Actions

Impose a year-round ban on wood fires in the open. Initially seek cooperation from visitors outside the fire danger season; enforce in the future if necessary.

Provide fuel for wood stoves at the accommodation at extra cost. As an interim measure until alternatives are available, reserve staff may approve one-off arrangements for visitors to have contained fires in the open at the overnight hut and accommodation.

4.8 BOUNDARY FENCING

The perimeter of the reserve measures about 35 km. The northern and southern boundaries are difficult to fence because of rocky, steep terrain, watercourses and lack of ready access.

The eastern boundary fence is reasonably accessible, in varying condition and in need of regular maintenance. The western boundary fence is in poor condition. Straying are a problem, creating unacceptable impact on the reserve and inconvenience to adjacent land holders.

Upgrading of boundary fencing to prevent ingress by domestic stock will therefore be a high priority. The main focus for upgrading and replacement will be those sections of fence under greatest pressure from neighbouring stock.

Funding has been allocated previously to support a staged, boundary fencing program, and should be a future funding priority. Maintenance is ongoing and a joint responsibility between the agency and the neighbouring land holders concerned.

Objective:

Erection and maintenance of cost effective, stock proof boundary fencing, designed to prevent access to the reserve by domestic stock.

Actions

Prepare a boundary fence upgrading and maintenance plan.

Subject to budget constraints and State-wide priorities, seek capital works funding to ensure adequate funding for boundary fence upgrading requirements.

Carry out regular boundary fence inspections and maintenance.

Maintain regular contact with neighbouring land holders with regard to fence condition and maintenance.

4.9 SAFETY

Public safety and risk management are important issues, that can have potentially disastrous and expensive consequences if ignored. The reserve environment is quite harsh and remote, and the need to remain vigilant to visitor safety issues is paramount.

Objective

Provide a safe reserve environment whilst allowing for rewarding and challenging experiences.

Actions

Ensure that safety is a major consideration in reserve management decisions, developments, works and activities.

Ensure that the safety information and advice provided to both visitors and staff is adequate.

Carry out regular checks; identify, report and rectify hazards or problems.

4.10 PUBLIC ACCESS TO THE RESERVE

The reserve boundary is about 2 km from the Arden Vale road, which leads north from Quorn towards Warren and Buckaringa Gorges. A Council road reserve runs to the north-east corner of the reserve and is leased for grazing. In order to gain access to and from the car park located within the reserve, it is necessary to open and close two gates on this road reserve. A grid is installed at the reserve boundary.

The Council road reserve leading to the reserve boundary is an unformed earth surface and is slippery in wet conditions. Stock graze on the road. While road conditions restrict speed, collisions with stock are a possibility. There is, consequently, a considerable public risk and the road is quite inconvenient to use.

Although the public access lies outside the reserve, the problem is inextricably interwoven with visitor management issues and public risk. Unsatisfactory access has been a regular cause for complaint and affects both the numbers visiting the reserve and their experiences.

Objective

Provide safe and convenient all weather, 2WD vehicle access to the reserve.

Actions

Negotiate with Council and land holders to find an acceptable solution to the problem of the Council road reserve, including the possible options of:

Placement of grids to eliminate gates,

Cessation of grazing with provision of alternative water outside the reserve, and provision for stock access across the reserve,

Addition of the road reserve to the reserve.

Re-routing of the access road should the existing road prove unsafe.

4.11 PUBLIC VEHICLE ACCESS WITHIN THE RESERVE

Public access by vehicle within The Dutchmans Stern Conservation Park is restricted to the north-east corner. The 2 km of public access road within the reserve is suitable for 2WD vehicles. A car park is provided near the homestead entrance, and visitors staying in the accommodation are issued with a key to take vehicles a further 200 m to the buildings.

Restricted public vehicle access is deemed to be necessary for reasons of public risk, management, conservation, cost, maintenance and visitor experience. Extending public vehicle access to the first lookout on the Dutchman Valley Track would however be desirable from a visitor experience point of view, but would be logistically and financially difficult. However, this option is worthy of consideration if, and when, funding and management support becomes available. Charging an entry fee on vehicles remains an option.

Objective

Minimise impact from vehicular use; risk to the public and maintenance costs on management tracks within the Dutchmans Stern Conservation Park.

Actions

Current public vehicle access arrangements will be maintained. Additional limited vehicle access may be provided, for concessionaires or one-off events. General public vehicular access to reserve management tracks will not be provided.

An entry fee station may be set up on the public access road within the reserve to supplement funding for reserve facilities and maintenance.

4.12 VISITOR ACCOMMODATION

The former homestead and shearers' quarters are available for visitors to rent on a short-term basis. The two buildings are each self-contained but hired together, and can accommodate up to fifteen persons. Homestead users range from family and other groups (of varying sizes) wishing to relax in pleasant surroundings, to bushwalkers and naturalists who use the facility as a base for their activities.

Financial operation of the accommodation is an enterprise under the General Reserves Trust. Progressive upgrading of the facility is ongoing and funded from user fees.

The access track, which currently leads to the accommodation, is also the beginning of the management access to the remainder of the reserve. This juxtaposition detracts from the accommodation as a result of disturbance to visitors in residence and increased public risk, especially when children are present.

Objective

Provide visitor accommodation in the reserve as an alternative to bush camping.

Actions

Maintain, upgrade and promote the current accommodation as funds permit, in line with DEHAA standards and policies.

Set fees in line with similar off-reserve accommodation in the Quorn area. Review fees annually.

Re-route access tracks (as part of the day visitor facility development) to eliminate through traffic between the two buildings.

Options for additional accommodation (such as cabins or limited vehicle-based camping) remain a future possibility within the development zone, subject to the availability of funds.

4.13 THE HEYSEN TRAIL

The Heysen trail traverses the reserve from near the south-eastern corner, to its north-west section. One of the former farm buildings has been converted for overnight use by for walkers. Map 14 in the Heysen Trail series shows the route and identifies the stopover.

Reserve conditions apply to this section of the Heysen Trail. These are similar to those that apply to users of the Trail outside reserves.

Special conditions of use will be necessary for users of the overnight hut to minimise potential conflict between homestead accommodation users and Trail walkers using the stopover.

Objective

Encourage public use of the Heysen Trail. Maintain and develop the trail and overnight facility and its use in line with reserve management objectives.

Actions

Maintain the Heysen Trail overnight facility in conjunction with the Office of Recreation and Sport.

Negotiate with the Office of Recreation and Sport to ensure that the Trail within the reserve is maintained and monitored.

Establish conditions of use for the hut to minimise user group conflict and to ensure appropriate use of the facility.

4.14 CAMPING

Bush camping is currently allowed in the reserve. Bush camping is defined as hiker camping; ie a self-contained, backpacker activity as distinct from vehicle-based camping, which is not provided for. However, walkers often arrive at night and camp before setting off early the following morning. Preferred and/or logical bush camping sites have as a consequence evolved at strategic locations within the reserve.

Bush camping impact should be kept to a minimum. Creek lines and water catchments need special consideration.

A camping fee applies. The 1998 rate was $3.00 per site for up to 4 people per night. It is the camper's responsibility to obtain a permit.

Objective

Provide for low impact bush camping in the reserve.

Actions

Exclude camping from the conservation zone except for designated sites.

Walkers will be required to utilise the Heysen Trail overnight hut near the homestead if they stay in the development zone.

Investigate wilderness cabin possibilities for the reserve as an alternative or to complement bush camping. These have the advantage of minimising impacts and providing a degree of comfort.

Develop, adopt and promote a bushwalking and bush camping code in consultation with user groups, and in line with DEHAA policies and standards.

Investigate a self-registration system for campers and implement if suitable.

4.14.1 Bushwalking and Bush camping Code

Bushwalkers are welcome to walk and camp within the reserve. Bushwalking away from designated walking trails in the general reserve zone is available for those who are well equipped and fit, and is an established activity in the reserve.

Existing designated walking trails include a section of Heysen Trail, reserve management tracks and the Dutchman summit trail, jointly established by the Royal Geographical Society of South Australia, the Office of Recreation and Sport and DEHAA. These trails, along with the reserve's compact size and its proximity to emergency services, also make the reserve a suitable venue for training in bushwalking techniques.

