Sundown National Park and Sundown Resources Reserve Management Statement 2013

Park size:	Sundown National Park—12,647ha Sundown Resources Reserve—2,628ha
Bioregion:	New England Tablelands
QPWS region:	South West
Local government estate/area:	Southern Downs Regional
State electorate:	Southern Downs

Sundown National Park. Photo: NPRSR

Legislative framework

✔	*Aboriginal Cultural Heritage Act 2003*
✔	*Environmental Protection Act 1994*
✔	*Environment Protection and Biodiversity Conservation Act 1999* (Cwlth)
✔	*Land Act 1994*
✔	*Mineral Resources Act 1989*
✔	*Native Title Act 1993* (Cwlth)
✔	*Nature Conservation Act 1992*
✔	*Queensland Heritage Act 1992*

Plans and agreements

✔	Japan–Australia Migratory Bird Agreement
✔	Regent Honeyeater Recovery Plan

Thematic strategies

✔	Level 2 Fire Management Strategy
✔	Level 2 Pest Management Strategy

Vision

Sundown National Park will offer visitors outstanding opportunities to experience natural settings and a sense of remoteness and wilderness. Day and camping visitors can enjoy the spectacular scenery along the Severn River in a relatively remote setting with minimal facilities and can engage in nature-based activities such as bird watching, photography, bush walking, four-wheel driving and fishing.

Sundown Resources Reserve allows for the long-term interest of mineral exploration while providing continuity of the significant scenic values in the area. It extends protection to local landforms, vegetation and wildlife and broadens the potential area available for nature-based recreational opportunities. Ongoing use of the Resources Reserve for mining is sustainable and based on best practice. Regeneration of the site will progress the area towards its natural state.

Conservation purpose

Sundown National Park and Sundown Resources Reserve will be managed to conserve a biologically and aesthetically significant section of Queensland's New England Tablelands bioregion, and the largest expanse of these habitat types in the state. Special emphasis will be placed upon the management of Sundown's unique traprock communities and their associated species of conservation significance.

The Queensland Parks and Wildlife Service (QPWS) is responsible for the day-to-day management of Sundown National Park according to the management principles for national parks defined in the *Nature Conservation Act 1992*. Sundown Resources Reserve is managed in accordance with the management principles for resources reserves as defined in the *Nature Conservation Act 1992*, with the *Land Act 1994*, *Mineral Resources Act 1989* and the *Environmental Protection Act 1994* providing the framework for mineral exploration and mining activities.

The Department of National Parks, Recreation, Sport and Racing (NPRSR) and the Department of Natural Resources and Mines (DNRM) are joint trustees of the resources reserve. A set of interim management guidelines was prepared and jointly approved by the trustees in September 1993.

Protecting and presenting the park's values

Located approximately 250km south-west of Brisbane, Sundown National Park and Sundown Resources Reserve lie within the Southern Downs Regional Council boundary and are located on the edge of the Granite Belt, with the New South Wales border forming the south-east boundary of the park along the Roberts Range. The park and resources reserve are close to the small townships of Ballandean and Wallangarra, and nearby major towns include Stanthorpe, 40km to the north-east, as well as Texas to the west and Tenterfield to the south in New South Wales.

From the Sundown area, visitors can explore other natural places in the Southern Downs region, including the 11,800ha Girraween National Park to the east and Passchendaele and Broadwater State forests to the north-east. Grazing lands, orchards and wineries constitute the dominant land uses in the area. In a regional context, the park and resources reserve also provide a significant tourist alternative to the more developed Girraween National Park.

Sundown National Park conserves 12,647ha of rugged wilderness landscape, including box, ironbark and cypress woodlands on the western slopes of the Great Dividing Range. The Severn River Valley cuts through the high traprock country in the centre of the park providing numerous deep, permanent waterholes and spectacular cliff scenery. The main sections of Sundown National Park were acquired in 1977 and 1979 with subsequent additions in the 1980s. An area north of Red Rock Gorge and Jibbinbar Mountain was also added in 1994 and an area at Nundubbermere Falls in 2004. Red Rock Gorge was excised from the resources reserve and is now included in the national park.

Steep sided gorges contain patches of dry vine thicket with affinities to both eastern and western vegetation types. Sundown Resources Reserve is centrally located within Sundown National Park and provides a substantial area of contiguous natural landscape. It is managed in concert with the national park.

What is now the Sundown Resources Reserve was originally gazetted in 1980 as a departmental and official purposes reserve to include 1,090ha of land in the Red Rock Gorge and Sundown mine areas. This reserve was created to protect nature conservation values in an area that was of continuing mineral exploration interest, north of the original area of Sundown National Park.

The reserve was re-gazetted as a resources reserve under the *Nature Conservation Act 1992* and expanded to 2,590ha in 1986, after the results of exploration more clearly defined areas of remaining mineral potential. This was at the same time as Sundown National Park was expanded to encompass areas to the east and west. The resources reserve now covers 2,628ha and is surrounded on three sides by the national park.

Past mining activities in the resources reserve have left a legacy of access tracks and old mine works. Some of these tracks are of value in providing access for present-day visitors, and mine workings may have cultural heritage values. Furthermore, deposits in the reserve may become economically viable to mine in the future as technologies improve. The Department of Natural Resources and Mines (DNRM) has made considerable efforts to erect safety fencing around mine shafts.

Landscape

Sundown National Park and Sundown Resources Reserve consist principally of partially metamorphosed sedimentary rocks known as the Texas Beds or traprock. Igneous intrusions and subsequent erosion of the traprock have given rise to Red Rock Gorge, Jibbinbar Mountain and Rats Castle. Most of the Sundown area is approximately 600–800 metres (m) above sea level, with some peaks rising to 1000m. The high degree of topographic relief causes the Sundown area to be visible from some distance.

The geology and characteristically steep slopes in the park and resources reserve render the area highly susceptible to erosion. Erosion is a particular problem along roads that are accessible by four-wheel drive vehicles.

Small occurrences of tin, copper, arsenic, molybdenum and tungsten minerals have been located around Red Rock Gorge and places to the south. These minerals were introduced by a body of the Ruby Creek Granite, which forms outcrops on the Red Rock Gorge in the national park to the north-east, and is known to extend southwards beneath the resources reserve at depth. Most of the minerals were deposited by hot fluids in closely spaced fractures above the roof of the granite in a sheeted vein system.

The minerals were mined sporadically in the 1870s, with evidence of this seen through old surface diggings that are scattered throughout the Red Rock Gorge area. Past mining activities in the resources reserve have left a legacy of access tracks, some of which are prone to erosion and are unsustainable for ongoing use. The resources reserve remains a long-term interest for mineral exploration to allow reassessment of current knowledge and testing on new theories of mineral occurrence.

Scenic amenity

The national park and resources reserve cover rugged mountainous areas flanking the gorge of the Severn River, which has impressive natural bush scenery and vistas. Rocky slopes support drier types of eucalypt forest with cypress pine, and narrow side gorges contain patches of dry vine thicket. The resources reserve continues the natural scenic amenity of the national park.

Sundown National Park was listed on the Register of the National Estate on 20 October 1980, for its largely un-spoilt landscape and importance as a representation of the landscape type and associated habitats of the New England Tablelands Bioregion in Queensland. There is a low voltage domestic power line on the southern end of the park, but otherwise there are no communication towers, easements or similar structures that might interfere with landscape features and aesthetic values of the park and resources reserve.

Freshwater systems

The management area forms part of the Border Rivers Catchment of the Murray–Darling Basin. The catchment waters maintain downstream river health and are also utilised by downstream towns and industries.

The Severn River passes through grazing and agricultural lands before entering Sundown National Park in the north-east and exiting in the south-west. The annual rainfall is approximately 700 millimetres (mm), with much of this falling during summer. Sundown National Park and Resources Reserve provide catchment protection for a significant part of the river system that is in steep, erosion prone terrain. Riparian and aquatic habitats within the park and resources reserve are in very good condition and have high biodiversity values compared with other sites in the Border Rivers area. The river is also an important recreational component of the park and is used for activities such as canoeing and fishing.

