Cooloola Recreation Area

Incorporates: Cooloola Recreation Area, Cooloola (Noosa River) Resources Reserve, Great Sandy Resources Reserve, Double Island Point Conservation Park, Sheep Island Conservation Park, Goat Island (Noosa River) Conservation Park, Womalah Resources Reserve, and the Cooloola Section of Great Sandy National Park.

Draft Resource Information Document

2024

Queensland Government

Prepared by: **Queensland Parks & Wildlife Service (QPWS), Department of Environment, Science and Innovation**

Front cover photo: Cooloola Recreation Area. © DESI, Queensland Government.

Aboriginal and Torres Strait Islander people should be aware that this document may contain images or names of deceased persons in photographs and printed material that some people may find distressing.

If you need to access this document in a language other than English, please call the Translating and Interpreting Service (TIS National) on 131 450 and ask them to telephone Library Services on +61 7 3170 5470.

This publication can be made available in an alternative format (e.g. large print or audiotape) on request for people with vision impairment; phone +61 7 3170 5470 or email <library@des.qld.gov.au>.

Public consultation on planning documents

Good planning is an important part of effective park management: it helps us understand where we are now, where we want to be, and how we are going to get there. It is the first step in the Values-Based Management Framework, an adaptive management cycle used by the Queensland Parks and Wildlife Service (QPWS) for setting the goals, strategic direction and priorities for park management. The cycle incorporates phases of monitoring, evaluating and reporting to inform how we are performing and where we need to adapt management to achieve our goals and good outcomes for Queensland's parks, forests and reserves.

Planning for each park is brought together and communicated through several planning documents: management plans and statements, resource information, thematic strategies and action plans. The hierarchy and purpose of these documents is shown in Figure 1.

For Cooloola Recreation Area, the following planning documents are available:

- draft management plan
- draft resource information document

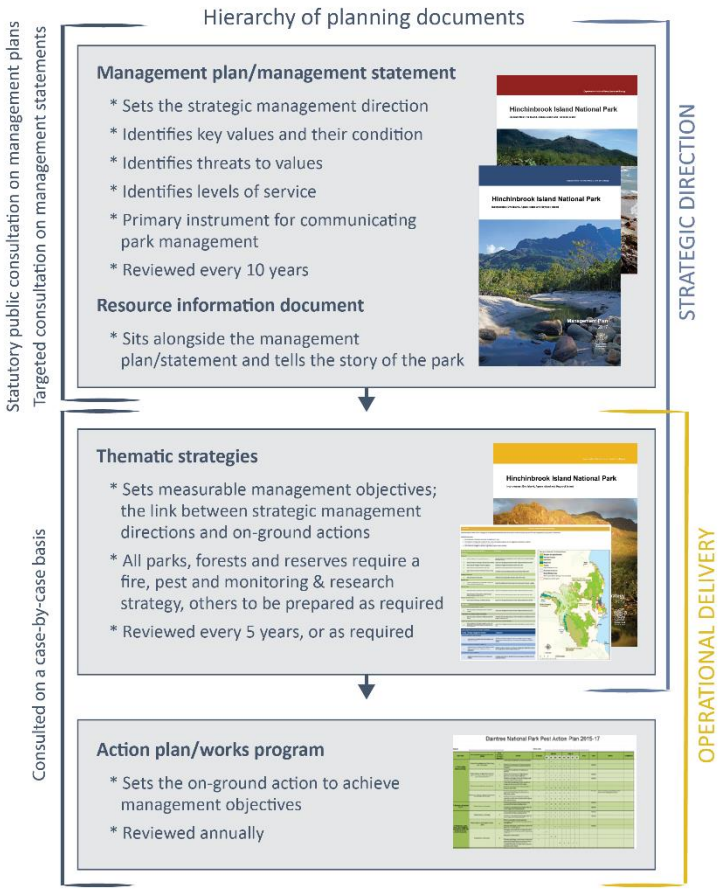


Figure 1. Hierarchy of planning documents and their purpose

An invitation to comment

Organisations and members of the public are encouraged to have a say on the management of Cooloola Recreation Area: you are invited to review the management plan and resource information document and put forward a submission.

Submissions on the draft management plan can be made via the Queensland Government's **Get Involved** website www.getinvolved.qld.gov.au.

The Minister will consider all submissions when finalising the management plan.

For further information on the draft management plan or the planning process, please visit the Department of Environment, Science and Innovation website www.des.qld.gov.au.

Contents

1. Introduction

The Queensland Parks and Wildlife Service's (QPWS) management planning process aligns with the Values-Based Management Framework (VBMF), an adaptive management cycle that incorporates planning, prioritising, doing, monitoring, evaluating and reporting into all areas of our business (Figure 2). Management plans and statements set the strategic management direction, guiding the next tier of planning and the development of thematic strategies, which in turn inform and prioritise our on-ground operations.

Resource information is a compendium of park information and a supporting document for management plans and management statements. It contains background information about a park's purpose, values, resources, and legal and administrative framework.

Information about the VBMF is available on the Department of Environment, Science and Innovation (DESI) website at www.des.qld.gov.au.

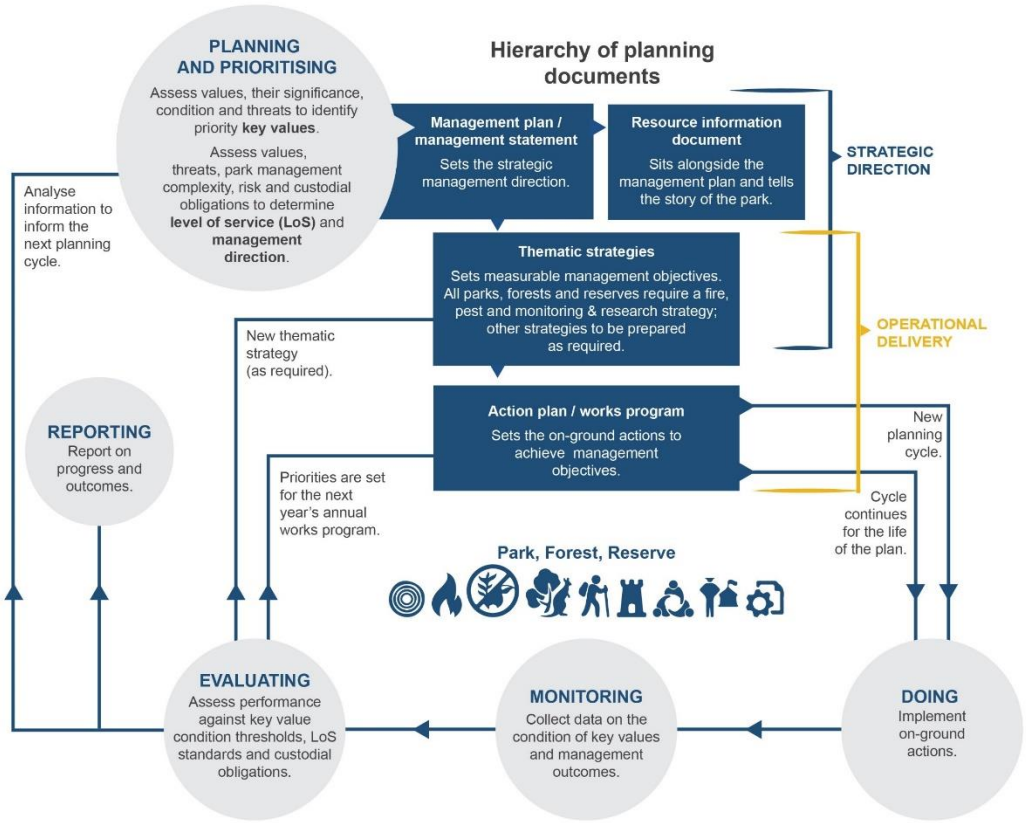


Figure 2. Phases of the VBMF cycle for planning and the hierarchy of planning documents

2. Cooloola Recreation Area

Cooloola Recreation Area is located north of Brisbane between Noosa Heads and Rainbow Beach. It is in the state electorates of Gympie and Noosa and the local government areas of Gympie Regional Council and Noosa Shire Council. The Gympie and Noosa councils have entered into a partnership agreement with QPWS to assist with the management of the Cooloola Recreation Area. The area is protected to the low water mark under the *Recreation Areas Management Act 2006.* There are several land tenures within the Cooloola Recreation Area, including national park (which accounts for approximately 90% of the area), conservation park and resources reserve.

The Cooloola Recreation Area is an important tourism destination with a significant role in the Queensland tourism industry. The area provides natural settings for tourism, which are outstanding on a world scale. The Great Sandy Marine Park[1], which in some areas overlaps the Cooloola Recreation Area, also manages recreational activities and tourism operations in the area.

The 1930s saw the first commercial tours operating in Noosa and the coloured sands on Teewah Beach in Cooloola. The current era of tourist and recreational use began in the late 1950s.

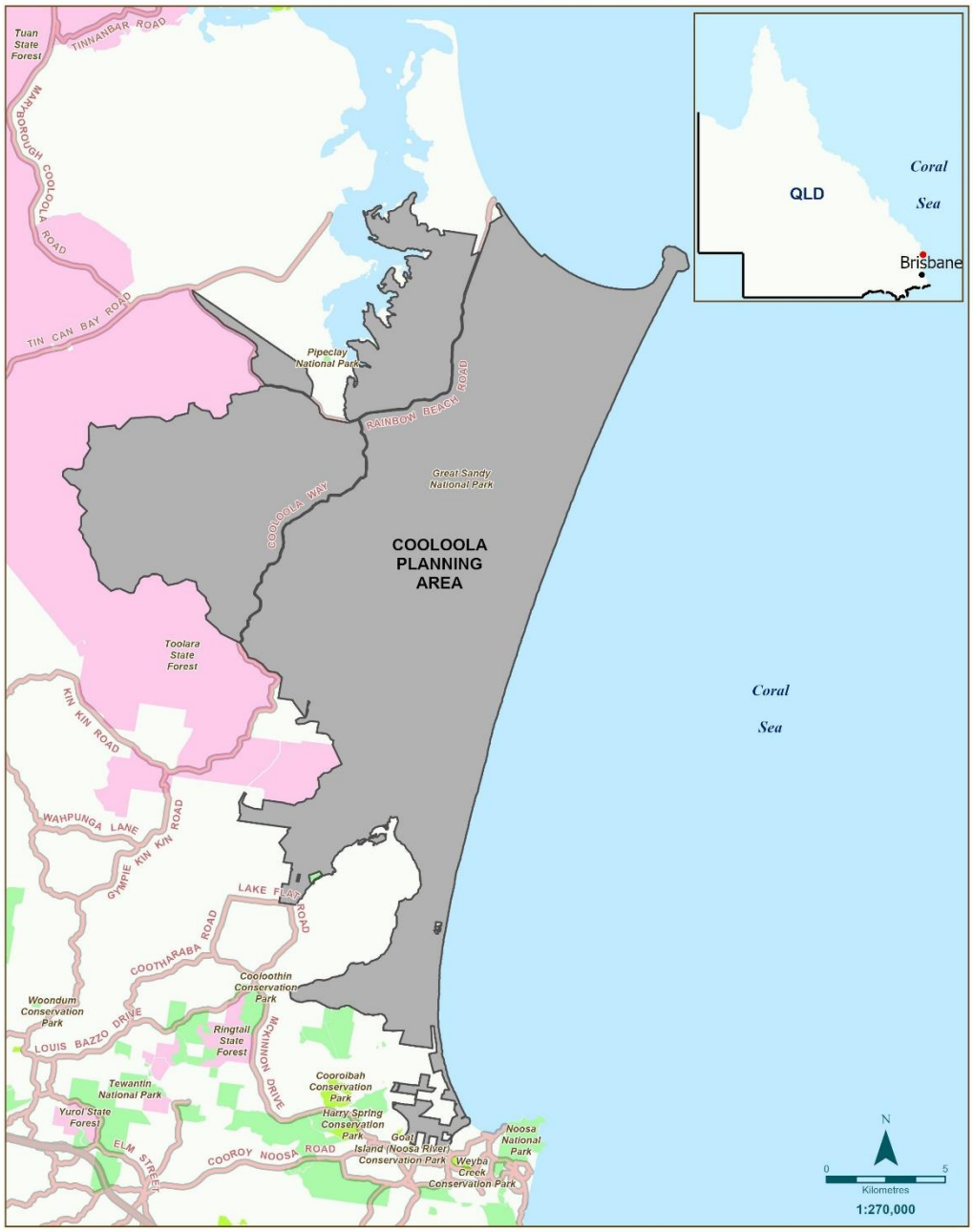
Parts of the forests of the sandmass of central Cooloola were previously logged, but never cleared. The region's long history of timber-getting is over, and what little remains of the Kin Kin Scrub is represented in the Cooloola Recreation Area.

The First Nations' cultural heritage of Cooloola Recreation Area includes a range of places, sites, artefacts and other associations of archaeological, social or spiritual significance and cultural value. It is more than the tangible sites and objects, extending to the landscape and spiritual connection. It 'reflects' a continuous custom and activity in the area.

Archaeological sites are only one component of cultural heritage resources, as values extend beyond the physical remains of the past and include non-archaeological values, including places of great spiritual significance such as the Cooloola Sandpatch. Many natural features and landscapes are of social and spiritual significance. They bear witness to the traditional lifestyle and custom of the First Nations peoples of the area and their relationship with the surrounding environment. Cultural heritage also extends to the present-day concerns of Traditional Owners regarding recognition of knowledge about key species and their management, as well as concerns regarding development and resource use.

Bioregion	South-East Queensland		
Area	61,795 ha		
Local Government Area	Gympie Regional Council Noosa Shire Council	**State electorate**	Gympie Noosa
Management obligations	Convention on Wetlands of International Importance (Ramsar Convention) Bonn Convention China–Australia Migratory Bird Agreement (CAMBA) Japan–Australia Migratory Bird Agreement (JAMBA) Republic of Korea–Australia Migratory Bird Agreement (ROKAMBA)		

[1] Great Sandy Marine Park | Parks and forests | Department of Environment, Science and Innovation, Queensland



Map 1. Cooloola Planning Area

2.1 First Nations peoples

The QPWS respects the rights, responsibilities, knowledge and aspirations of First Nations peoples.

Central to all QPWS work is the recognition of the critical roles First Nations peoples have as custodians of their land and sea Country, and as skilled partners in management of wildlife and the protected area system. Respect is paid to the Elders, past, present and emerging, of Queensland's lands and waters.

The Kabi Kabi People have a registered native title claim (QC2013/003) over Gympie and surrounding area (including Double Island Point), south to Caboolture, and north to Howard. The Kabi Kabi First Nations area includes the majority (99%) of the area of Cooloola Recreation Area.

The Butchulla Native Title Aboriginal Corporation has a native title determination over land and sea Country from Double Island Point through to Rainbow Beach (extending 300 m seaward from the highest astronomical tide line) (Map 2).

Prior to colonisation, the Kabi Kabi People and the Butchulla People used their traditional ecological knowledge, developed over thousands of years, to sustainably manage the area now known as Cooloola Recreation Area. The Kabi Kabi People and the Butchulla People continue to play a role in the management of the Cooloola Recreation Area.

QPWS, the Kabi Kabi People and the Butchulla Native Title Aboriginal Corporation are working towards a co-stewardship park management partnership. The Kabi Kabi People and the Butchulla Native Title Aboriginal Corporation's expertise, and outcomes from cultural heritage assessments, are considered in all planning and management activities. This engagement builds our partnership and increases our shared knowledge and respect for the Cooloola Recreation Area's cultural landscape.

Management activities are conducted in keeping with the legislative requirements of the *Aboriginal Cultural Heritage Act 2003* (Qld), *Native Title Act 1993* (Cwlth) and the *Native Title (Queensland) Act 1993*.

Map 2 below highlights the overlay of the Kabi Kabi native title claim area and the Butchulla Native Title Aboriginal Corporation native title area.

Map 2. Native title claim areas within the Cooloola Recreation Area

2.2 Wetlands of international importance (Ramsar site)

The Great Sandy Strait is listed under the Convention on Wetlands of International Importance (Ramsar Convention) and includes parts of Cooloola Recreation Area. The Great Sandy Strait is a double-ended sand passage estuary, separating K'gari (Fraser Island) from the mainland. The strait is the largest area of tidal swamps within the South-East Queensland bioregion. It is one of the best examples of a tide dominated sand passage estuary system on Australia's eastern seaboard. The Ramsar site comprises this passage estuary and margins of the large sand island and sandy mainland, and therefore includes both estuarine and freshwater wetlands, which are extensive and diverse (**Map 3**).

The site supports a diverse and regionally significant area of seagrass beds as well as mangrove wetland habitats that comprise species at, or near to, their northern or southern geographical limits. The site also supports large intertidal mud and sand banks, small but regionally significant coral reefs and sponge gardens, and other estuarine elements. These habitats in turn support feeding, roosting, shelter and migration pathways for abundant and diverse communities of crustaceans, fishes, sea turtles, mammals (dolphins, dugong, whales, a water mouse), migratory and resident shorebirds, sponges and corals. The site is at or near the limits of geographic extent of several species of flora and fauna.

Wetlands are dependent on ecological processes[2], which include all those processes

Figure 3: Conceptual diagram illustrating the critical ecosystem services supported within the Great Sandy Strait Ramsar site

[2]https://wetlandinfo.des.qld.gov.au/wetlands/ecology/processes-systems/

that occur between organisms and within and between populations and communities, including interactions with the non-living environment that result in existing ecosystems and bring about changes in ecosystems over time.
Environmental processes play a key role in influencing the extent, condition and biodiversity of ecosystems, including climatic processes, light availability and production, nitrogen processes, wetland and the carbon cycle, water and sediment processes.
Ecological processes that are critical for maintaining the wetland values include:

- groundwater processes: the whole Cooloola sand system depends on it
- water characteristics: notably acid waters have a suite of animals adapted to low pH conditions
- coastal processes:[3] including waves, tidal action and longshore drift. These processes influence the eastern coastline and Inskip Peninsula, causing erosion and revealing coffee rock.
- interactions between tidal discharge from the Great Sandy Strait and coastal processes such as longshore drift and wave action are very significant for Inskip Peninsula landslips and
- geomorphological and soil forming processes of dunes e.g. aeolian, mass movement, soil creep etc. and how they interact with the wetlands.

A substantial area of non-forested peat swamp, comprised mainly of rare 'patterned fens'[4], occurs within the site. The Cooloola patterned fens are part of a distinctive wetland complex that occurs in the Great Sandy Strait Region, from Wathumba on K'gari (Fraser Island) to just north of Lake Cooloola. The largest fens extend over an area of 521 ha, primarily south-west of the township of Rainbow Beach. The fens are composed primarily of the rush *Empodisma minus*, which is adapted to the anaerobic sediment and acidic water conditions (Moss et al. 2012).

These fens, together with areas of 'wallum' heath swamps, support species adapted to the prevailing acidic water and substrate, including threatened frogs and fishes as well as species of crayfish and earthworm. Rainfall, surface and groundwater flows, water table levels and water chemistry are crucial supporting factors. A 'declared Ramsar wetland' is an area that has been designated under Article 2 of the Ramsar Convention or declared by the Minister to be a declared Ramsar wetland under the *Environment Protection and Biodiversity Conservation Act 1999*.

The Great Sandy Marine Park overlays the majority of the Great Sandy Strait Ramsar site with highly protected zoning (Marine National Park and Conservation Park Zones). A designated Shorebird Roosting and Feeding Area is also in place which aims to minimise harm or distress to shorebirds, either directly or indirectly, by human activities or domestic animals.

Large areas of the Great Sandy Strait[5] are also included in several declared Fish Habitat Areas, including:

- Susan River FHA
- Maaroom FHA
- Kauri Creek FHA
- Tin Can Inlet FHA
- Noosa River FHA.

The Great Sandy Strait Ramsar site meets six of the nine criteria considered before declaring a Ramsar wetland. The listing criterion are noted in **Table 1**. In summary, fauna of special significance in the site are:

- substantial populations of nationally or internationally threatened species: four marine turtle species (green, loggerhead, hawksbill, flatback); dugong; the intertidal dwelling water mouse; the mangrove-dwelling Illidge's ant-blue butterfly in estuarine/marine areas; the honey blue-eye and Oxleyan pygmy perch; and four species of acid frogs in the patterned fens and wallum heath plains and swamps
- a population of at least 20,000 shorebirds comprising at least 20 species, which occur at the site annually: eight of these species occur in numbers exceeding 1% of their flyway population, with the highest site

[3] https://www.sciencedirect.com/science/article/pii/S0272771417311484?via%3Dihub

[4] CSIRO PUBLISHING | Marine and Freshwater Research

[5] Declared fish habitat areas | Parks and forests | Department of Environment, Science and Innovation, Queensland

count worldwide for the far eastern curlew
- substantial stocks of juvenile and adult fishes, prawns and crabs, many of which are, or may be, subject to commercial or recreational harvest
- a relatively large number of species of marine mammals, including several cetaceans.

In terms of human use, Great Sandy Strait includes sites and resources of considerable cultural significance to First Nations peoples, and contains natural resources that potentially may be harvested sustainably by First Nations peoples for traditional purposes. The site's rich diversity and abundance of natural resources also support a range of nature-based tourism and recreational activities.

Table 1. Great Sandy Strait Ramsar site criterion

Criterion 1	Contains representative, rare, or unique example of a natural or near-natural wetland type found within the appropriate biogeographic region.
Criterion 2	Supports rare species and threatened ecological communities.
Criterion 3	Supports populations of plant and/or animal species important for maintaining the biological diversity of a particular biogeographic region.
Criterion 4	Supports plant and/or animal species at a critical stage in their life cycles or provides refuge during adverse conditions.
Criterion 5	Supports 20,000 or more waterbirds.
Criterion 6	Supports 1% of the individuals in a population of one species or subspecies of waterbird.
Criterion 7	Supports a significant proportion of indigenous fish subspecies, species or families, life-history stages, species interactions and/or populations that are representative of wetland benefits and/or values and thereby contributes to global biological diversity.
Criterion 8	Important source of food for fishes, spawning ground, nursery and/or migration path on which fish stocks, either within the wetland or elsewhere, depend.
Criterion 9	Supports 1% of the individuals in a population of one species or subspecies of wetland-dependent non-avian animal species

Map 3. The Great Sandy Strait Ramsar site, DESI, Wetlands 2022

2.3 Ecosystems and biodiversity

The oldest sequence in coastal dunes in the world (approximately 800,000 years) has been recorded at Cooloola sandmass. Cooloola preserves magnificent examples of coastal parabolic dunes—both bare mobile forms (with various stages of plant colonisation) and very large, vegetated dunes (in different stages of reduction by water erosion) form diverse and attractive scenery of important scientific and social interest.

Cooloola is also well known for the spectacular colours of sand beds exposed by the erosion of sea cliffs along the coastal margins. The sea cliffs preserve evidence of the last two high sea levels (the last interglacial, about 100,000 years ago, and the Holocene, approximately 6,000–3,000 years ago). The sands of the sea cliffs are various shades of yellow, brown, red, white and black.

Groundwater dependent ecosystems (GDEs) are important elements in the Cooloola landscape. The understanding of GDEs, particularly their location and importance, is increasingly being recognised in environmental management.

Ecological benefits and ecosystem services associated with GDEs include, but are not limited to:

- provision of habitat for flora and fauna, including rare and unique species
- providing corridors for fauna
- mitigating the effects of floods
- reducing soil erosion
- reducing sediment and nutrient loss
- degrading pollutants and contaminants
- nutrient cycling.

2.3.1 Regional ecosystems

Cooloola is sufficiently large, diverse and free from major disturbances to retain viable populations in all of the major ecosystems, and to allow the continuing evolution of the main natural phenomena. While some of the forests have been modified by logging, most of the areas have the capacity to gradually recover their previous structure, although their floristic composition may remain somewhat altered for a long time.

There are 19 regional ecosystems within Cooloola Recreation Area. Three of these have an ‘endangered’ status, while 16 have an ‘of concern’ biodiversity status (refer to Appendix 2):

- Endangered RE 12.1.1 *Casuarina glauca* woodland on margins of marine clay plains
- Endangered RE 12.3.1 Gallery rainforest (notophyll vine forest) on alluvial plains
- Endangered RE 12.5.2 *Corymbia intermedia*, *Eucalyptus tereticornis* open forest on remnant Tertiary surfaces, usually near coast. Usually deep red soils.

Patches of subtropical rainforest on Cooloola add to the diversity of the vegetation and scenery of the coastal dunes. These appear to be survival centres for species whose previous distribution has been markedly reduced by changes in both climate and the position of the coastline over the last two million years. Such changes have led to disjunct distributions of several species. Several other rare plants also occur in the eucalypt forests and woodlands. *Glycine argyrea* is known only in Cooloola, just south of Rainbow Beach.

The extensive satinay/brush box forests and the blackbutt/bloodwood forests on Cooloola contain giant trees up to 50 m in height, with diameters at chest height of up to 3 m. These are spectacular examples of subtropical sclerophyll forests that provide scenic diversity and arouse scientific curiosity about the development of such large biomasses on nutrient-poor quartz sands. The rainforests also contain relict Gondwana flora, such as Araucaria and Agathis, and several primitive plants.

2.4 Species

Appendix 3 provides a list of native animal and plant species of conservation significance in the area, and **Appendix 4** provides a list of species subject to international agreements.

2.4.1 Native animals

There are a number of relevant national recovery plans, including, but not limited to:

- wallum sedge frog *Litoria olongburensis* and other wallum-dependent frog species
- black-breasted button-quail *Turnix melanogaster*
- water mouse *Xeromys myoides*
- Oxleyan pygmy perch *Nannoperca oxleyana*.

Additional national recovery plans are outlined in **Appendix 1**.

The Cooloola Recreation Area is the most important remaining habitat for the disjunct northern populations of the ground parrot *Pezoporus wallicus*, a species listed as 'vulnerable'. Cooloola also provides habitat for raptors of conservation concern, including the peregrine falcon, osprey and white-breasted sea-eagle. The 'vulnerable' black-breasted button-quail *Turnix melanogaster* and plumed frogmouth *Podargus ocellatus plumiderus* also occur in the area. The 'vulnerable' water mouse *Xeromys myoides* is found within the region, in its favoured habitat of coastal wetlands, including melaleuca and mangrove communities, sedgelands and saltmarsh.

2.4.2 Native plants

The Cooloola Recreation Area is very important for the maintenance of biodiversity, as many species are endemic to the region and the diversity of plant communities and species is very high. The tall rainforests, which have developed on sand dunes in the area, are not known to have developed elsewhere in the world. More than 870 species of flowering plants and ferns, including a number of rare and endemic plants, have been identified on Cooloola**.** These include the 'endangered' pineapple zamia *Macrozamia pauli-guilielmi*, swamp stringybark *Eucalyptus conglomerata*, and the scented acronychia *Acronychia littoralis*, as outlined in **Appendix 3**. Satinay *Syncarpia hillii* is one of the largest and most outstanding trees found in Cooloola and is confined largely to the area.

Subtropical and Temperate Coastal Saltmarsh Ecological Community is listed as vulnerable under the EPBC Act

2.5 Geophysical features and landscape

2.5.1 Geophysical features

The Cooloola Recreation Area and surrounding area is dominated by four geological components: the Triassic/Jurassic sandstones of the upper Noosa River and Tin Can Bay areas; the Cretaceous mudstones and shales of the Mary River Heads and Woody Island; the large Quaternary sandmasses of K'gari (Fraser Island) and Cooloola; and the Quaternary alluvium of the coastal plains, such as the Noosa Plain. There are also four small rocky headlands of interbedded volcanic and sedimentary rocks of Tertiary age (Double Island Point, Tukkee Wurro (Indian Head), Middle Rocks and Waddy Point). Quaternary aeolienite (windblown sand cemented by calcium carbonate) forms part of three low hills at Double Island Point.

The Cooloola sandmass holds a landscape that provides an outstanding example of the major stages of coastal dunes forming, stabilising and eventually being reduced by water erosion during the Quaternary era. The sandmass, above sea level, comprises at least six stages of coastal dune-building during the late Pleistocene and Holocene geological periods. These overlie older sandbeds and estuarine deposits to at least 35–55 m below sea level, where they rest on an eroded Mesozoic sandstone basement. K'gari (Fraser Island) and the Cooloola Sand Mass dune fields host thousands of emplaced (relict) and active onlapping parabolic dunes that span 800,000 years in age.

Surface wash has induced gullies and fans in young dunes, and raindrop splash has worn older dunes down to convex sandhills with long colluvial slopes. Such raindrop splash slopes are very rare in nature and those at Cooloola are probably the best examples on record. The studies carried out at Cooloola provide an

unparalleled description and some measurements of these geomorphological processes. The age sequence of sand dunes provides a unique opportunity to observe the processes and rate of long-term soil formation on vegetated coastal dunes in the subtropics. The research that has been carried out at Cooloola is likely unmatched for podzol soils elsewhere in the world.

The Noosa River catchment lies to the west of the sandmass, and drains from the sandmass and from low sandstone hills further to the west. It is a low gradient coastal stream with a wide range of geomorphic features induced by changes in sea level over the past 160,000 years. These include a broad channel cut during low sea levels, and shorelines, deltas, delta lakes, tidal lakes and estuarine deposits associated with high sea levels. There is also an illustration of potential stream capture along part of the interfluve between the Noosa and Mary rivers. Many of the processes are ongoing. The river is a ‘black’ water stream but has both ‘black’ and ‘white’ water tributaries.

Marine, fluvial (related to rivers and water flow) and aeolian (wind movement of soils and sand) processes have been involved separately or jointly in producing the array of landforms making up the present landscape. As a result, there are many examples of different landforms that can be seen in different stages of development or degradation. The outstanding example of these is the ongoing construction of parabolic dunes by the onshore winds, their stabilisation by plants and, when vegetated, their progressive degeneration. The differences in depth of soils within a dune system are due to variations in the moisture regime of the geomorphic components making up parabolic dunes (Thompson 1983, Thompson & Moore 1984).

Coastal processes can be seen bringing sand onto the beach, moving sand between the beach and the surf zone, working the sand northwards along the shore and around headlands, and depositing it on the coast. Coastal processes can also be seen in the deposition of intertidal deposits in the mangrove fringes of Tin Can Inlet estuary and Great Sandy Strait.

At K’gari (Fraser Island) and Cooloola, new studies (Patton et al. 2022) confirm that major phases of dune activity are governed by sea-level fluctuations. In addition, the age pattern demonstrated that their spatial distributions are controlled by changes in swash/drift alignment of the coast. The oldest Holocene dunes are concentrated near headlands that act as pinning points for coastal rotation and are less erosion prone.

The offshore geology of the broader area is important as it is a foundation for growth of marine organisms, provides a source of sand for coastal sandmasses, and has an influence on, and is a reflection of, past and present coastal processes and tidal hydraulics.

Landforms in the area provide a record of many of the climatic and environmental changes that have occurred during the Quaternary period. Their integrity should be maintained so they can continue to contribute to knowledge of the natural processes responsible for their development and natural degradation.

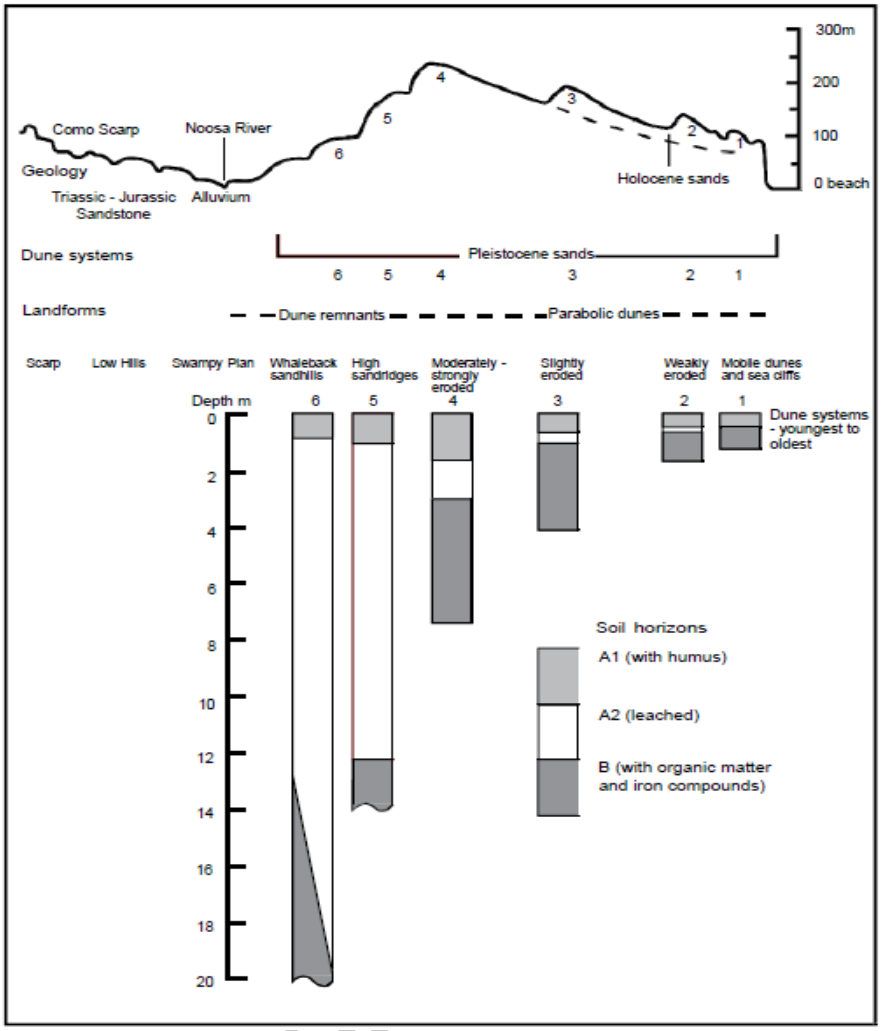


Figure 4: Cooloola cross-section, Thompson & Moore 1984

2.4.2 Landscape

Cooloola Recreation Area is recognised as having outstanding landscape value. The area's scenic beauty is inspirational and provides themes for works by artists and writers. The variety of attractive patterns of land, water and vegetation reflects the consistently underlying themes of wind, water and sand. The natural beauty of the area is largely derived from the naturalness, uniqueness, diversity and spatial relationships of landform and vegetation.

Cooloola Recreation Area includes more than 50 km of sandy beaches, with long uninterrupted sweeps of ocean beach, strikingly coloured sand cliffs of ancient origin, and magnificent sandblows. The rocky headland of Double Island Point contrasts with the extensive ocean sand dunes and beaches. The open waters of offshore Cooloola provide extensive coastal vistas. Views from Cooloola, as well as within it, need to be considered and require cooperative management with neighbours.

The Noosa River and associated lakes are impressive landscape features. The upper Noosa River flows through the expansive treeless Noosa Plain, then through various forest communities that fringe its banks and reflect in its peaceful waters. The estuarine areas of the adjacent Great Sandy Strait also have great aesthetic appeal and landscape value with their mosaic of islands, mangrove forests, mudflats, sandbanks and waterways.

The natural landscapes in Cooloola are largely protected, but there are some temporary scars from previous activities, including grazing, mining, logging, airfields and the construction of facilities. There is a need for such sites to be rehabilitated. Some townships, areas of development and a number of roads intrude on landscape values. The screening of Mt Bilewilam quarry through revegetation of its road frontage has lessened its impact on the landscape. However, infrastructure such as the powerlines across the Noosa Plain continues to impact on the landscape and intrude upon the natural setting of the surrounding area. Many beach foredune areas and numerous degraded beach camping sites have been closed to vehicles and regenerated, and rehabilitation projects, including revegetation, have been implemented in degraded areas surrounding popular lakes and along the Noosa River. Several non-essential roads and other disturbed areas have been rehabilitated.

Figure 5. Carlo Sandblow © Alicia Powley DESI

Figure 6. Outlook from Double Island Point © Alicia Powley DESI

2.6 Recreational opportunities

The park's natural beauty, sand landscapes and features provide world-class tourism experiences—clear sandy beaches, tall forests, perched dune lakes, pristine freshwater creeks, spectacular sandblows, multi-coloured sand cliffs and immense dunes. Tourists enjoy scenic drives, beach driving and camping, bushwalking, swimming and surfing, along with visiting iconic natural sites such as Carlo Sandblow and trips up the dark and tranquil waters of the upper Noosa River. The park is also a 'gateway' to marine experiences, such as whale watching. Commercial tours cater for a domestic and international market, including organised groups.

Tourists visiting the park help the local economy, particularly Rainbow Beach, Tin Can Bay, Tewantin, Gympie and Noosa—supporting jobs and buying transport, accommodation, food and recreation services. The regional and state economies also benefit through the multiplier effect—where industries that service the tourism sector also receive a boost in sales and jobs.

2.6.1 Four-wheel driving

The opportunity to explore long, open beaches and sand tracks, remote from towns, is highly valued by many local and international park visitors. Some visitors come just for the four-wheel drive (4WD) touring experience, particularly beach driving, while others use 4WDs to reach camping sites or to visit natural features. Teewah Beach and Rainbow Beach are iconic beach drives, and provide access to many natural features, but are affected by tides. Most people who 4WD are domestic visitors, and international visitors often take commercial 4WD tours.

An overview of the vehicles accessing the Cooloola Recreation Area can be derived using the Noosa Ferry records showing the number of vehicle crossings from Noosa, QPWS vehicle access permits (VAPs) and the Automatic Number Plate Recognition System, which records the number plate of vehicles entering the park.

VAP purchases have increased significantly from 80,167 in the 2016–2017 FY period to 114,899 in 2020–2021.

Figure 7. Four-wheel drive use at Double Island Point Lookout

Figure 8. Teewah Beach © Emma Barraclough DESI

2.6.2 Camping

Long beaches backed by high sand dunes, tranquil waterways, wildflower heaths, freshwater lakes, woodlands and forests make Cooloola a popular holiday destination and a vital refuge for coastal wildlife.

Cooloola offers a range of camping options from modern facilities at Freshwater, beach camping at Teewah, and river campsites accessible by canoe or kayak. For a complete getaway, visitors can walk and camp along the three-day Cooloola Wilderness Trail or the five-day Cooloola Great Walk. Cooloola Recreation Area total camper nights for 2020–2021 FY totalled 287,933.

Figure 9. Camping along Teewah Beach © Emma Barraclough DESI

Figures 10. Camping along Teewah Beach © Alicia Powley DESI

2.6.3 Canoeing/kayaking

Canoeing/kayaking is the best way to experience the upper Noosa River. It was named as one of the 10 best places[6] to canoe/kayak within Australia. The upper Noosa River is known for its glassy, smooth waters. Most people begin in the shallow Lake Cootharaba, making the short crossing to the mouth of the river and then into Fig Tree Lake. From here, the river contracts into the Narrows, where paperbark trees hang over the water. The river is lined with almost a dozen campsites, reaching almost to the headwaters (about 40 km from Lake Cootharaba).

Another area where kayaking is popular with commercial and recreational users is at Double Island Point in the lagoon area.

Figure 11. Visitors enjoying canoeing/kayaking in the upper Noosa River © John Olds

Figure 12. Upper Noosa River at Campsite 2 © John Olds

2.6.4 Bushwalking

Bushwalking is a good way to experience the Cooloola Recreation Area. There are a range of opportunities, including the Cooloola Great Walk and the Wilderness Trail.

Walking tracks, from short circuits to long hikes, lead to some of Cooloola's best features. Some of the day walks include the Boronia trail, Campsite 3 walk, Carlo Sandblow walk, and Double Island Point lighthouse walk.

Figure 13. Low key signage to the upper Noosa River and Great Walk © John Olds

[6] https://www.traveller.com.au/australias-ten-best-places-to-see-from-a-kayak-gj6zxf (2015)

2.7 Ecotourism

Experiencing nature is a primary motivator for both domestic and international visitors in Australia. Queensland provides visitors with high-quality ecotourism experiences, world-class national parks and marine parks, five World Heritage areas, and a huge diversity of unique and unrivalled landscapes and iconic wildlife.

Queensland's national parks play a substantial role for ecotourism. Our commercial tour operators have a long history of accessing national parks and providing visitors with a wide array of ecotourism experiences.

The existing tourism industry within the Cooloola Recreation Area consists of three main elements: tours, accommodation and support services. Tours of Cooloola include primarily day tours and a small proportion of special group tours. Commercial activity occurs within the Cooloola Recreation Area and provides visitors and residents with goods, services and employment to enhance their recreational use of the area.

Many commercial operators working within national parks and other protected areas are already eco-certified and demonstrate a commitment to best-practice business operations and minimal impact on the natural environment. The requirement for all tourism operators authorised under long-term agreements to be eco-certified demonstrates the importance of these ambitions.

A project team from DESI and the Department of Tourism and Sport will deliver the Queensland Ecotourism Trails program—ecotourism experiences at iconic Queensland destinations, including within or adjacent to national parks, as identified by the government. The Cooloola Great Walk[7] is currently being considered as part of a future ecotourism opportunity. More information can be found on the government's website.

The Cooloola Great Walk traverses 102 km through the Cooloola Recreation Area, linking Noosa North Shore with Rainbow Beach. As this is a Grade 4 walking track, it is recommended for experienced walkers: the track has limited directional signs, and is long, rough and very steep in places.

While discovering ancient sand hills, perched lakes, hidden rainforests, coastal woodlands and heathlands, walkers can expect to be surrounded by nature's chorus day and night. Masses of wildflowers in spring and stunning mirror-image surface reflections on the dark waters of the upper Noosa River make the Cooloola Great Walk an exceptional long-distance walking experience.

The Cooloola Great Walk takes most walkers five days and four nights to complete in its entirety, but there are also short walks available in the area. There are four evenly spaced public campsites along the route, which require nightly permits to occupy.

The Cooloola Wilderness Trail[8] showcases the remote landscape of the inland remote area of Cooloola's western upper Noosa River catchment. Over several days, walkers experience riverine rainforests, tall eucalypt forests, drier woodlands, scribbly gum woodland and heathlands. They also find remote waterholes and rainforest-fringed creeks. During spring, enjoy an abundance of wildflowers attracting native bees, birds, bats and gliders.

The upper Noosa River provides a unique opportunity to enjoy the tranquil waterways by use of kayaks or canoes. The upper-most parts of the Noosa River (past Campsite 3) are only accessible to users (recreational and commercial) by non-motorised/electric motor vessels, to enjoy the quiet remote setting.

[7] https://parks.des.qld.gov.au/parks/great-walks-cooloola

[8] https://parks.des.qld.gov.au/parks/cooloola/journeys/cooloola-wilderness-trail

2.8 Post-contact cultural heritage

Cooloola Recreation Area is home to a range of post-contact cultural heritage places that demonstrate the importance of the region to the expansion of Queensland's settlement following separation from New South Wales. The coastal environment lent itself to a variety of industries, including timber-getting, maritime navigation and commerce, and the supporting settlements. The Queensland Heritage Register sites include three distinct heritage places: Pettigrew's Cooloola timber tramway complex, Mill Point settlement site and the Double Island Point Lightstation.

1. Pettigrew's Cooloola timber tramway complex

Pettigrew's Cooloola timber tramway complex was the first major private railway in Queensland, and its success encouraged other timber operations to switch from the use of bullock teams to tramways as a means to extract timber from remote areas. Pettigrew's tramway extends through the Cooloola Recreation Area, a rare surviving remnant of the earliest period of timber extraction and processing in the region.

Sections of Pettigrew's Cooloola timber tramway complex align to the Poverty Creek firebreak and are identifiable by cuttings and embankments. Physical remnants include the Seary's Creek rafting ground and corduroy crossing, Poverty Point timber skids, Broutha Scrub steam engine site and the timber bridge over Cooloola Creek.

Pettigrew's Cooloola timber tramway complex was entered in the Queensland Heritage Register for its significance in demonstrating the early expansion of Queensland's timber industry, and the development of private railways in the late 19th century. The tramway complex has potential for archaeological investigations to reveal information about the development of Queensland's timber industry, and domestic life in the supporting camps and settlements.

The tramway complex has a strong assocation with William Pettigrew, who was a prominent figure in South-East Queensland, first as a pioneer of the timber industry, and later as a local then state political figure. Strong aesthetic values contrasting the industrial tramway remains with the natural landscape of beaches, inlets, creeks and forests serve as reminder of the difficulties and perserverance required to succeed in such an environment.

The Queensland Heritage Register entry for Pettigrew's Cooloola timber tramway complex is available at: https://apps.des.qld.gov.au/heritage-register/detail/?id=602819

2. Mill Point settlement site

To the north of the Elanda Point campgrounds is Mill Point settlement site, the location of one of the first and most successful timber mills in the Cooloola area. Co-located are the extensive remains of the private timber town established in 1869 for the timber-getters and their families, and which was inhabited until the mill closed in 1892. Physical remains include a tramway, jetty, wharves, dairy farm and cemetery. The area also contains substantial subsurface archaeological deposits.

Mill Point settlement site was entered in the Queensland Heritage Register on 6 April 2005 for its importance in illustrating the pattern of settlement in the Noosa hinterland; its role in legislative reform that resulted in improved worker health and safety for the boiler industry; its social significance to the local Boreen Point and Noosa communities; and its association with McGhie and Luya, who were influential in developing rural south-east Queensland by establishing company towns, and notable for their involvement in various gold rushes.

Mill Point settlement site has extensive material remnants. Those that are current are associated with the tramway, cemetery, dairy area, jetties and wharves (surface and subsurface deposits), and hold significant potential to reveal further information about 19th century life in a company town, and the associated timber extraction and processing industry.

The Queensland Heritage Register entry for Mill Point settlement site is available at: https://apps.des.qld.gov.au/heritage-register/detail/?id=601280

3. Double Island Point Lightstation

On separating from New South Wales, the new colony of Queensland had over 5,000 km of coastline with few safety features in place—the only lighthouse was at Cape Moreton (1857). Due to a lack of funds, early maritime safety efforts

focused on managing pilots[9] and harbour lights. Seven years after separation, the government formed a Select Committee to report on the state of harbours and rivers, later expanding the terms of reference to include the colony's requirements for additional lighthouses to support increasing trade and commerce.

Operating continuously since 1884, Double Island Point Lightstation was the 18th lighthouse to be built by the Queensland Government. Its round timber frame clad with galvanised iron is a design unique to Queensland. The lighthouse's white tower, contrasted by its bright red dome, makes a dramatic visual statement in the otherwise natural landscape.

Double Island Point Lightstation is entered in the Queensland Heritage Register as a substantially intact example of its type of lighthouse construction. It is integral to understanding the establishment of navigational aids along the Queensland coast, and reflects the growth and development of the Queensland colony. Double Island Point Lightstation has a strong association with Commander George Poynter Heath, first Portmaster of Queensland. The lightstation, with its complex of supporting structures, is strongly associated with the continuum of lightkeepers and their families, who maintained the navigational aid and safe passage for ships. The light is now automated and the area is leased to the Noosa Parks Association.

The Queensland Heritage Register entry for Double Island Point Lightstation is available at: https://apps.des.qld.gov.au/heritage-register/detail/?id=601722

Figure 14. Double Island Point Lightstation © Alicia Powley DESI

[9] Maritime pilots guide ships through dangerous waterways.

2.9 Monitoring & scientific research

An improved state-wide system, with clearer standards and processes, has been developed to track and assess returns for research and scientific permits. A list of research and monitoring sites for past and present projects in the region has been compiled.

Research by tertiary institutions is supported in the Coastal and Islands Region.

Biennial vegetation monitoring is undertaken, with permanent reference plots to assess plant succession.

The *Commonwealth Bushfire Recovery Program* (2019–2022) provides valuable research findings and data for fire-affected areas within the Cooloola Recreation Area.

Current research opportunities are outlined in the Monitoring and Research Strategy[10] for Cooloola Recreation Area. Some of the key research projects include, but are not limited to:

1. Understanding the ecological significance of the water mouse & its preferred habitat
2. Pollinator diversity & pollination services in wallum heathlands
3. Answering questions about the diversity & species composition of different types of heath
4. Bushfire recovery grant from Commonwealth after 2019 wildfires (heath communities)
5. Bushfire recovery Freshwater Fish survey (Commonwealth Grant)
6. Climate and environmental history of SEQ dunefields
7. Impact and drivers of insect herbivory on nutrient cycling in forests globally
8. Fire management and the ecology of threatened flora
9. Prioritising restoration actions for coastal ecosystems
10. Cooloola Bio Blitz.

2.10 Fire

Firstly, there is acknowledgment of the important and significant use of fire by the Kabi Kabi People. The cultural use of fire is integrated within First Nations social, spiritual and economic wellbeing—past, present and future—and is a key part of Cooloola's ongoing fire management.

Managing fire in Cooloola Recreation Area is core business for QPWS, with functions to protect life and property, mitigate wildfires, maintain natural diversity and cultural values carried out in accordance with the *Nature Conservation Act 1992* (Qld) (NCA) and the *Fire and Emergency Services Act 1990* (Qld).

Fire within the protected area is managed in accordance with the QPWS fire management operations and governance operational policy. This policy applies to all fire management activities relating to fire planning, planned burning, bushfire preparedness and response, and fire reporting on the QPWS estate, where responsibility for managing fire rests primarily with QPWS.

Cooloola Recreation Area contains the last large tract of uncleared coastal lowlands on the South-East Queensland mainland. Consequently, it is a particularly important stronghold for many rare and threatened species of flora and fauna, including the largest population of ground parrots *Pezoporus wallicus* on mainland Australia.

The regular ignition of this landscape from lightning strike during spring and summer thunderstorms, together with the occasional illegal fire escapes, makes the importance of QPWS planned fire crucial to managing bushfire impacts and risks.

Cooloola Recreation Area lies within the South-East Bioregion of Queensland and contains 19 regional ecosystems within 61,750 ha.

[10] Health checks are tools for efficiently and routinely assessing the condition of key park values. They use simple visual 'cues', require no specialist skills or equipment, and have been designed to work state-wide. Health checks, in conjunction with other routine on-ground monitoring, are the basis for the evaluation of the condition of natural values through time for the majority of estate managed by QPWS. Where highly significant values require management intervention on a high priority park, detailed, targeted monitoring or research may be warranted (Melzer 2015) and is identified in a Monitoring and Research Strategy.

QPWS bioregional planned burn guidelines detail fire management for ecosystems in Queensland. The Southeast Queensland Planned Burn Guideline details fire regimes and fire-related issues important to the health and management of these ecosystems.

Managing fire is challenging and complex due to the vast, continuous expanses of flammable vegetation types, including heathlands, banksia and melaleuca woodlands, and sclerophyll woodland and forests. Adjoining these areas are several urban developments, numerous QPWS visitor and camping facilities and large areas of high-value timber pine plantations.

The fire management complexity of Cooloola Recreation Area is further exacerbated by the diversity of land tenures and uses. Areas around the townships of Rainbow Beach, Cooloola Cove, Noosa North Shore and Tewantin have parcels of protected areas, unallocated state land, council land, freehold land and leases, with no accessible or easily identifiable boundaries. Consequently, management of these areas is reliant on a cooperative effort between various government agencies and private landholders.

Best practice strategic landscape scale fire planning is important to deliver on-ground outcomes that help to mitigate bushfire risk to the community, while considering the diverse range of Cooloola Recreation Area values.

2.11 Pests

Pest management has an important role within Cooloola Recreation Area and is core business for QPWS. In accordance with the *Nature Conservation Act 1992* (Qld), QPWS is responsible for protecting and conserving the natural, cultural and social values within its parks. Consistent with all other landholders, QPWS has a responsibility under the *Biosecurity Act 2014* to take all reasonable and practical steps to minimise the risks associated with plant and animal pests on lands under its control.

Pest plants and animals within the protected area will be managed in accordance with the QPWS Pest Management Framework, which applies to all pest management activity and sets standards for the preparation and operational aspects of pest management operations. Pest management for Cooloola Recreation Area will be undertaken in accordance with a 10-year strategy for managing pests across the QPWS estate.

Management of pest plants and animals is guided by a pest strategy that outlines which pests are present and provides strategic management directions to guide on-ground pest management priorities and actions.

Refer to Appendix 6 for more information.

2.11.1 Pest plants

After fire, invasive weeds can quickly establish in new areas and expand their dominance, hindering the natural regeneration process. The low fertility, sandy soils characteristic of Cooloola fortunately provide less favourable conditions for the growth of many exotic plants. However, there are species that can succeed (such as Bitou bush), and there are other areas of the park with more fertile soils that can support rapidly expanding weed populations. The high level of recreational 4WD use at Cooloola poses a significant risk of spreading weeds along tracks, allowing further incursion into the park.

During 2019–2020, approximately 50 ha of Cooloola was treated for weeds. This included targeting areas and species that presented a risk of dispersing weeds (such as Singapore daisy and invasive grasses) into burnt areas that were recovering naturally. In addition, a series of vehicle tracks were also treated, targeting those weeds with readily transported seeds, such as giant rat's tail grass, whiskey grass and thatch grass. These efforts will be ongoing as part of the broader park weed management priorities.

2.11.2 Pest animals

At Cooloola, feral pigs are of concern to the recovery of threatened species populations and their habitats. Pigs are attracted to the extensive wetland habitats and can have significant ecological impacts on a wide range of native flora and fauna species. This includes destruction of vegetation, degrading water quality for aquatic species, trampling on and consuming small animals, and potentially spreading disease and weeds.

Foxes have also been known to occur in the Cooloola area and present an increased risk of predation to threatened species recovering from the fires, particularly the ground parrot and the southern emu-wren. Camera traps confirmed

the presence of foxes across multiple locations, which has led to an increased effort in fox control across the park.

Appendices

Appendix 1. Legal, policy and management commitments

Gazettal details

Cooloola Recreation Area was gazetted in 2010.

Applicable Acts and statutory powers

- *Aboriginal Cultural Heritage Act 2003* (Queensland)
- *Biosecurity Act 2014* (Queensland)
- *Environment Protection Biodiversity Conservation Act 1999* (Commonwealth)
- *Fisheries Act 1994* (Queensland)
- *Marine Parks Act 2004* (Queensland)
- *Native Title Act 1993* (Commonwealth)
- *Nature Conservation Act 1992* (Queensland)
- *Queensland Heritage Act 1992* (Queensland)
- *Recreation Areas Management Act 2006* (Queensland)

Management obligations

- Australian Ramsar management principles, Schedule 6 of the Environmental Protection and Biodiversity Conservation Regulations 2000
- Convention on Wetlands of International Importance (Ramsar Convention)

Recovery plans and guides

- National recovery plan for the wallum sedge frog and other wallum-dependent frog species
- National recovery plan for the black-breasted button-quail *Turnix melanogaster*
- National recovery plan for the water mouse (false water rat) *Xeromys myoides*
- National recovery plan for the Oxleyan pygmy perch *Nannoperca oxleyana*
- National recovery plan for *Acacia attenuata*
- National recovery plan for the littoral rainforest and coastal vine thickets of Eastern Australia Ecological Community
- National recovery plan for the Coxen's fig-parrot *Cyclopsitta diophthalma coxeni*
- National multi-species recovery plan for the cycads, *Cycas megacarpa, Cycas ophiolitica, Macrozamia cranei, Macrozamia lomandroides, Macrozamia pauli-guilielmi and Macrozamia platyrhachis*
- Draft Cooloola Sustainable Visitor Capacity Study 2020

Other management commitments

- BONN – Bonn Convention
- CAMBA – China–Australia Migratory Bird Agreement
- JAMBA – Japan–Australia Migratory Bird Agreement
- ROKAMBA – Republic of Korea–Australia Migratory Bird Agreement.

Appendix 2. Regional ecosystems of significance

Regional ecosystem	Description	Biodiversity status
12.1.1	*Casuarina glauca* woodland on margins of marine clay plains	Endangered
12.5.2	*Corymbia intermedia*, *Eucalyptus tereticornis* open forest on remnant Tertiary surfaces, usually near coast. Usually deep red soils	Endangered
12.3.1	Gallery rainforest (notophyll vine forest) on alluvial plains	Endangered
12.2.1	Notophyll vine forest on parabolic high dunes	Of concern
12.2.3	*Araucarian* vine forest on parabolic high dunes	Of concern
12.2.4	*Syncarpia hillii, Lophostemon confertus* tall open to closed forest on parabolic high dunes	Of concern
12.2.16	Sandblows largely devoid of vegetation	Of concern
12.12.19	Vegetation complex of rocky headlands on Mesozoic to Proterozoic igneous rocks	Of concern
12.2.5	*Corymbia intermedia* ± *Lophostemon confertus* ± *Banksia* spp. ± *Callitris columellaris* open forest on beach ridges usually in southern half of bioregion	Of concern
12.2.7	*Melaleuca quinquenervia* or rarely *M. dealbata* open forest on sand plains	Of concern
12.3.13	Closed heathland on seasonally waterlogged alluvial plains, usually near coast	Of concern
12.5.9	Sedgeland to heathland in low lying areas on complex of remnant Tertiary surface and Tertiary sedimentary rocks	Of concern
12.3.5	*Melaleuca quinquenervia* open forest on coastal alluvium	Of concern
12.3.4	*Melaleuca quinquenervia, Eucalyptus robusta* woodland on coastal alluvium	Of concern
12.5.12	*Eucalyptus racemosa* subsp. *racemosa, E. latisinensis* ± *Corymbia gummifera*, *C. intermedia, E. bancroftii* woodland with heathy understorey on remnant Tertiary surfaces	Of concern
12.3.14	*Banksia aemula* low woodland on alluvial plains usually near coast	Of concern
12.3.2	*Eucalyptus grandis* tall open forest on alluvial plains	Of concern
12.9-10.7	*Eucalyptus crebra* ± *E. tereticornis, Corymbia tessellaris, Angophora* spp., *E. melanophloia* woodland on sedimentary rocks	Of concern
12.3.11	*Eucalyptus tereticornis* ± *Eucalyptus siderophloia*, *Corymbia intermedia* open forest on alluvial plains, usually near coast	Of concern

Appendix 3. Species of conservation significance

Plants

Scientific name	Common name	NCA	EPBC	Back on track
Macrozamia pauli-guilielmi	pineapple zamia	Endangered	Endangered	Critical
Tecomanthe hillii	Fraser Island creeper	Near threatened		Low
Glycine argyrea		Near threatened		
Archidendron lovelliae	bacon wood	Vulnerable	Vulnerable	Low
Acacia baueri subsp. baueri	tiny wattle	Vulnerable		Medium
Acacia attenuata		Vulnerable	Vulnerable	High
Macarthuria complanata		Near threatened		High
Xanthostemon oppositifolius	southern penda	Vulnerable	Vulnerable	Low
Melaleuca cheelii		Near threatened		Low
Eucalyptus conglomerata	swamp stringybark	Endangered	Endangered	Medium
Durringtonia paludosa	durringtonia	Near threatened		High
Acronychia littoralis	scented acronychia	Endangered	Endangered	Medium
Boronia keysii	Key's boronia	Vulnerable	Vulnerable	High
Boronia rivularis	Wide Bay boronia	Near threatened		Low
Symplocos harroldii	hairy hazelwood	Near threatened		Low
Cryptocarya foetida	stinking cryptocarya	Vulnerable	Vulnerable	Medium
Blandfordia grandiflora	Christmas bells	Endangered		High
Phaius australis	swamp orchid	Endangered	Endangered	Critical
Eleocharis difformis		Endangered		
Rhodomyrtus psidioides	native guava	Critically endangered	Critically endangered	
Cryptostylis hunteriana	orchid	Least concern	Vulnerable	data deficient
Habenaria harroldii	orchid	Endangered		Low
Diteilis simmondsii	orchid	Near threatened		
Various[11]	Subtropical and temperate coastal saltmarsh		Vulnerable	

[11] https://www.dcceew.gov.au/sites/default/files/env/pages/b2a8d6af-0445-4064-8ff7-48cc9a484ab9/files/118-conservation-advice.pdf

Animals

Scientific name	Common name	NCA	EPBC	Back on track
Litoria freycineti	wallum rocketfrog	Vulnerable		Medium
Litoria olongburensis	wallum sedge frog	Vulnerable	Vulnerable	Medium
Litoria cooloolensis	Cooloola sedge frog	Near threatened		Medium
Adelotus brevis	tusked frog	Vulnerable		Medium
Crinia tinnula	wallum froglet	Vulnerable		High
Erythrotriorchis radiatus	red goshawk	Endangered	Vulnerable	High
Charadrius leschenaultii	greater sand plover	Vulnerable	Vulnerable	Low
Limosa lapponica baueri	Western Alaskan bar-tailed godwit	Vulnerable	Vulnerable	Low
Esacus magnirostris	beach stone curlew	Vulnerable		High
Calyptorhynchus lathami	glossy black cockatoo (eastern)	Vulnerable		High
Stipiturus malachurus	southern emu-wren	Vulnerable		Low
Grantiella picta	painted honeyeater	Vulnerable	Vulnerable	High
Anthochaera phrygia	regent honeyeater	Endangered	Critically endangered	Medium
Phaethon rubricauda	red-tailed tropicbird	Vulnerable		Low
Podargus ocellatus plumiferus	plumed frogmouth	Vulnerable		Low
Pezoporus wallicus	ground parrot	Vulnerable		High
Numenius madagascariensis	eastern curlew	Vulnerable	Critically endangered	Low
Ninox strenua	powerful owl	Vulnerable		Medium
Turnix melanogaster	black-breasted button-quail	Vulnerable	Vulnerable	Critical
Dasyurus maculatus	spotted-tailed quoll (southern subspecies)	Endangered	Endangered	High
Xeromys myoides	water mouse	Vulnerable	Vulnerable	High
Phascolarctos cinereus	koala	Vulnerable	Endangered	Low
Nannoperca oxleyana	Oxleyan pygmy perch	Vulnerable	Endangered	Critical
Pseudomugil mellis	honey blue-eye	Vulnerable	Vulnerable	Critical
Caretta caretta	loggerhead turtle	Endangered	Endangered	Critical
Chelonia mydas	green turtle	Vulnerable	Vulnerable	Critical

Notes: Collated from Wildnet DESI and Back on Track BoT data sources (March 2022)

Appendix 4. Species listed in international agreements

Scientific name	Common name	CAMBA	JAMBA	ROKAMBA
Actitis hypoleucos	common sandpiper	X	X	X
Anous stolidus	common noddy	X	X	
Anthochaera phrygia	regent honeyeater		X	
Apus pacificus	fork-tailed swift	X	X	X
Ardea alba modesta	eastern great egret		X	
Ardea ibis	cattle egret		X	
Ardenna carneipes	flesh-footed shearwater		X	X
Ardenna grisea	sooty shearwater		X	
Ardenna pacifica	wedge-tailed shearwater		X	
Ardenna tenuirostris	short-tailed shearwater	X	X	X
Arenaria interpres	ruddy turnstone	X	X	X
Calidris acuminata	sharp-tailed sandpiper	X	X	X
Calidris alba	sanderling	X	X	X
Calidris canutus	red knot	X	X	X
Calidris ferruginea	curlew sandpiper	X	X	X
Calidris melanotos	pectoral sandpiper		X	X
Calidris ruficollis	red-necked stint	X	X	X
Calidris tenuirostris	great knot	X	X	X
Calonectris leucomelas	streaked shearwater	X	X	X
Charadrius hiaticula	ringed plover		X	X
Charadrius leschenaultii	greater sand plover	X	X	X
Charadrius mongolus	lesser sand plover	X	X	X
Charadrius veredus	oriental plover	X	X	X
Chlidonias leucopterus	white-winged black tern	X	X	X
Coracina tenuirostris	cicada bird		X	
Cuculus optatus	oriental cuckoo	X	X	X
Cyclopsitta diophthalma coxeni	Coxen's fig-parrot		X	
Diomedea exulans	wandering albatross		X	
Fregata ariel	lesser frigatebird	X	X	X
Fregata minor	great frigatebird	X	X	
Gallinago hardwickii	Latham's snipe		X	X
Gelochelidon nilotica	gull-billed tern	X		
Glareola maldivarum	oriental pratincole	X	X	X
Hirundapus caudacutus	white-throated needletail	X	X	X
Hirundo rustica	barn swallow	X	X	X

Scientific name	Common name	CAMBA	JAMBA	ROKAMBA
Hydroprogne caspia	Caspian tern		X	
Limicola falcinellus	broad-billed sandpiper	X	X	X
Limosa lapponica baueri	Western Alaskan bar-tailed godwit	X	X	X
Limosa	black-tailed godwit	X	X	X
Merops ornatus	rainbow bee-eater		X	
Numenius madagascariensis	eastern curlew	X	X	
Numenius minutus	little curlew	X	X	X
Numenius phaeopus	whimbrel	X	X	X
Oceanites oceanicus	Wilson's storm-petrel		X	
Onychoprion anaethetus	bridled tern	X	X	
Phaethon lepturus	white-tailed tropicbird	X	X	
Phaethon rubricauda	red-tailed tropicbird	X		
Pluvialis fulva	Pacific golden plover	X	X	X
Pluvialis squatarola	grey plover	X	X	X
Psephotus pulcherrimus	paradise parrot		X	
Pterodroma leucoptera	Gould's petrel (Australian subspecies)		X	
Pterodroma solandri	providence petrel		X	
Stercorarius longicaudus	long-tailed jaeger	X	X	
Stercorarius parasiticus	Arctic jaeger	X	X	X
Stercorarius pomarinus	pomarine jaeger	X	X	
Sterna dougallii	roseate tern	X	X	
Sterna hirundo	common tern	X	X	X
Sterna sumatrana	black-naped tern	X	X	
Sternula albifrons	little tern	X	X	X
Sula dactylatra	masked booby		X	X
Sula leucogaster	brown booby	X	X	X
Tringa brevipes	grey-tailed tattler	X	X	X
Tringa incana	wandering tattler	X	X	
Tringa nebularia	common greenshank	X	X	X
Tringa stagnatilis	marsh sandpiper	X	X	X
Xenus cinereus	terek sandpiper	X	X	X

Notes:

List includes the broader Great Sandy Area

CAMBA – China–Australia Migratory Bird Agreement

JAMBA – Japan–Australia Migratory Bird Agreement

ROKAMBA – Republic of Korea–Australia Migratory Bird Agreement

Appendix 5. Places of post-contact historic value

Site name	Description
1. Pettigrew's Cooloola Timber Tramway	Pettigrew's Cooloola timber tramway complex is important in demonstrating the early expansion of Queensland's timber industry and the development of private railways in the state in the late 19th century. The Wide Bay-Burnett region was historically one of Queensland's most important timber producing regions. The remains of the Seary's Creek rafting ground and related corduroy crossing, and the Cooloola tramway complex, provide rare surviving evidence of the earliest period of the timber industry in this region. The Cooloola tramway constructed by Pettigrew and Sim, in operation from 1873 to 1884, was the first major private railway in Queensland. Its success encouraged other timber-getting operations to utilise tramways to access remote timber resources and influenced the Queensland Government's construction of cheaper railways.
2. Mill Point Settlement Site	The Mill Point settlement site is important in demonstrating part of the pattern of Queensland's history, being associated with the development of the timber industry in the late 19th century. As remnant evidence of a substantial timber extraction and timber processing enterprise and timber settlement in the Cooloola area from 1869 to 1892, it is important in illustrating the pattern of settlement in the Noosa hinterland. It was one of the first and most successful timber mills in the Cooloola area and played an important role in legislative reform in the boiler industry in terms of health and safety following the boiler explosion of 1873.
3. Double Island Point Lightstation	Constructed in 1884, the 18th lighthouse built by the Queensland Government, Double Island Point Lightstation occupies an integral part in understanding the establishment of maritime navigational aids along the Queensland coast and reflects the growth and development of Queensland after its separation from New South Wales. Double Island Point Lightstation is associated with Commander George Poynter Heath, the first Portmaster of Queensland (1862–1890), a significant figure in the development of the Queensland lighthouse service. During Heath's time, 12 major lighthouses were built along the Queensland coast.

Appendix 6. Pests

Species	Pest related information *Potential threat, current risk for invasion, current location, details of any current management by external agencies*
Pest plants	
Ground/basket & climbing asparagus *aethiopicus* & *Asparagus plumosus*	High dunes north of Carlo Sandblow, Teewah Beach, Noosa north shore, river mouth. Capable of forming thick mats in the understorey of forests, seriously impacting on biodiversity.
Leucaena *leucocephala*	Primarily occurs in disturbed areas. Species is hard-seeded and builds up vast seed banks. It is highly competitive and suppresses native biodiversity.
Brazilian nightshade *Solanum seaforthianum* & blackberry nightshade *Solanum nigrum*	Throughout Cooloola. Highly attractive red berries are spread over large distances by birds. Rapid growing climber, can suppress native biodiversity. