Northern Lofty Woodland Parks

Draft Management Plan 2024

SOUTH AUSTRALIA

Government of South Australia
Department for Environment and Water

Your views are important

The Northern Lofty Woodland Parks Management Plan outlines the objectives and strategies that will set the strategic direction for the management of the parks identified in this plan.

It is released for public comment to provide members of the community an opportunity to express their views on the future management of the parks.

Feedback received will be considered before the development of a final plan. Once developed, the final plan will be submitted to the Minister for Climate, Environment and Water for adoption under Section 38 of the *National Parks and Wildlife Act 1972*.

I encourage all interested people to assist in shaping the long-term management of these parks by making a submission on this draft plan. Guidance for the preparation of a submission can be found on page 24.

Michael Williams
Director of National Parks and Wildlife

Acknowledgement of Country

The state government acknowledges Aboriginal people as the First Peoples and Nations of the lands and waters we live and work upon and we pay our respects to their Elders past, present and emerging. We acknowledge and respect the deep spiritual connection and the relationship that Aboriginal and Torres Strait Islander people have to Country. We work in partnership with the First Peoples of South Australia and support their Nations to take a leading role in caring for their Country.

Developing this draft plan

This draft management plan incorporates Charleston Conservation Park, Cromer Conservation Park, Cudlee Creek Conservation Park, Hale Conservation Park, Sandy Creek Conservation Park, Warren Conservation Park and Wiljani Conservation Park. These parks are in proximity and have similar ecological and geographical features. They are subject to the same range of issues. Establishing one management plan supports a consistent approach to biodiversity conservation and public visitation across these parks.

This draft plan has been developed by the Department for Environment and Water with input from key stakeholders, park managers and technical experts. The strategic management, objectives, and strategies outlined in this plan are designed to enable adaptive management of the parks.

Once complete, this plan will be the first adopted management plan for each of the parks.

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Directions for management

The northern Lofty woodland parks (refer to Figure 1 on pg 6) are situated between the townships of Lyndoch, Mount Pleasant and Lobethal. They extend across an environmental gradient of sandy soils and heathy woodlands of Sandy Creek Conservation Park to the higher rainfall open grassy woodlands of Charleston Conservation Park. These parks contain many areas of outstanding natural beauty and are an important element of Country for the Kaurna, Peramangk and Ngadjuri peoples.

Sandy Creek, Charleston, Cromer, Warren, Hale, Cudlee Creek and Wiljani conservation parks are proclaimed under the *National Parks and Wildlife Act 1972* (NPW Act). The objectives of the NPW Act ensures that parks are managed primarily for conservation, while supporting public use, enjoyment and education about the parks' purpose and significance.

The parks in this plan have been proclaimed primarily to conserve large and intact areas of remnant vegetation that are critical for the conservation of biodiversity in the northern Mount Lofty Ranges. Due to the relatively low visitation and high conservation values of the parks, there are minimal visitor facilities provided. Sandy Creek Conservation Park contains Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia, which is listed as critically endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). A large number of national and state listed threatened flora and fauna species are also protected in these parks (refer to Appendix 1 and 2), some of which are endemic to the Mount Lofty Ranges. The woodland vegetation communities found in the parks and across the adjoining landscape provide vital protection for many declining woodland bird species in the Mount Lofty Ranges.

Strategic management of these parks will focus on maintaining and enhancing ecosystem health and protecting threatened species by focusing on the management of threats including total grazing pressure, inappropriate fire regimes, phytophthora, pest plants and animals, and the impacts of climate change. A visitor use zone has been designated in Sandy Creek Conservation Park (Figure 2 on pg 7) to provide for potential basic visitor accommodation. Outside this zone, all areas are managed primarily for conservation and visitor facilities are restricted to low impact uses such as picnic areas, walking trails, and ancillary features such as trail heads and trail signage.

Existing car parks, management tracks and trails providing access in these parks will be maintained. There are no other visitor facilities in these parks and new basic facilities may be developed in the future if the level of demand warrants the investment. Any future development must ensure conservation values are not compromised.

The community has been active in some of these parks for decades. Volunteers have made a significant impact on protecting park conservation values, particularly through pest plant removal and management, advocacy of biodiversity protection, and threatened species monitoring. Maintaining and building relationships with volunteers, researchers, local and state government agencies, non-government agencies and adjacent landholders will support their continued involvement in park management opportunities and help to achieve effective outcomes.

The strategic management, objectives and strategies outlined in this plan are designed to enable adaptive management of the parks. The specific actions required to manage these parks in accordance with the plan will be developed and monitored at a park operations level and in accordance with relevant threatened species recovery plans and fire management plans. This approach provides the flexibility necessary to address future management challenges and opportunities.

The parks covered by this plan are:
(refer to Figure 1 on pg 6)

Charleston Conservation Park (116 ha)

Cromer Conservation Park (44 ha)

Cudlee Creek Conservation Park (49 ha)

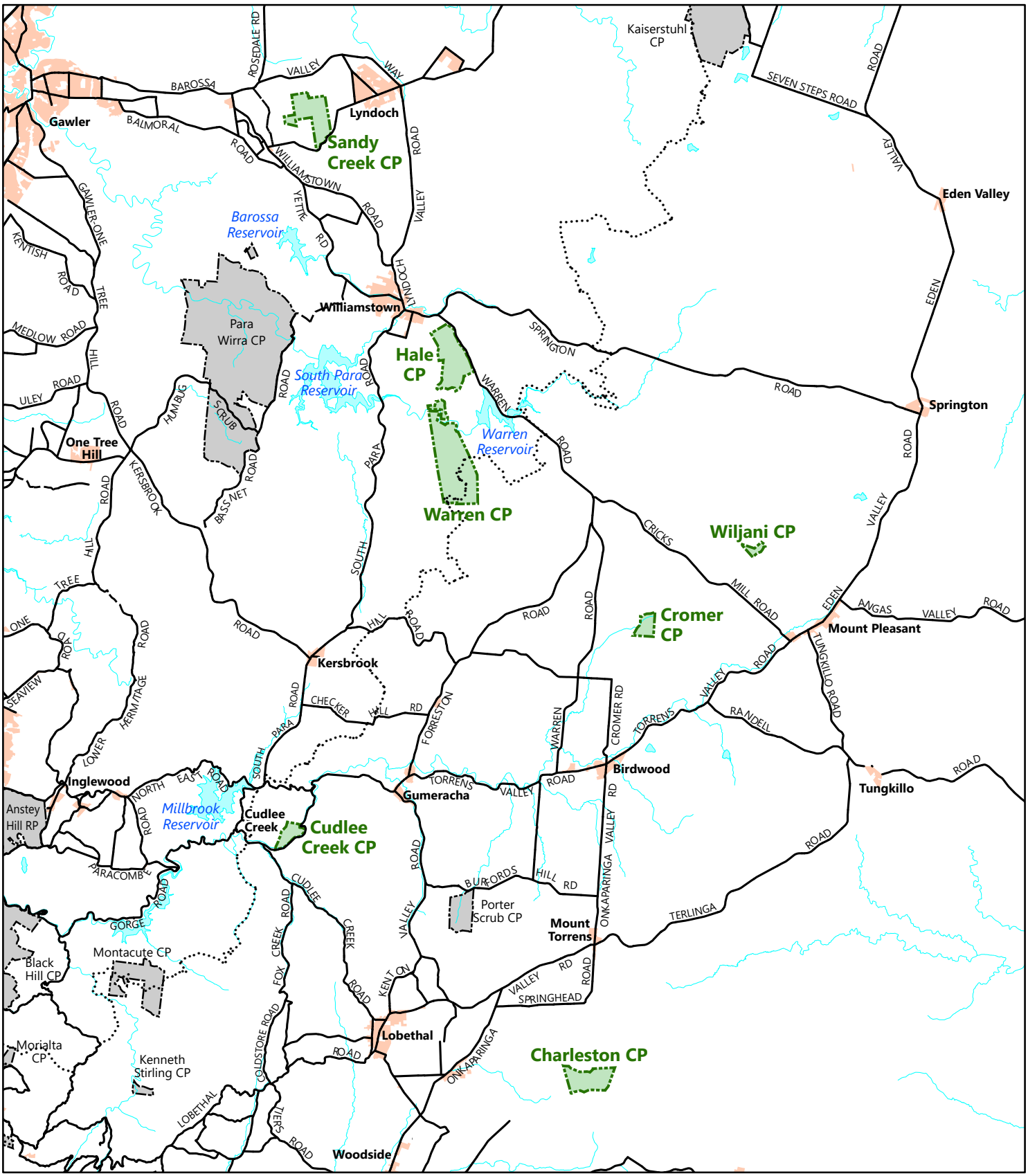
Hale Conservation Park (189 ha)

Sandy Creek Conservation Park (158 ha)

Warren Conservation Park (364 ha)

Wiljani Conservation Park (18 ha)

SINCE 1970



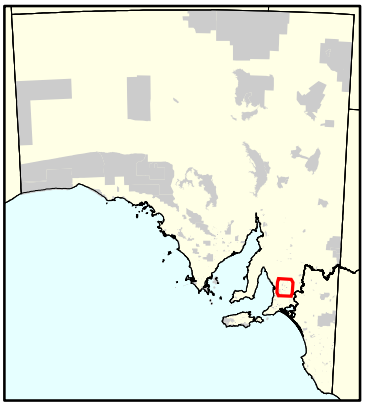
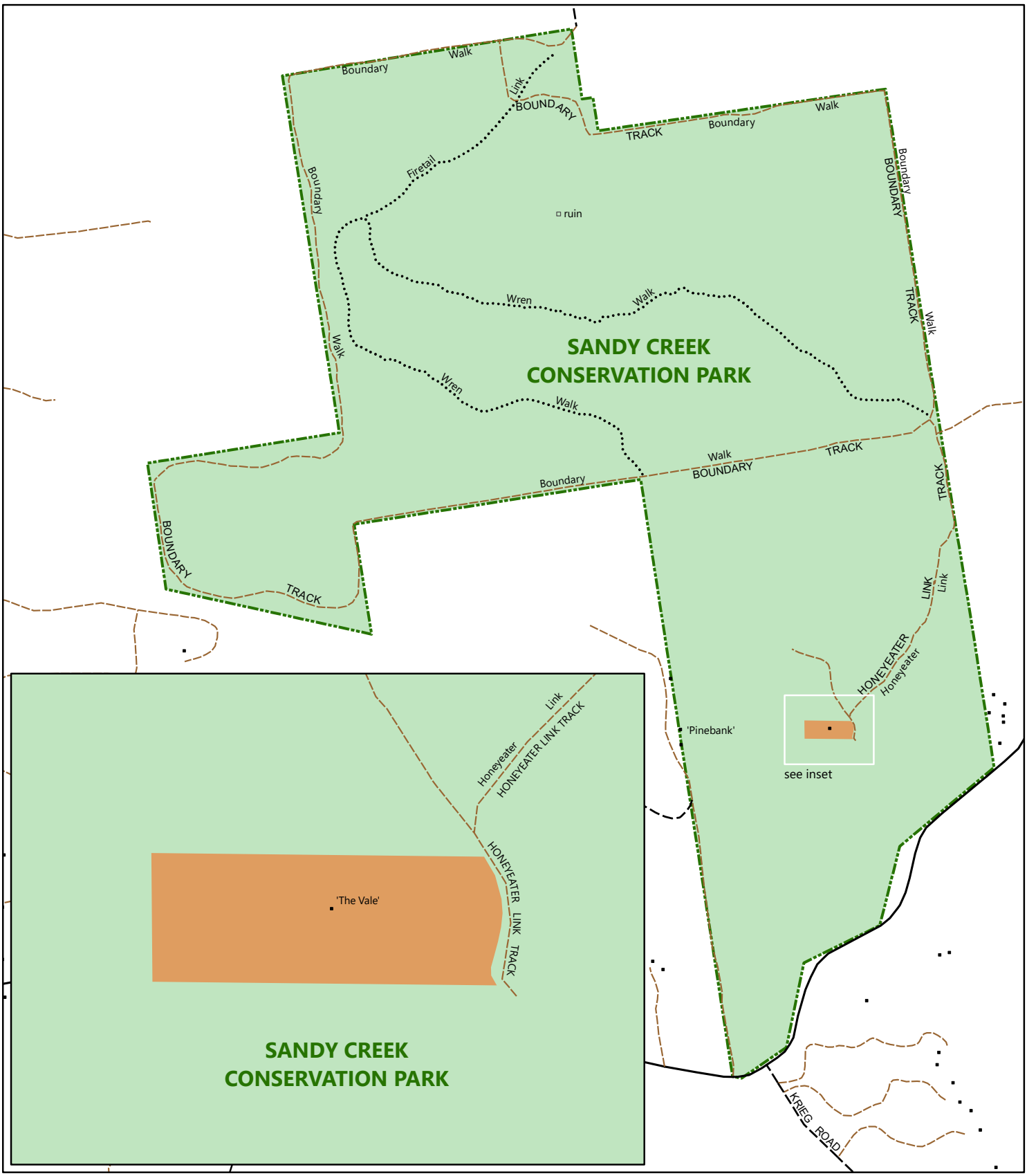


Figure 1

Northern Lofty Woodland Parks

LEGEND

- Sealed road
- Unsealed road
- Heysen Trail
- Waterbody
- Parks of focus
- Other parks
- Built Up Area



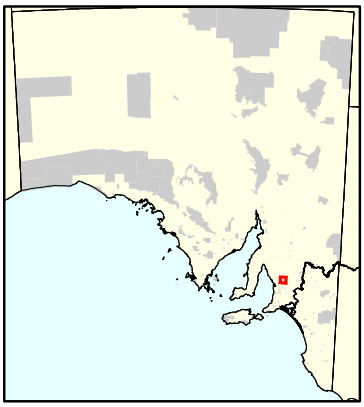


Figure 2

Sandy Creek Conservation Park

0m 100 200 300

LEGEND

- Building; Ruin
- Sealed road
- Unsealed road
- Vehicle track
- Walking trail
- Visitor Use Zone
- Sandy Creek Conservation Park

Significance and purpose

The northern Mount Lofty Ranges are part of the traditional lands of the Kaurna, Peramangk and Ngadjuri peoples for whom the land, water, plants and animals are central to their spirituality and identity. All nations maintain a strong connection to the area bound by heritage, birth rites, dreaming and creation stories. Sites and features across the northern Mount Lofty Ranges landscape have cultural importance and are connected to stories that have been passed down over generations.

These parks are significant for containing relatively large and intact areas of woodland vegetation that provide a diverse range of habitats where natural ecological processes can flourish. However, the fragmented nature of these parks has management implications for rare and threatened flora and fauna species which rely on these natural areas for refuge and dispersal corridors. Declining woodland bird populations are supported across these parks and the adjoining landscapes, including threatened species such as the diamond firetail (*Stagonopleura gutta*), hooded robin (*Melanodryas cucullata*), restless flycatcher (*Myiagra inquieta*), jacky winter (*Microeca fascinans*) and South Australian Bassian thrush (*Zoothera lunulata halmaturina*). The heathy woodlands of Warren and Hale conservation parks are particularly important to the heath goanna (*Varanus rosenbergi*) which is classified as critically endangered in the Mount Lofty Ranges, and the endemic and nationally endangered chestnut-rumped heathwren (Mount Lofty Ranges) (*Hylacola pyrrhopygia parkeri*). The common brush-tailed possum (*Trichosurus vulpecula*) is considered rare in South Australia and has been recorded in these parks.

Remnant vegetation protected by these parks is fragmented across a modified landscape, with adjacent land being used for rural living, grazing, viticulture, softwood plantations and mining. Long-running collaborative projects with adjacent landholders, volunteers, local councils, and government agencies including SA Water and Forestry SA, demonstrate that a coordinated management approach provides effective outcomes for pest plant and animal management, habitat restoration and maintaining biodiversity viability long-term.

Together these parks protect an integral part of the Torrens River catchment and upper catchment of the South Para River, which also includes the South Para Reservoir, Warren Reservoir and the Barossa Reservoir (Figure 1 on pg 6). These protected areas make an important contribution to Adelaide's water security and the health of the Mount Lofty Ranges aquatic ecosystems. Important fresh water fish species found in these catchments include congolli (*Pseudaphritis urvillii*), mountain galaxias (*Galaxias olidus*) and pouched lamprey (*Geotria australis*).

While visitors can enjoy these parks, there are minimal facilities provided. Trails and management tracks in several of the parks provide opportunities for low-impact recreation such as bushwalking, birdwatching, and spending time in nature. The parks also conserve sites associated with the region's early European mining and farming history.

Charleston Conservation Park

Charleston Conservation Park occurs on the eastern edge of the higher rainfall zone of the Adelaide Hills with mostly woodland habitat consisting of manna gum (*Eucalyptus viminalis* ssp. *viminalis*) and blue gum (*Eucalyptus leucoxylon ssp. leucoxylon*) association with a diverse understory. Banksia *(Banksia marginata)* and she-oak *(Allocasuarina verticillata)* woodland also dominate. Because of the high rainfall, the park conserves species such as candlebark (*Eucalyptus dalrympleana ssp. dalrympleana*) which is classified as rare in South Australia. The park contains a high diversity of vegetation associations and conserves several very large remnant eucalyptus trees which are rare in the Mount Lofty Ranges and provide valuable fauna habitat.

The park protects important habitat for declining woodland bird species, including the nationally threatened hooded robin and chestnut-rumped heathwren, and another 13 state listed threatened bird species. An adjacent grazing property was added to the park in 2017, providing an opportunity for significant restoration works to expand available habitat for native bird populations.

Part of the park is jointly proclaimed under section 43 of the NPW Act which enables appropriate resource exploration and development under the *Mining Act 1971* and the *Petroleum and Geothermal Energy Act 2000*. There are no defined walking trails in the park.

Cromer Conservation Park

Cromer Conservation Park was proclaimed to protect remnant vegetation requiring wetter conditions, particularly *Lepidosperma ssp*. sedgelands and open woodlands comprised mainly of long-leafed box

Photo: Tom Oliver

(*Eucalyptus goniocalyx*) with pink gum *(Eucalyptus fasciculosa)* on the higher, drier, sandier areas and river red gum (*Eucalyptus camaldulensis*) along the creek lines and low lying areas. There are 10 flora and 9 fauna species listed as rare or threatened under the NPW Act, including the nationally threatened pale leek-orchid and hooded robin. The pink gum and blue gum grassy woodlands are considered rare in the Mount Lofty Ranges, and along with the heathy understory woodlands are identified as priorities for conservation efforts. Ecological restoration and biodiversity protection programs run in partnership between National Parks and Wildlife Service Adelaide & Mounty Lofty Ranges region, Forestry SA and the Upper River Torrens Landcare Group have included surrounding public and private land parcels to improve management outcomes. Two adjacent Crown land parcels have been identified for future addition to the park which will triple the size of Cromer Conservation Park.

The park was mined for yellow ochre, and other minerals during the 1800s, and some diggings and shafts remain in the park. There are no formal walking trails in the park.

Cudlee Creek Conservation Park

Cudlee Creek Conservation Park was proclaimed to conserve a steep sloping area of the Karrawirraparri 'Red gum forest river' (River Torrens) valley. The Karrawirraparri and its surrounds are of ongoing cultural importance to contemporary Kaurna people. River red gum woodlands grow along the banks of the river in the park, with open forests of blue gum, manna gum and a significant remnant stringybark patch occurring further up the ridges. Threatened flora including clover glycine *(Glycine latrobeana)*, clustered wood-rush (*Luzula ovata*) and slender greenhood orchids *(Pterostylis foliata)* are found in the native shrub and grass dominated understory. The state-vulnerable Macquarie River turtle (*Emydura macquarii*) has been recorded in the park, and the woodlands support 5 threatened bird species.

There are no formal walking trails in the park.

Hale Conservation Park

Hale Conservation Park contains steep rocky ridges and extensive flowering heathlands, with challenging walking trails providing spectacular views of the South Para Reservoir. Several minor watercourses traverse the park from west to east and there is a small ephemeral waterfall situated in 'Kangaroo Gully' near the centre of the park. The predominantly woodland habitat conserves long-leaved box *(Eucalyptus goniocalyx)*, pink gum and messmate stringybark *(Eucalyptus obliqua)* and provides protection for the heath goanna which is classified as critically endangered in the Mount Lofty Ranges. The thick understory at the bottom of the waterfall provides protection for a variety of wildlife.

There are 10 flora species listed as rare or threatened under the NPW Act in the park, including 3 species also listed under the EPBC Act: the pink-lip spider-orchid *(Caladenia behrii)*, the stiff white spider-orchid *(Caladenia rigida)* and the Hale dwarf greenhood (*Pterostylis uliginosa* (R.Bates 21725)). The nationally threatened South Australian Bassian thrush has been recorded in the park, along with another 8 state listed threatened bird species including the endangered square-tailed kite (*Lophoictinia isura*), one of the rarest birds of prey in South Australia.

The underlying rock at Hale Conservation Park is aldgate sandstone, deposited about 800 million years ago as sand and pebbles in alluvial fans developing at the foot of an escarpment that lay to the west. About 500 million years ago this sandstone was heated and compressed as a result of movements in the earth's crust. This changed clay particles, deposited with the sand, into mica. Small mica flakes can be seen glittering along the Hale Circuit Hike trail which passes old diggings with larger mica flakes. Quartz veins and pods of mixed minerals (pegmatites) can be seen throughout rock faces in the park.

Sandy Creek Conservation Park

Sandy Creek Conservation Park was proclaimed to protect some of the last remaining sandy soil woodlands of the Barossa Valley which are dominated by stands of southern cypress pine (*Callitris gracilis*) and pink gum. A significant patch of Peppermint Box (*Eucalyptus odorata*) Grassy Woodland and Silver Banksia (*Banksia marginata*) Grassy Low Woodland is protected in the park.

The diversity of native bird species makes it a popular birdwatching site, with more than 160 species recorded in the park including the nationally threatened hooded robin, which was listed as endangered in March 2023, the blue-winged parrot (*Neophema chrysostoma*), diamond firetail and South Australian Bassian thrush. The sandy soils and associated woodlands are particularly crucial habitat for diamond firetail and rainbow bee-eater (*Merops ornatus*) populations, and silver banksia, scarlet bottlebrush (*Callistemon rugulosus*) and needle bottlebrush (*Callistemon teretifolius*) are considered crucial nectar sources for the various honeyeater species recorded in the park.

There are 14 flora species and 25 fauna species listed as rare or threatened in South Australia under

schedules 7, 8 and 9 of the NPW Act. Of these, 2 flora species are listed as vulnerable under the EPBC Act, the Finniss helmet-orchid (*Corybas dentatus*) and pale leek-orchid (*Prasophyllum pallidum*), along with the plum leek-orchid (*Prasophyllum pruinosum*), which is listed as endangered and the two-bristle greenhood (*Pterostylis psammophila*) which is listed as critically endangered. The brown toadlet (*Pseudophryne bibronii*) which is listed as rare under the NPW Act has also been recorded in the park.

A small hut built in 1918 from locally quarried stone and native pine, remains in the park. The Sandy Creek Cottage, (also known as 'The Vale'), is currently held under lease for restoration by a third party with the potential for managing basic visitor accommodation (Figure 2 on pg 7). The park is surrounded by farmland, vineyards and active deep sand mining pits which have largely been cleared of vegetation. Basic car parks provide access to the park and the four available walking trails.

Warren Conservation Park

Warren Conservation Park is a hilly reserve with unique geological features. The park protects messmate stringybark and long-leaved box woodland, with a diverse understory including a variety of orchids and lilies. Out of the 17 state listed threatened flora species, there are 2 nationally endangered orchids: the pink-lip spider orchid and stiff-white spider orchid. The nationally vulnerable clover glycine and the Mount Lofty speedwell (*Veronica derwentiana ssp. homalodonta*) which is listed as critically endangered, are also recorded in the park. The state listed yellow-footed antechinus (*Antechinus flavipes*) has been recorded in the park, along with 12 bird species listed as threatened under the NPW Act.

There are 3 challenging hikes available in the park, providing magnificent views of the Barossa Valley and surrounding landscape. The Warren Tower Hike encompasses part of the Heysen Trail, circling out of the park and through nearby Mount Crawford Forest.

Wiljani Conservation Park

Wiljani Conservation Park was named after a family group belonging to the Peramangk people. The relatively small park was proclaimed in 2016 to protect remnant messmate stringybark and long-leaved box woodlands with high biodiversity values. The park has over 100 native flora species recorded, including 6 of high conservation significance: clover glycine is rated nationally vulnerable, while five-awn spear-grass (*Pentapogon quadrifidus var. quadrifidus*), slender mint (*Mentha diemenica*), pink gum, veined spider-orchid (*Caladenia reticulata*) and hairy-tails (*Ptilotus erubescens*) are all rated as rare in South Australia.

While extensive fauna surveys have not been conducted in the park, 20 bird, 1 mammal and 3 reptile species have been recorded. The park contains habitat identified as suitable for 3 state rated threatened fauna species: the endangered square-tailed kite, the rare white-winged chough and scarlet robin.

There are no official walking trails in the park.

Photo: Martin Stokes

What are we looking after?

- Landscape features and sites that are of cultural and spiritual significance to First Nations peoples and important for their culture.
- Significant areas of remnant native vegetation within a fragmented landscape, including nationally critically endangered Peppermint Box Grassy Woodland of South Australia and Silver Banksia Grassy Low Woodland, which is considered to be a threatened ecological community in the Adelaide Mount Lofty Ranges.
- Diverse habitats including heathlands, open forests, woodlands and riparian areas, some of which are poorly represented in South Australia's protected area system.
- Extensive areas of diverse flora and structurally diverse vegetation which provide high quality habitat for declining woodland bird species.
- 44 plant species that are listed as threatened under the *National Parks and Wildlife Act 1972,* this includes 10 species that are also listed under the *Environment Protection and Biodiversity Conservation Act 1999* (refer to Appendix 1).
- 26 bird species and 6 other animal species listed as threatened under the *National Parks and Wildlife Act 1972*, including the heath goanna which is classified as critically endangered in the Mount Lofty Ranges. 6 state-threatened species which are also listed under the *Environment Protection and Biodiversity Conservation Act 1999* (refer to Appendix 2).
- Catchments that are critical to Adelaide's water supply, natural aquatic habitats and native fish and turtle species.
- Scenic natural landscapes including bushland, gorges and escarpments, and other unique geological features.
- Opportunities to participate in a range of nature based recreational activities, enjoy natural environments, learn about nature and develop an appreciation for the parks.

Photo: Tammy Leggett

Challenges and opportunities

Key challenges and opportunities in the protection and management of the northern Lofty woodland parks are:

- Maintaining healthy ecosystems within a modified landscape to ensure that they continue to provide habitat for native species.
- Managing the impacts of pest plant and animals, phytophthora and total grazing pressure to protect threatened species and ecosystem health.
- Collaborating with First Nations peoples and stakeholders including neighbours, researchers, volunteers and environmental groups to understand, monitor and manage threats for effective conservation and cultural outcomes.
- Work with adjacent landholders to support activities that complement objectives for biodiversity and conservation within the parks.
- Adopting a coordinated approach to the delivery of biodiversity conservation programs, fire management and visitor services across multiple land tenures.
- Continuing to improve understanding of fire ecology and threats following fires (both bushfire and prescribed fire), to better enable fire regimes to be managed for ecological outcomes.
- Managing the increasing risk of bushfires to ensure community safety and ecological health.
- Understanding the impacts of climate change and the strategies required to support ecosystem resilience to decreasing rainfall, increased temperatures, and increased risk of extreme fires.
- Restoring and revegetating cleared areas and maintaining remnant vegetation to enhance vegetation connectivity across the landscape and increase woodland bird population viability.
- Ensuring that management decisions are based on an understanding of ecosystem health, as well as the best available knowledge and information.
- Providing opportunities for people to undertake low-impact recreation such as bushwalking, bird watching and experiencing time in nature, while minimising impacts to park values.

THEME 1:
Conserving biodiversity in a fragmented landscape.

The northern Lofty woodland parks, together with surrounding Forestry SA, SA Water and privately owned land, contain the most significant areas of remnant vegetation remaining in the northern Mount Lofty Ranges. Maintaining the ecological health of these areas is critical for the provision of habitat that supports the persistence of native, threatened and endemic species in the region. Management of threats including total grazing pressure, large-scale fires, pest plants and animals, and the risk of phytophthora are priorities.

Woodland vegetation in these parks, including both heathy and grassy woodlands, is particularly valuable as it provides vegetation that is crucial habitat for threatened animal species including the heath goanna, chestnut-rumped heathwren, diamond firetail and hooded robin. Many small native bird species are in decline and rely on healthy woodland vegetation for their feeding and nesting habitat, with these requirements differing between species. Recovery plans and conservation advice statements for species listed under the *Environment Protection and Biodiversity Conservation Act 1999* will be used to inform actions where necessary to stop their decline and support their recovery. Monitoring populations of threatened species will enable appropriate control measures to be implemented for their conservation. Further surveys of threatened species will enable a better understanding of their distribution and will support more effective management.

Pest plants threaten habitat integrity by competing with native plants and impeding their growth. They can also alter vegetation structures. Historic clearance and disturbance of land surrounding the reserves has led to the spread of pest plants including gorse (*Ulex europaeus*), boneseed (*Osteospermum moniliferum*) and blackberry (*Rubus fruticosus*) which have been targeted for control in biodiversity conservation programs. Garden plants that have escaped from neighbouring properties such as bridal creeper (*Asparagus asparagoides*) are an ongoing risk to biodiversity. Control will be implemented to protect areas of high conservation value and where pest plants threaten the survival of threatened flora populations. Control methods will be applied in a manner which minimises impacts to the native species they are intended to benefit. Volunteers make a significant contribution to pest plant management in these parks, and support for this will continue.

Maintaining the health of Peppermint Box Grassy Woodlands and Silver Banksia Grassy Low Woodlands in Sandy Creek and Charleston conservation parks is a priority for management of parks in the region. These vegetation communities and other plant associations play an important role in protecting declining woodland bird populations and are not common across the Mount Lofty Ranges. Many species are unable to regenerate due to new growth being grazed off by introduced and native herbivores. These parks also support populations of orchids and lilies that are impacted by grazing, including the critically endangered two-bristle greenhood and 3 other nationally threatened orchid species. Exclusion fencing has been erected to protect orchid populations, Silver Banksia Woodlands and understory plant health, and the entirety of Charleston Conservation Park has been fenced off to reduce grazing pressure.

Back from the Brink

Orchids are important indicators of ecosystem health and are admired by many for their unique appearance and complex life cycles. More than 60 orchid species have been recorded in these parks, including 17 listed as threatened under the EPBC Act or NPW Act. The white beauty spider orchid (*Caladenia argocalla*), plum leek-orchid (*Prasophyllum pruinosum*) and two-bristle greenhood (*Pterostylis psammophila*) are three of these species being targeted in efforts to increase numbers and create insurance populations.

The Back from the Brink project was supported by Landscapes Hills and Fleurieu through funding from the Australian Government's National Landcare Program and the Landscape Levy. In this project Landscapes Hills and Fleurieu worked with the South Australian Seed Conservation Centre at the Botanic Gardens and State Herbarium, to propagate and re-wild populations of native orchids throughout the region.

Plants were grown from seed using in vitro symbiotic germination, where a compatible mycorrhizal fungus isolated from wild plants and replicated in laboratory conditions was used to provide the energy required for germination. The complex process involves strict temperature, storage, light exposure and sterilisation protocols, and takes three years to produce viable orchids for planting in the wild.

While hundreds of vulnerable orchids have now been planted in reserves across the Mount Lofty Ranges, threats to their ongoing survival remain. Programs to reduce threats such as weed invasion and grazing and trampling from herbivores, along with monitoring and protection of known populations are required to ensure these ecologically important and much-loved plants can thrive in the wild for years to come.

Introduced pests including cats (*Felis catus*), foxes (*Vulpes vulpes),* rabbits (*Oryctolagus cuniculus*), hare species, goats (*Capra hircus*), and deer species are present across the Mount Lofty Ranges and are known to occur in the parks. Even in low numbers these species can have significant impacts on biodiversity and will require management to limit their effects on biodiversity such as predation of native fauna, grazing and trampling of native vegetation and spreading of phytophthora. Control measures for pests that are a significant contributor to the decline of native species and where programs are likely to be effective in supporting the recovery of threatened species will be a priority. The impact of deer in the region is an increasing issue and one that will be addressed in partnership at a landscape-scale. Once finalised, the Hills and Fleurieu Landscape Board Regional Pest Plant and Animal Strategy 2023-2028 will provide guidance on prioritising pest plant and animal management in the parks, consistent with priorities across the Hills and Fleurieu region.

Western grey kangaroo (*Macropus fuliginosus*) and euro (*Macropus robustus*) populations contribute to total grazing pressure in many of the reserves in this plan, and their strategic management is required. Their large numbers are impacting native vegetation, revegetation, conservation values of state and national significance, and the increased soil disturbance is contributing to the spread of weeds. In some parks, fencing has been installed to prevent kangaroo access to areas that contain threatened vegetation communities and vulnerable plant species, and where significant habitat restoration has occurred. Where total grazing pressure is unsustainable, native vegetation is significantly damaged and floral composition is changed through kangaroo preference for some species over others. Monitoring has shown that silver banksia recruitment success is impeded by unsustainable kangaroo numbers, as seedlings are susceptible to trampling and grazing, and tend to only survive if they are watered and guarded.

Grazing by kangaroos and introduced herbivores after bushfires and prescribed burning can affect regenerating vegetation post-fire. Where left unmanaged, this is leading to changes in vegetation composition and structure and inhibiting restoration efforts in bushfire-affected areas.

Evidence of total grazing pressure will be used where required to determine impacts to habitat quality by native and introduced herbivores. While managing the impacts of herbivores will primarily focus on the control of introduced herbivores, where evidence indicates that western grey kangaroos and euros are a large contributing factor to total grazing pressure resulting in unsustainable impacts to the conservation values of the parks, strategic management will be considered. While non-lethal methods will be considered in the first instance, where they are considered ineffective or not feasible, culling will be implemented as it remains the only practicable method of management. Kangaroo control may include commercial harvest options. Any culling will follow strict procedures for the humane destruction of animals.

Phytophthora (*Phytophthora cinnamoni*) is an introduced soil-borne pathogen that attacks and destroys plant root systems resulting in the destruction of habitat through vegetation dieback. It can be easily spread by humans on the treads of shoes, on bike and vehicle tyres, and with the movement of soil. Phytophthora infestations are widespread across the Mount Lofty Ranges and vegetation in these parks are at a high risk of infection, with banksia and messmate stringybark populations being particularly vulnerable to this disease.

Photo: Martin Loftus

There is no cure for phytophthora and although difficult, it is important to minimise its spread from an infected area. Management will focus on monitoring and containing infestations and minimising the risk of spread through controlling access, application of hygiene practices, educating visitors and timing of operational activities.

Fire has been a part of the Australian landscape for thousands of years. As an ecological process fire has shaped the flora and fauna and continues to contribute to a healthy ecosystem. Habitats in these parks are particularly fire-prone and species within them have adapted to fire. Landscape modification, active fire suppression, and climate change have resulted in changes in fire regimes across the landscape. The subsequent impacts in these parks can be severe for at-risk native species, due to the fragmented nature of their remaining habitat. For example, suitable habitat for the chestnut-rumped heathwren and Bassian thrush is already limited within these reserves. A reduction of habitat quality and availability from inappropriate fire regimes may prevent these species from persisting, potentially causing localised extinctions.

Fire management plans have been developed for these parks to guide management activities aimed at reducing bushfire risk and managing conservation values. Fire management activities, including prescribed burning is implemented across strategic areas of the parks to reduce the risk, intensity and spread of bushfires, and make suppression more achievable and safer. Prescribed burning is also used as an ecological tool to maintain and improve the health of habitats, with pest plant control and grazing pressure management included into integrated management programs.

Within the northern Lofty woodland parks different vegetation communities prefer different fire regimes in order to maintain their health.

Southern Brown Bandicoot

Do these parks provide a refuge for South Australia's last remaining bandicoot species? The southern brown bandicoot (*Isoodon obesulus*) is nationally endangered, and the last bandicoot species naturally occurring in South Australia out of the eight species that previously lived here. Bandicoots live in native vegetation with a thick, often shrubby understory such as dense patches of bracken fern (*Pteridium esculentum*), which is found in Warren and Hale conservation parks.

While southern brown bandicoots are regularly recorded in reserves south of the River Torrens, mystery remains as to whether these ecosystem engineers still exist in the north. The last recorded sighting in Hale Conservation Park was in 1960, but in early 2008 bandicoot hairs were detected in two fox scats retrieved from Warren Conservation Park.

Habitat loss and fragmentation is a major threat to bandicoot survival. Protecting remaining viable habitat is crucial to their conservation, and for maintaining healthy ecosystems to support a variety of plants and wildlife.

This is particularly important for some of the threatened vegetation communities in these parks. For example, Silver Banksia Woodlands require fire intervals between 15 and 40 years in order to maintain healthy populations of banksia associated plants. Some fire dependant species such as chestnut rumped heathwrens require early to mid-successional heathlands that regenerate post fire and habitat suitability declines as time since fire increases. Fire regimes in these parks need to be managed to maintain species like the chestnut rumped heathwren and silver banksia.

Encouraging natural regeneration, supported by strategic revegetation, will increase habitat for threatened flora and fauna species. Areas recovering from bushfire and previous land-use activities, particularly partially cleared areas adjoining remnant vegetation and areas between stands of vegetation, are suited to the restoration of habitat.

Environmental flows through the Mount Lofty Ranges water catchment system have been severely impacted by drainage for agriculture, mining, water diversion, vegetation clearance, incursions of pest plants and agricultural activities such as grazing. *Lepidosperma ssp.* sedgelands and Silver Banksia Grassy Low Woodlands found in Cromer Conservation Park have been impacted by disruptions to low flow events, and the Silver Banksia Woodlands in Sandy Creek Conservation Park have likely been impacted by the adjacent mining activities lowering the water table. These vegetation communities rely on regular small flow events to maintain habitat function and survive the drier parts of the year.

Climate change projections for the region indicate decreasing rainfall, increasing temperatures, and more heightened fire danger days. It is likely to exacerbate threatening processes such as impacts from pest plants and animals, changes in water flows and more frequent and higher intensity bushfires. Widespread tree decline across the region is becoming more evident, but not well understood or documented. Understanding the impacts of a changing climate and how to support ecosystems to be resilient, will be crucial in successful long-term park management. Research and monitoring will be vital in developing an understanding and implementing subsequent programs to mitigate the impacts.

Working in collaboration with First Nations peoples, and organisations including Friends of Parks volunteers, Hills and Fleurieu Landscape Board, Northern and Yorke Landscape Board, research organisations, non-government organisations and local government will be important for successful conservation activities and supporting community participation in park management. Management programs will focus on activities that achieve conservation outcomes across the landscape. Volunteers have made a considerable contribution to habitat restoration, along with survey and monitoring of flora and fauna, and they continue to demonstrate community stewardship of the parks. Support for volunteers and the conservation outcomes that they achieve will continue.

Objective and strategies

Protect ecosystem health by enhancing habitat and managing key threats.

- Monitor populations of threatened species and support further surveys to better understand the health and extent of populations, and to inform operational requirements for their protection in a fragmented landscape.
- Refer to actions identified in recovery plans and conservation advice statements for species listed under the E*nvironment Protection and Biodiversity Conservation Act 1999* to prevent further decline or extinction and to support their recovery.
- Collaborate with government agencies, researchers and volunteers to continue threatened orchid recovery work for species such as the white beauty spider orchid (*Caladenia argocalla*), plum leek-orchid (*Prasophyllum pruinosum*) and two-bristle greenhood (*Pterostylis psammophila*).
- Control pest animals to limit their impact on biodiversity and where their control can support the recovery of threatened species. Work in partnership with neighbours and stakeholders and contribute to landscape-scale control programs for effective outcomes.
- Implement western grey kangaroo (*Macropus fulinosus*) and euro (*Macropus robustus*) management programs where total grazing pressure indicates adverse impacts to ecological values. Consider commercial management options in consultation with the kangaroo industry.
- Implement pest plant control programs to improve habitat and reduce impacts in areas of high conservation value where impacts are significant. Focus on new and emerging weeds that are likely to spread and impact native habitats, weeds that are impacting threatened species, and weeds that are having a significant impact on habitat structure and function.
- Rehabilitate cleared areas through revegetation and encouraging natural regeneration to increase the area of available habitat and threatened plant communities, support plant diversity and improve ecological function.
- Implement fire management plans for the parks to guide activities to minimise the likelihood and impact of bushfires and to maintain and enhance ecological values.
- Work with adjoining landholders and SA Landscape Boards to improve natural flow regimes to water-dependent ecosystems, particularly low-flows that support threatened and poorly represented vegetation communities.
- Support monitoring and research to understand how the climate is changing and to inform adaptation strategies for threatened species and ecological health.
- Encourage research that improves understanding of biodiversity within and adjacent to the parks and underpins the refinement of management strategies for the development of ecosystem resilience.
- Support existing partnerships and encourage collaboration with First Nations peoples, SA Water, Forestry SA, environmental groups, volunteers, local councils, Hills and Fleurieu Landscape Board, Northern and Yorke Landscape Board and neighbouring landholders to achieve ecological outcomes and foster community stewardship of the parks.

THEME 2:
Visitor management

The northern Lofty woodland parks are outstanding natural places with bird-filled woodlands, flowering heathlands, and stunning views of the Mount Lofty Ranges and Barossa region. These parks provide opportunities for people to experience and appreciate nature through low-impact activities. Due to the high conservation values of these parks and limited or no facilities, events are not generally supported.

The Heysen Trail runs through Warren Conservation Park, and a trail network links the park to nearby Mount Crawford, South Para Reservoir and Warren Reservoir Reserve. Hikers are restricted to day trips as currently there are no camping facilities in any of the parks. Trails in Sandy Creek and Hale conservation parks provide additional opportunities for bushwalking, birdwatching and nature appreciation. New walking trails may be considered in the future to expand bushwalking opportunities, or to redirect people for ecological reasons. Any future development of trails or other visitor facilities would be subject to detailed planning and assessment of the environmental and visitor risks, impacts to cultural sites and restoration programs, and site suitability with regard to topography and access requirements. Basic off-road car parking is provided in some parks.

A Visitor Use Zone (refer to Figure 2 on pg 7) has been designated in Sandy Creek Conservation Park around the Sandy Creek Cottage, identifying an area for leasing to third parties to enable basic visitor accommodation which may include camping. Recreational activities and development within this zone will be considered on a case by case basis. Use of this zone will be subject to lease conditions and formal assessment and approval processes where relevant under the provision of the *Planning, Development and Infrastructure Act 2016*, and must not cause detrimental impacts to ecological values.

As phytophthora poses a significant risk to the biodiversity within these parks, visitors and those undertaking operational activities such as track maintenance and development of infrastructure or facilities, will be required to adhere to strict phytophthora hygiene strategies.

Aboriginal people occupied the land across the Mount Lofty Ranges and Barossa for tens of thousands of years. The features across the landscape are linked and profoundly important to their cultural and spiritual connection to their traditional lands. Several anthropological stories including the Tjilbruke Dreaming Story and the Yurebilla Dreaming are associated with the region, and the Mount Lofty Ranges more broadly. Areas within the parks containing natural resources such as permanent water supported Aboriginal people and were often favoured areas to camp. No large-scale cultural heritage surveys have been undertaken in these parks, however it is highly likely that they contain Aboriginal archaeological sites, objects or burials. The Karrawirraparri (River Torrens) runs through Cudlee Creek Conservation Park and is a reported Aboriginal site. Ensuring sites are protected from impacts associated with public visitation, conservation programs, development or park maintenance activities will be achieved in consultation with First Nations people, particularly Kaurna, Peramangk and Ngadjuri.

All Aboriginal sites, objects and remains are protected from damage, disturbance or interference by the *Aboriginal Heritage Act 1988*, regardless of whether they are known in the Register of Aboriginal Sites and Objects.

Objective and strategies

Provide appropriate low-impact opportunities for recreation and experiences in nature where risks to ecological values can be minimised, and cultural sites and values are protected.

- Maintain existing infrastructure including car parks, signage and tracks and walking trails including sections of the Heysen Trail, to support low-impact activities such as bushwalking and nature appreciation.
- Monitor community sentiment and visitation to the parks to assess the demand for further facilities. Consider upgrades to car parking facilities and day visitor areas, including facilities such as shelters and toilets, if the level of demand shows a need and where ecological impacts can be managed sustainably.
- Support opportunities to connect and formalise walking trails to provide access to adjoining areas of natural value without impacting park ecological values.
- Ensure park visitors, private contractors and parks staff are aware of and adhere to phytophthora hygiene strategies to prevent its spread.
- Monitor areas in the parks that are frequently used by the public. Take appropriate action where impacts on ecological values are unsustainable.
- Work with First Nations to support their access and connection to Country, and to ensure suspected and recorded cultural sites are protected from impacts associated with activities that occur in the parks.
- Maintain natural areas within the Visitor Use Zone to maintain their ecological integrity and value to lessees and visitors while achieving fuel load reduction and fire management objectives as per fire management plans.
- Support volunteers to form partnerships with schools to provide low-impact educational opportunities and connect children to nature.

Invitation to contribute

The Northern Lofty Woodland Parks Draft Management Plan has been released for public consultation to facilitate community input into the management of this park.

You are invited to contribute by making a written submission. Please consider the points below when drafting your submission to help ensure that it is effective:

- Make your submission concise and clear
- Reference any specific comments to a page or section within the draft plan
- Identify aspects of the draft plan that you support, or do not support. Explain your reasons for disagreeing with the content of the draft plan and suggest alternatives
- Highlight any information that may be inaccurate and provide a reference to assist with further editing.

Please note that your submission will become part of the public record and will be available to anyone who requests a copy unless you specifically request otherwise.

After all submissions received have been carefully considered, a final park management plan will be prepared and forwarded to the Minister for Climate, Environment and Water for consideration together with a detailed analysis of submissions received.

You can submit your comments via post, email or online using the details provided.

Submissions close at 5pm on 2 September 2024

Written submissions:
National Parks and Protected Areas Program Unit
Department for Environment and Water
GPO Box 1047 ADELAIDE SA 5001

E-mail submissions:
DEWProtectedAreaManagement@sa.gov.au

Please use email subject heading: **Northern Lofty Parks Plan**

Online submissions:
YourSAy.sa.gov.au

Appendix 1 Threatened flora species

SPECIES	COMMON NAME	EPBC Act[1]	NPW Act[2]	Cromer CP
Amphibromus archeri	Pointed Swamp Wallaby-grass		R	Y
Amphibromus macrorhinus	Long-nosed Swamp Wallaby-grass		R	
Austrostipa breviglumis	Cane Spear-grass		R	
Austrostipa tenuifolia			R	
Brachycome parvula var. lissocarpa (NC)	Coast Daisy		R	Y
Caladenia argocalla	White Beauty Spider-orchid	EN	E	
Caladenia behrii	Pink-lip Spider-orchid	EN	E	
Caladenia leptochila ssp. leptochila	Narrow-lip Spider-orchid		R	
Caladenia reticulata	Veined Spider-orchid		R	
Caladenia rigida	Stiff White Spider-orchid	EN	E	
Correa aemula	Hairy Correa		R	
Corybas unguiculatus	Small Helmet-orchid		R	
Corybas X dentatus	Finniss Helmet-orchid	VU	E	
Crassula exserta	Large-fruit Crassula		R	
Cyperus sanguinolentus	Dark Flat-sedge		R	
Diuris behrii	Behr's Cowslip Orchid		V	Y
Eryngium ovinum	Blue Devil		V	Y
Eucalyptus dalrympleana ssp. dalrympleana	Candlebark Gum		R	
Eucalyptus fasciculosa	Pink Gum		R	Y
Galium curvihirtum	Tight Bedstraw		R	
Glycine latrobeana	Clover Glycine	VU	V	
Isoetes drummondii ssp. drummondii	Plain Quillwort		R	Y
Leionema hillebrandii	Mount Lofty Phebalium		R	
Luzula ovata	Clustered Wood-rush		R	
Maireana excavata	Bottle Fissure-plant		V	
Mentha diemenica	Slender Mint		R	
Montia fontana ssp. chondrosperma	Waterblinks		V	
Myriophyllum integrifolium	Tiny Milfoil		R	Y
Pentapogon quadrifidus var. quadrifidus	Five-awn Spear-grass		R	
Philotheca angustifolia ssp. angustifolia	Narrow-leaf Wax-flower		R	
Prasophyllum fecundum	Self-pollinating Leek-orchid		R	
Prasophyllum pallidum	Pale Leek-orchid	VU	R	Y
Prasophyllum pruinosum	Plum Leek-orchid	EN	E	
Prostanthera chlorantha	Green Mintbush		R	
Pterostylis foliata	Slender Greenhood		R	
Pterostylis psammophila	Two-bristle Greenhood	CR	E	
Pterostylis sp. Hale (R.Bates 21725)	Hale Dwarf Greenhood	EN	V*	
Ptilotus erubescens	Hairy-tails		R	Y
Samolus eremaeus	Desert Samolus		R	
Thelymitra aristata	Great Sun-orchid		E*	Y
Thelymitra batesii			R	
Thelymitra grandiflora	Great Sun-orchid		R	
Veronica derwentiana ssp. anisodonta	Kangaroo Island Speedwell		R	
Veronica derwentiana ssp. homalodonta	Mt Lofty Speedwell	CR	E	

1 *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth CR - Critically Endangered, EN – Endangered, VU – Vulnerable.

2 *National Parks and Wildlife Act 1972* (South Australia). E – Endangered, V – Vulnerable, R – Rare.

Sandy Creek CP	Charleston CP	Warren CP	Hale CP	Cuddlee Creek CP	Wiljani CP
	Y				
	Y				
Y					
Y					
					Y
		Y	Y		
		Y	Y		
		Y	Y		Y
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Y					Y
		Y			
			Y		
		Y	Y		
		Y			
		Y			

Appendix 2 Threatened fauna species

SPECIES	COMMON NAME	EPBC Act[1]	NPW Act[2]
Accipiter novaehollandiae	Grey Goshawk		E
Anhinga novaehollandiae novaehollandiae	Australasian Darter		R
Antechinus flavipes	Yellow-footed Antechinus		V
Corcorax melanorhamphos	White-winged Chough		R
Corcorax melanorhamphos melanorhamphos	White-winged Chough (MM, SE)		SP
Corcorax melanorhamphos whiteae	White-winged Chough (Gawler Ranges, EP, southern FR, MLR)		SP
Falco peregrinus macropus	Peregrine Falcon		R
Falco subniger	Black Falcon		R
Falcunculus frontatus frontatus	Eastern Shriketit		R
Gerygone olivacea olivacea	White-throated Gerygone		R
Haliaeetus leucogaster	White-bellied Sea Eagle		E
Hieraaetus morphnoides	Little Eagle		V
Hylacola pyrrhopygia parkeri	Chestnut-rumped Heathwren (Mount Lofty Ranges)	EN	E
Isoodon obesulus obesulus	Southern Brown Bandicoot (SA mainland and KI)	EN	V
Lophoictinia isura	Square-tailed Kite		E
Melanodryas cucullata cucullata	Hooded Robin (YP, MN, AP, MLR, MM, SE)	EN	R
Microeca fascinans fascinans	Jacky Winter (MLR, SE)		R
Myiagra cyanoleuca	Satin Flycatcher		E
Myiagra inquieta	Restless Flycatcher		R
Neophema chrysostoma	Blue-winged Parrot	VU	V
Neophema elegans elegans	Elegant Parrot		R
Petroica boodang boodang	Scarlet Robin		R
Plectorhyncha lanceolata	Striped Honeyeater		R
Podiceps cristatus australis	Great Crested Grebe		R
Pseudophryne bibronii	Brown Toadlet		R
Spatula rhynchotis	Australasian Shoveler		R
Stagonopleura guttata	Diamond Firetail	VU	V
Trichosurus vulpecula	Common Brushtail Possum		R
Tringa glareola	Wood Sandpiper		R
Turnix varius varius	Painted Buttonquail		R
Varanus rosenbergi	Heath Goanna		V
Zanda funerea whiteae	Yellow-tailed Black Cockatoo		V
Zapornia tabuensis	Spotless Crake		R
Zoothera lunulata halmaturina	South Australian Bassian Thrush (southern FR, MLR, KI)	EN	SP
Emydura macquarii	Macquarie River Turtle		V

1 *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth CR - Critically Endangered, EN – Endangered, VU – Vulnerable.

2 *National Parks and Wildlife Act 1972* (South Australia). E – Endangered, V – Vulnerable, R – Rare.

Cromer CP	Sandy Creek CP	Charleston CP	Warren CP	Hale CP	Cuddlee Creek CP
		Y			
	Y				
			Y		
Y	Y	Y		Y	
		Y			
		Y	Y		
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	Y		Y	Y	
					Y

For further information please contact:

Department for Environment and Water.
Phone Information Line (08) 8204 1910, or see SA White Pages for your local Department for Environment and Water office.

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