Walking groups, particularly school groups, are required to submit a written notice, giving details of their intentions, well in advance of activities in reserves. This is an established practice for many groups and schools. Significant proportions of groups however do not comply.

Increasing use of the reserve means increasing impact. The impact of large groups of walkers camping within the reserve is therefore of concern, as is the safety and welfare of all reserve visitors.

Adherence to a code for bushwalking and bush camping is necessary to ensure sustainable practices, which minimise impact and maintain the quality of the experience for all.

Objective

Provide for high quality, low impact bushwalking and bush camping experiences in accordance with the reserve zones.

Actions

Adopt and promote a bushwalking and bush camping code, which encourages low impact, safe activities within the reserve.

Monitor visitor numbers, reactions, activities, and impacts.

Maintain existing trails and marking.

4.15 OTHER VISITOR ACTIVITIES

4.15.1 Concessionaires

Under the *National Parks and Wildlife Act 1972* agreements can be entered into whereby concessionaires (providing visitor services) may secure access and other rights beyond those normally available to the public. Such arrangements are not precluded in the Dutchmans Stern Conservation Park, but if entered into would be strictly limited with stringent conditions, ongoing monitoring and review.

4.15.2 Bicycle Riding

National Parks and Wildlife SA has a draft policy on use of mountain bicycles in reserves, which states that bike riding should be confined to tracks that are designated for such use. No tracks are designated for use by these vehicles within this reserve. However, limited access by cyclists to camping areas in the development zone is permitted, as the reserve is a logical stop-over and point of interest for users of the Mawson Trail.

4.15.3 Horse Riding

Horse riding is currently not permitted in the reserve, primarily for reasons of public safety, to avoid conflict with other visitors and to avoid unacceptable impact on tracks and natural systems. Cross-country riding is not provided for.

Only a small proportion of land is set aside for conservation in the southern Flinders Ranges. It is considered that conservation of the reserve's natural systems without disturbance is the priority, given the potential availability of other land for horse riding.

Consideration may however, be given on a one-off basis, for occasional horse riding activity in the reserve.

4.15.4 Hang Gliding and Rock Climbing

Hang gliding and rock climbing are recreational activities that will not be permitted in the reserve.

4.16 VISITOR FACILITY DEVELOPMENT

Current visitor facilities are limited to the vehicle access track and car park, homestead accommodation, walking trails, brochures and on-reserve information signs.

It is desirable that the reserve caters for appropriate low impact, passive recreational use and that as broad a range of people as possible enjoys the reserve in this way. Visitor activities that help them to develop an appreciation and understanding of the reserve's natural assets will be supported.

Objective

Provide for low impact, passive recreational use of the reserve for a broad range of visitors. Promote appreciation and understanding of conservation and the reserve itself as a community asset.

Actions

Maintain present infrastructure.

Establish visitor survey mechanisms to accurately assess visitor numbers, reactions and requirements.

Plan and undertake staged development of a day visitor area as funds permit including:

Internal track realignment, protection works and facility development (toilets, barbecues, information)

Upgrading of access track

Establishment of existing shearing shed as an interpretive centre (subject to the availability of funds).

4.17 RUBBISH DISPOSAL

Bush campers, day visitors and those staying at the homestead are required to take their rubbish out of the reserve. A rubbish dump is located in Quorn. Lack of staff and other resources limit the possibilities for a rubbish removal service.

Objective

Provide a rubbish-free reserve environment.

Actions

Encourage visitors to take their own rubbish out. No rubbish bins will be provided within the reserve at this stage.

Monitor and review the situation annually.

Establish low maintenance litter disposal arrangements for the day visitor area when established and if appropriate.

4.18 RESERVE INFORMATION AND SIGNS

Information is an important part of park management. It may take the form of brochures, signs, use of news media and oral communication, any and all of which inform and advise reserve visitors and the public at large.

Information signs are placed near the car park. Walking trail notes in brochure form have been produced for the Dutchman summit trail.

Objective

Inform and advise reserve users and the public at large of the attributes of the reserve and the requirements for its use.

Actions

Develop and produce a comprehensive reserve brochure and review and update it when necessary.

Establish means of brochure distribution, including on-park self-service dispensing.

Promote the reserve in the community and in the media as opportunities present.

Assess the condition, suitability and relevance of current signs and upgrade, replace or remove as required.

4.19 PASTORAL INFRASTRUCTURE/BUILDINGS

There is much evidence within the reserve of its pastoral history. Internal fences in various states of repair divide the area. Some serve to regulate visitor movements. These will, in the main, be removed, particularly in the development zone, as necessity and labour resources dictate. In the majority of the reserve however, they will remain as a reminder of previous endeavours in the pastoral history of the reserve.

Farm buildings now have new uses. The former homestead and shearers' quarters are used as visitor accommodation, an interpretive centre is to be established in the former shearing shed, the barn is used for NPWSA storage and the drying shed is to be a Heysen Trail stopover.

Most of the sheep yards will be removed.

Objectives:

Utilise the former pastoral infrastructure for park management purposes.

Actions

Adapt buildings and other facilities for visitor accommodation.

Remove unwanted structures with due regard for the need to take into consideration items of cultural significance.

4.20 ABORIGINAL INTERESTS

DEHAA has an ongoing commitment to Aboriginal involvement in the management of reserves, and actively seeks input from people with a traditional association with the land now reserve in order to fulfil this commitment. The Dutchmans Stern Conservation Park lies within an area which is potentially of interest to several indigenous groups.

An Aboriginal organisation currently runs 'Emeroo', a property adjacent to the reserve. Cooperative fencing and pest animal control programs are already under way and other possibilities for integrating activities are being investigated.

Objective

Maintain and develop constructive relationships with Aboriginal groups who demonstrate an interest in involvement in reserve management.

Actions

Foster and maintain contact and cooperation with the operators of 'Emeroo'.

Provide opportunities for Aboriginal people to be involved in reserve management activities.

Survey, record and protect Aboriginal sites within the reserve in accordance with the requirements of the Aboriginal Heritage Act 1988.

5 SUMMARY OF MANAGEMENT ACTIONS

Action	Priority	Duration	Page
Adopt zoning plan	High	Short	8
Develop and maintain reserve database	High	Ongoing	10
Develop wildlife survey, monitoring, management or recovery programs	Medium	Ongoing	10
Establish Yellow-footed Rock Wallaby monitoring and management program	Medium	Ongoing	10
Prepare action plan for Spotted Skipper	Medium	Ongoing	11
Vegetation monitoring and recording	Medium	Ongoing	11
Monitoring of *Senecio megaglossus*	Medium	Ongoing	11
Resolution of catchment management	High	Short	12
Survey and monitoring of watercourses	Medium	Ongoing	12
Maintain goat control programs	High	Ongoing	13
Control programs for other feral animals	High	Ongoing	13
Develop fox baiting program	Medium	Ongoing	13
Weed inventory and control plan	High	Ongoing	13
Continue weed control measures	High	Ongoing	13
Fire management plan	High	Ongoing	14
Annual fire protection works	High	Short	14
Fencing upgrading and maintenance plan	High	Ongoing	15
Develop program for a safe reserve environment	Medium	Ongoing	15
Resolve access to reserve	High	Short	16
Investigate entry fee station	Low	Short	16
Maintain visitor accommodation	High	Ongoing	17
Upgrade accommodation as funds provide	High	Ongoing	17
Provide for low impact bush camping	High	Ongoing	18
Develop Heysen Trail overnight hut	High	Medium	18
Formalise maintenance of Heysen trail within the reserve	High	Ongoing	18
Investigate self-registration for campers	Medium	Short	18
Adopt and promote bushwalking and bush camping code	Medium	Ongoing	19
Establish visitor survey and monitoring	High	Ongoing	19
Maintain walking trails	High	Ongoing	19
Develop programs for a rubbish-free reserve	High	Ongoing	20
Improve quality of visitor information	High	Ongoing	21
Adapt pastoral infrastructure for visitor use	Medium	Staged	21
Develop and maintain constructive relationships with Aboriginal groups	High	Ongoing	21

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7 APPENDICES

7.1 APPENDIX 1

Some of the reptiles recorded from The Dutchmans Stern Conservation Park

Agamidae

Tawny Dragon	*Ctenophorus decresii*
Central Bearded Dragon	*Pogona vitticeps*

Boidae

Carpet Python	*Morelia spilota*

Elapidae

Yellow-faced Whip Snake	*Demansia psammophis*
Western Brown Snake	*Pseudonaja nuchalis*

Gekkonidae

Eastern Spiny-tailed Gecko	*Diplodactylus intermedius*
Tree Dtella	*Gehyra variegata*

Pygopodidae (Legless Lizards)

Barred Snake-lizard	*Delma australis*
Spinifex Snake-lizard	*Delma butleri*
Adelaide Snake-lizard	*Delma molleri*

Scincidae

Desert Wall Skink	*Cryptoblepharus plagiocephalus*
Sandplain Ctenotus	*Ctenotus schomburgkii*
Eastern Tree Skink	*Egernia striolata*
Dwarf Skink	*Menetia greyii*
Common Snake Eye	*Morethia boulengeri*
Western Blue-tongue	*Tiliqua occipitalis*
Sleepy Lizard or Shingle-back	*Tiliqua rugosa*

Typhlopidae

Southern Blind Snake	*Ramphotyphlops australis*

7.2 APPENDIX 2

Faunal species of conservation significance recorded from The Dutchmans Stern Conservation Park

Mammals

Yellow-footed Rock Wallaby	*Petrogale xanthopus*

Birds

Painted Button Quail	*Turnix varia*
Gilberts Whistler	*Pachycephala inornata*
Peregrine Falcon	*Falco peregrinus*
Chestnut-rumped Hylacola	*Hylacola pyrrhopygia*
Shy Hylacola	*Hylacola cauta*
Diamond Firetail	*Emblema guttatum*
Black-eared Cuckoo	*Chrysococcyx osculans*
Australian Hobby	*Falco longipennis*
Grey-fronted Honeyeater	*Meliphaga plumulus*
Southern Whiteface	*Aphelocephala leucopsis*

Reptiles and Amphibians

Brown Toadlet	*Pseudophryne bibronii*
Carpet Python	*Morelia spilotes*

7.3 APPENDIX 3

Plants of conservation significance recorded from The Dutchmans Stern Conservation Park

Acacia pravifolia	Coil-pod Wattle
Acacia quornensis	Quorn Wattle
Acacia rupicola	Rock Wattle
Ajuga australis form A	Australian Bugle
Arthropodum strictum	a vanilla lily
Caesia calliantha	a grass lily
Caladenia coactilis	a spider orchid
Callistemon teretifolius	Flinders Ranges Bottlebrush
Carex apressa	Tall Sedge
Calocephalus citreus	Lemon Beauty-heads
Correa glabra	Rock Correa
Craspedia globosa	Drumsticks
Crinum flaccidum	Darling (or Murray) Lily
Daviesia genistifolia	Broom Bitter-pea
Derwentia decorosa	Australian Speedwell
Dianella longifolia var. *grandis*	Pale Flax-lily
Diuris palustris	Swamp Diuris
Eremophila santalina	Sandalwod Eremophila
Eryngium rostratum	Blue Devil
Goodenia albiflora	White Goodenia
Grevillea lavandulacea var. *sericea*	Lavender Grevillea
Hibbertia exutiacies	a guinea flower
Leptorhynchos elongatus	Lanky Buttons
Lomandra densiflora	Pointed Mat-rush
Lomandra multiflora ssp. *dura*	Many-flower Mat-rush
Lotus australis	Australian Trefoil
Olearia pannosa ssp. *cardiophylla*	Velvet (or Silver-leaved) Daisy-bush
Poa crassicaudex	--
Pultenaea largiflorens	Twiggy Bush-pea
Ranunculus pachycarpus	Thick-fruited Buttercup
Senecio anethifolius	Feathery Groundsel
Senecio megaglossus	a scrubby groundsel
Spyridium phlebophyllum	--
Stipa breviglumis	Bamboo Spear-grass
Swainsona behriana	Variable Swainson-pea
Swainsona tephrotricha	Ashy-haired Swainsona
Templetonia aculeata	Spiny Mallee-pea
Veronica plebeia	Creeping Speedwell
Wurmbea biglandulosa	an early nancy