The exclusion of Red Rock Gorge from the resources reserve was approved on the condition that water supplies for mineral exploration or mining can be drawn from the Severn River within the national park (see Partnerships).

A source of contamination to the aquatic systems of the park may be derived from the old Sundown Mine's Treatment Plant. Little Sundown and Comet creeks drain the old Sundown Mine treatment and tailings dam area. Contaminants in these creeks could include arsenic and copper salts.

To bring these historic authorities in line with contemporary legislation, both the infrastructure for carriage of the water through the national park and the water extraction must be authorised.

Regional ecosystems

Sundown National Park and Sundown Resources Reserve support a variety of regional ecosystems from shrubby woodlands to open forests and heaths. The distribution of native plants and animal species in the management area reflects the changing topography from drier eucalypt woodlands in the south-west to the moister eucalypt forests in the north-east, as well as sheltered side gorges, rocky outcrops and riparian areas.

The open forests and grassy woodland communities are of particular importance since they support bird and mammal communities that have declined elsewhere due to habitat destruction or alteration. Four of these open forest and woodland communities are classified as endangered in Queensland and one is of concern (Table 1).

The endangered vine forest and white box communities in the southern aspects of the park are generally in good condition. The park also protects *Eucalyptus tereticornis* fringing open forest, which is also endangered. This regional ecosystem is largely cleared in the area, and the communities in the park have greatly improved since the removal of stock from the area.

Regenerating ecosystems

Components of the planning area have been thinned in the past for grazing and mining. These modified ecosystems present in the park are showing steady recovery. Rain in recent years is promoting regeneration in the previously drought-affected and less vegetated areas.

Management issues faced where ecosystems are regenerating often include:

- over-thickening of the forest structure
- even aged stands
- encroachment of cypress pine, wattle and other woody species into grasslands and grassy woodlands.

In some instances, it is considered appropriate to allow stands to thin naturally through ageing and natural processes such as drought. However, in other cases management intervention including fire management may be appropriate.

Native plants and animals

Parts of the national park and resources reserve had been previously cleared for grazing in the late 1800s and early 1900s, and the Sundown Tin and Copper Mine and the smelter used timber for bracing and fuel from the surrounding landscape during its operation. However, these areas are now in recovery and many of the original plant communities have returned, albeit in a much thicker and scrubbier form (Haselgrove and Cant 2009).

Sundown National Park and Sundown Resources Reserve have over 300 recorded plant species, with 20 species listed as endangered, vulnerable or near threatened (Table 2). The vulnerable ooline *Cadellia pentastylis* is found in sheltered side gorges of the park and resources reserve. The ooline population is in good health and is showing signs of regeneration due to the control of goats in the park. The near threatened *Cryptandra lanosiflora* is naturally restricted and occurs in high rocky areas in healthy rock pavements in the park, although its distribution has not been formally mapped.

The major threats to the park's plant communities are inappropriate fire regimes, weed invasions and pest animal damage. Wildfires have the potential to threaten natural ecosystems. Fire-sensitive plants include the vulnerable *Homoranthus montanus* and *Macrozamia occidua*. Both of these species occur in higher areas of the park, with *H. montanus* only known from two populations in total, one of these is protected within the park. *Macrozamia occidua* may also be threatened by smothering by shrubby vegetation.

Pest plants may severely influence the integrity of natural plant and animal communities in the park and resources reserve.

The native animals of Sundown National Park and Sundown Resources Reserve are typical of those found along the western slopes of the Great Dividing Range. This is significant itself, in that it contains elements of both arid and temperate coastal bioregions.

Species of conservation significance include the vulnerable brush-tailed rock-wallaby *Petrogale penicillata*. There is one known population on the park at Nundubbermere Falls, and a known occurrence just off the park. Extensive surveys have not located any further populations in the immediate area. Further surveys are needed to monitor known populations. This is also the case for the spotted-tailed quoll (southern subspecies) *Dasyurus maculatus maculatus*, which is vulnerable in Queensland and classified as endangered nationally. The spotted-tailed quoll is known from tracks and scats in the southern and central areas of the park, but has not been sighted. Further surveys are needed to confirm its presence in the park.

The Sundown area also supports many species of woodland birds which are known to have declined markedly elsewhere across their ranges. The endangered regent honeyeater *Anthochaeria phrygia* is present and has been reported feeding on white box *Eucalyptus albens*. Turquoise parrots *Neophema pulchella* are classified as near threatened and have also been identified in the park and reserve. Superb lyrebirds *Menura novaehollandiae* occur at the northern limits of their distribution and the Severn River supports a range of aquatic species typical of the Murray–Darling system.

For many native species, detailed information on ecology and conservation management is lacking. However habitat change due to altered fire regimes, pest plant invasions and pest animal damage poses the greatest threat to native animals. Examples include that foxes *Vulpes vulpes* are known predators of brush-tailed rock-wallabies and present a specific threat to existing colonies. Cypress (*Callitris* sp.) thickening may impact on habitat for the turquoise parrot. The absence of predators and increase in suitable grassy habitat has facilitated a substantial increase in grey kangaroo *Macropus giganteus* numbers in the southern parts of the park.

Pest animals may compromise the integrity of natural environments through competition with native wildlife and direct degradation of sensitive environments. However, control methods, particularly for goats *Capra hircus*, are proving successful and species previously impacted by goats are increasing in numbers.

Visitor access to sites with significant sensitive ecological values, such as breeding sites, may pose a threat to their integrity.

Aboriginal culture

While the Sundown area is not currently subject to a native title claim, Aboriginal people have a strong affiliation with places in the park and resources reserve, and the involvement of Traditional Owners will form an important component of all management and interpretive activities.

The natural landscapes of the park and resources reserve have cultural value to Traditional Owners in the area. Knowledge of Aboriginal culture by QPWS is limited with few sites of cultural significance identified in the park.

Shared-history culture

Sundown National Park was formerly part of early sheep runs, including Mingoola, Ballandean and Nundubbermere, and historical evidence of this activity can still be seen. The fourteen-strand wire fences on the park and resources reserve are of considerable heritage value and have been largely destroyed elsewhere. A section of fence has been relocated to the Stanthorpe Museum to contribute to the interpretation of the pastoral history of the area.

Mineralisation was discovered in the early 1880s in the area of the Sundown Resources Reserve and, following recent modern prospecting, an area around the mineralised region has been set aside as a resources reserve. Derelict mining infrastructure including a smelter, tailings dams, tailings dumps, mines shafts and adits in the Little Sundown Creek area are a reminder of the time when more than 70 people were employed on this mining field. The Sundown Tin and Copper Mine, Little Sundown Creek, Severn River was approved for entry into the Heritage Register in July 2000. The Sundown Mine together with Beecroft Mine and the Jibbinbar State Arsenic Works were associated with the prickly pear eradication program.

Beecroft Mines (shafts three, four and five) are situated on the top of a spur that runs to Burrow's Waterhole. The mines were operational from 1888 to 1897 and then again in 1907 to 1922. The Sundown Tin Mine was sporadically operational from 1893 to 1923 and then again in 1953 to 1956. This mine produced the most lode tin in the Stanthorpe district.

Comet Creek Copper Mine consists of a number of shafts and adits along the creek, spoil heaps, a burnt out hopper screen, log dam and bridge across Comet Creek. The Lyee Moon Pack Horse Camp is an open grassy paddock on the saddle of a ridge, the last flat area before the descent into the Severn Valley Mines. The site was used as a staging area for horse teams servicing the Sundown Mines (operational in the 1870s).

There is little known about the origins and history of some historic features in the park. Threats to shared-history cultural features include fire and natural decay processes. Some of the old mine shafts are contaminated, and some shafts and adits remain open and may pose a danger to visitors. To ensure their safety, visitors should be excluded from the immediate area.

Tourism and visitor opportunities

Sundown National Park's rugged terrain and undeveloped natural landscape promotes a sense of isolation and wilderness. For self-sufficient campers it provides a range of visitor experiences in regional context, complementing those found in Girraween National Park—the other large park in the region.

The unusual plants, animals, landscapes and history provide an ideal setting for nature-based pursuits—typically for independent travellers and some tour groups.

Camping is permitted in the park. Broadwater camping area is situated near a large waterhole on the Severn River, with individual campsites, toilets, fireplaces, water and showers. Campsites accessed by four-wheel drive vehicles only are located along the river at Burrow's Waterhole (with toilets) and Reedy Waterhole. Closer to the park entrance, campers can stay at Red Rock Gorge, where there is a walking track, lookout and toilet facilities.

Nundubbermere Falls has a camping and day-use area, which sees around 1000 to 1500 visitors per year and offers access to scenic cliff areas, waterholes and fishing opportunities.

Development is kept to a minimum to maintain the wilderness atmosphere. Access to the northern end of the park is via four-wheel drive only, with the southern end of the park also accessible by conventional vehicles. Roads, particularly those in the northern section of the park, traverse steep, rocky slopes and are very susceptible to erosion damage.

Education and science

The landscapes of the park and resources reserve support a range of ecosystems that are not found elsewhere in Queensland's protected area estate. Full appreciation of these values is assisted by appropriate interpretation. Currently, interpretive facilities are provided at The Broadwater camping area and Red Rock Gorge lookout.

Partnerships

Managing the area in partnership with groups, agencies and individuals with similar interests can foster resource sharing and improve communication and decision-making which enhances on-ground outcomes.

Activities that require broad-scale actions extending beyond park boundaries are significantly enhanced with the cooperation and involvement of park neighbours and regional natural resource management groups. QPWS liaises with neighbours and other local land managers in relation to fire management, pest animal and plant control and boundary fence maintenance. Effective management of these issues is not possible without the cooperative efforts of adjacent landholders.

Sundown Resources Reserve is jointly managed by NPRSR and DNRM. Mineral deposits in the resources reserve may become economically viable to mine in the future as technologies. Two key components of the trusteeship between NPRSR and DNRM are that:

- access through the national park be granted for any future exploration or mining project within the resources reserve
- water for future mining activities would be drawn from the Severn River in the national park.

The main threat to natural values and amenity associated with mining include:

- the siting of infrastructure
- erosion from past access tracks
- clearing to open up future tracks.

Other key issues and responses

Pest management

A pest management strategy has been prepared for Sundown National Park and Sundown Resources Reserve and is currently being implemented. This strategy provides a framework for pest management in the area and addresses the management of pest plants and animals in the area.

Pest plants

Cypress pine *Callitris glaucophylla* and *C. endlicheri* is native to areas of Sundown National Park and Sundown Resources Reserve. However, it has expanded its local range considerably following vegetation disturbance—overtaking other shrub and grass species in areas. Cypress thickening can also result in a reduced capacity for ecological burning, which has the potential to further decrease species diversity (Haselgrove and Cant 2009).

Coolatai grass *Hyparrhenia hirta* is potentially the highest priority pest plant threat on the park. This species is a recent introduction, and dominates much of the northern open country, occurring adjacent to many vehicle tracks. If not controlled, it has the potential for major impacts including choking out native grasses and altering fire regimes with increases in fuel loads. Sites impacted by African love grass *Eragrostris* spp. are currently increasing. If not controlled, there is potential for major impacts along access roads where this plant is readily carried by vehicles.

Other pest plants of concern include tree pear *Opuntia tomentosa*, prickly pear *Opuntia stricta*, tiger pear *Opuntia aurantiaca*, blackberry *Rubus fruticosus*, giant aloe or century plant *Agave* sp., Bathurst burr *Xanthium spinosum* and noogoora burr *Xanthium pungens*.

Annual pest plants have been spread mostly by floodwaters in disturbed areas along the river. There has been some success with the use of biological control on blue heliotrope *Heliotropium amplexicaula*, tiger pear, prickly pear and tree pear.

Pest animals

Several species of pest animals have established themselves in areas of the park and resources reserve, and are periodically building their numbers—particularly goats, fallow deer *Dama dama* and pigs *Sus scrofa*. These pest species are actively controlled through integrated pest control programs. QPWS conducts an annual aerial shooting program for goats and deer in the park, as well as opportunistic control of other pest animals such as pigs and foxes. Although decreasing pest numbers have proven this method adequate, reinfestation from adjoining properties is an ongoing problem. It is recommended these control methods are continued to ensure pest animal populations remain under control.

Despite monitoring over many years, QPWS have recorded little evidence of wild dogs *Canis lupus familiaris* or dingoes *Canis lupus dingo* in the park. To ensure this remains the case, QPWS has participated in coordinated baiting control programs with local government and neighbours along the eastern boundary of the park. A barrier check fence is also in place to assist with the control of wild dogs in the region. This fence is maintained by Southern Downs Regional Council and runs along the western side of the park.

Fire management

A Level 2 fire management strategy has been prepared for Sundown National Park and Sundown Resources Reserve. This strategy provides a framework for fire management in the area and addresses planned burns, wildfires and firebreak maintenance.

More generally, a fire management system has been adopted statewide by NPRSR. The system applies to all fire management, including wildfire suppression, hazard reduction burning, ecological burning and burning for pest control. A potential issue arising from reduced fire frequency is cypress woodland expansion resulting in the loss of grassy understoreys.

There have been limited opportunities to undertake fire management in recent years due to drought, resources, and a narrow fire window. In some locations around the boundary of the park, it is not possible to have a fire break due to the steep rocky terrain. In these areas, cooperation with adjoining landholders in all facets of fire management is particularly important.

References

Haselgrove P and Cant M 2009, *Sundown National Park and Resources Reserve Dominant Species Vegetation* Report and Map. Queensland Parks and Wildlife Service: Toowoomba.

Management directions

Desired outcomes	Actions and guidelines
Landscape The rugged, wild scenic appeal of the park and resources reserve is maintained. High-use areas are protected from erosion and degraded areas are monitored to ensure damage to the natural environment is minimised. Natural vegetation recovery is encouraged in open areas previously cleared for grazing or cleared as a result of mineral exploration. Provision is made for future exploration or mining activities that have minimal impact on the environment in Sundown Resources Reserve. Water use in the park and resources reserve has a minimal impact on ecological and downstream river processes. The integrity of the Severn River system within the park and resources reserve and its associated ecology is protected and maintained.	A1. Contour grade eroded areas where possible and allow to naturally recover, where required. A2. Site infrastructure to minimise impacts on the park and park's aesthetic values. A3. Manage activities and infrastructure on the park and resources reserve to minimise siltation and impacts on water quality.
Native plants and animals The diversity and natural values of native plant and animal species and regional ecosystems are protected and maintained. Impacts on native plants and animals from any mineral exploration in the resources reserve are minimised. .	A4. Prepare a vegetation map and species lists to provide baseline data against which to assess future changes in vegetative cover and community change. In particular: • map the distribution of *Cryptandra lanosiflora* on the park and resources reserve • monitor any changes to the population of *Homoranthus montanus* on the park. A5. Continue to encourage natural regeneration of vegetation on open and cleared areas. A6. Condition mining authorities so that any new mineral exploration tracks in the resources reserve avoid vine thickets and riparian vegetation. A7. Condition mining authorities for all vegetative rehabilitation of mineral exploration and mining sites to use only plants of local province. A8. Baseline data on species abundance and distribution is collated and updated and provides a basis for the sound management of the park's native animals. A9. Conduct surveys to gather essential baseline data on the distribution and abundance of fauna, with special emphasis on species of conservation concern, particularly the brush-tailed rock wallaby and spotted-tailed quoll. A10. Monitor the effectiveness of any management intervention undertaken to manage regeneration of previously modified areas. A11. Monitor grey kangaroo numbers in the southern section of the park and evaluate and implement options to manage these populations as required.

Desired outcomes	Actions and guidelines
Aboriginal culture Aboriginal cultural values of the park and resources reserve are protected. Traditional Owners are involved in the interpretation and management of cultural values in the park.	A12. Identify, liaise and encourage Traditional Owners to participate in the interpretation and management of cultural values. A13. Encourage and support a cultural heritage survey of the park and reserve, in conjunction with Traditional Owners.
Shared-history culture Cultural heritage values from the past grazing and mining eras are protected and, where appropriate, interpreted to visitors. Assessments of site of cultural significance inform strategies for their monitoring and conservation.	A14. Maintain a register of cultural heritage sites and places for the park and resources reserve. A15. Conserve in-situ the remaining parts of the hand woven fourteen strand wire fences on the park and resources reserve. A16. Investigate fencing and installing signage at contaminated mine shafts, and shafts and adits that remain open, to assist in visitor safety.
Tourism and visitor opportunities Facilities are provided for visitors to enjoy the park and resources reserve in a sustainable manner, while also maintaining the area's remote and natural setting. Nundubbermere Falls is developed in a manner consistent with the level of visitor use so that environmental impacts are suitably managed. The road network is maintained to provide visitor access to designated campsites. Visitors are provided with appropriate information in order to increase their appreciation of the area and to guide appropriate behaviour.	A17. Access to key visitor sites is provided and maintained at Red Rock Gorge, Nundubbermere Falls, Burrows and Broadwater waterholes. A18. Maintain camping opportunities at all current sites. A19. Assess roads used for visitor access in terms of their capacity to sustain use and minimise erosion. Consider replacing roads with walking tracks where erosion damage makes roads unsustainable. A20. Monitor visitor activity in the Nundubbermere Falls area and consider installing toilets and other facilities as required in order to provide for sustainable management. A21. Designate the former vehicle access from Burrows Waterhole to Rats Castle as a walking track only and advise vehicle access is no longer recommended for use, due to: • steep and difficult terrain • creek crossings that are subject to flooding in wet weather. Advise all visitors to exercise extreme caution when considering using the road. A22. Maintain four-wheel drive access to Burrows Waterhole from the Ballandean park entrance and two-wheel drive access and camping at the southern section of the park at The Broadwater. A23. Provide up to date pre-visit information on the NPRSR website and through tourism information centres in the region. A24. Investigate an interpretive project to provide information on the mining area in the resources reserve.
Education and science Knowledge of plant and animal species distribution and habitat requirements are enhanced and are used as a basis for future management.	A25. Encourage minimal impact scientific research on the park and resources reserve, in particular for species and communities of conservation significance.
Partnerships The park and resources reserve are managed with the cooperation of neighbouring property owners, local authorities, stakeholders and the local community. Mining activities on the resources reserve are undertaken in an environmentally responsible manner.	A26. Continue to liaise with park neighbours to develop and implement cooperative stock, pest and fire programs. A27. Liaise with four-wheel drive groups for cooperative management of tracks and roads. A28. Any exploration or mining activities in the resources reserve will be managed cooperatively with DNRM and access will continue to be provided through the national park. A29. The management of water resources, contaminants, erosion and pest plant control will be cooperatively undertaken by NPRSR and DNRM.

Desired outcomes	Actions and guidelines
Pest management The impact of pest plants and animals on natural, cultural and recreation values are minimised.	A30. Continue to review and implement the pest management strategy for the management area in cooperation with adjoining landholders and other stakeholders with priority actions to: • continue to reduce the extent of coolatai and African love grass especially along roadsides and tracks and to eradicate blackberry and giant aloe from the park • continue the annual aerial pest shooting program, targeting goats and deer subject to available funding • control foxes, wild dogs, cats and pigs through opportunistic shooting and targeted baiting programs.
Fire management Fire management regimes that promote and maintain biological diversity are implemented. Fire is managed to protect life, property and commercial assets and to protect the natural and biodiversity values of the management area. Fire is managed cooperatively with adjacent land managers and the Queensland Fire and Rescue Service.	A31. Continue to review and implement the fire management strategy for the management of the park and reserve. Build and maintain partnerships with park neighbours, the Queensland Fire and Rescue Service (including the Rural Fire Service) and Southern Downs Regional Council in relation to managing fire.

Tables—Conservation values management

Table 1: Endangered and of concern regional ecosystems

Regional ecosystem number	Description	Biodiversity status
13.3.5*	*Eucalyptus camaldulensis* fringing open forest	Endangered
13.11.2**	*Eucalyptus laevopinea* open forest on metamorphics	Endangered
13.11.4**	*Eucalyptus melanophloia* woodland on metamorphics	Of concern
13.11.7*	Low microphyll vine forest on metamorphics	Endangered
13.11.8**	*Eucalyptus melliodora* and/or *Eucalyptus microcarpa/ E. moluccana* woodland on metamorphics	Endangered
13.12.6*	Shrubland on igneous rocks	Of concern

* Found in both Sundown National Park and Sundown Resources Reserve.

** Found in Sundown Resources Reserve only.

Table 2: Species of conservation significance

Scientific name	Common name	*Nature Conservation Act 1992* status	*Environment Protection and Biodiversity Conservation Act 1999* status	Back on Track status
Plants				
Cadellia pentastylis	Ooline	Vulnerable	Vulnerable	Critical
Cryptandra lanosiflora	-	Near threatened	-	Low
Homoranthus montanus	-	Vulnerable	Vulnerable	Low
*Lepidium peregrinum***	-	Least concern	Endangered	Low
Macrozamia occidua	-	Vulnerable	Vulnerable	Critical
Olearia gravis	-	Near threatened	-	Low
Thelionema grande	-	Near threatened	-	Low
Animals				
Accipiter novaehollandiae	grey goshawk	Near threatened	-	Low
Anthochaera phrygia	regent honeyeater	Endangered	Endangered	Medium
Calyptorhynchus lathami	glossy black-cockatoo	Vulnerable	-	-
Chalinolobus picatus	little pied bat	Near threatened	-	Medium

Scientific name	Common name	*Nature Conservation Act 1992* status	*Environment Protection and Biodiversity Conservation Act 1999* status	Back on Track status
Dasyurus maculatus maculatus	spotted-tailed quoll (southern subspecies)	Vulnerable	Endangered	High
Geophaps scripta scripta	squatter pigeon (southern subspecies)	Vulnerable	Vulnerable	Medium
Grantiella picta	painted honeyeater	Vulnerable	-	High
Lathamus discolor	swift parrot	Endangered	Endangered	Medium
Maccullochella peelii peelii	Murray cod	-	Vulnerable	Critical
Melithreptus gularis	black-chinned honeyeater	Near threatened	-	Low
*Menura novaehollandiae**	superb lyrebird	Near threatened	-	Low
Neophema pulchella	turquoise parrot	Near threatened	-	Low
Nephrurus sphyrurus	border thick-tailed gecko	Near threatened	Vulnerable	High
Nyctophilus corbeni	eastern long-eared bat	Vulnerable	Vulnerable	Medium
*Petrogale penicillata**	brush-tailed rock-wallaby	Vulnerable	Vulnerable	High

* Found in both Sundown National Park and Sundown Resources Reserve

** Found in Sundown Resources Reserve only

Table 3: Species listed in international agreements for Sundown National Park and Sundown Resources Reserve

Family	Scientific name	Common name	Bonn	CAMBA	JAMBA	ROKAMBA
Meliphagidae	*Anthochaera phrygia*	regent honeyeater	-	-	✓	-

Bonn: Bonn Convention

CAMBA: China–Australia Migratory Bird Agreement

JAMBA: Japan–Australia Migratory Bird Agreement

ROKAMBA: Republic of Korea–Australia Migratory Bird Agreement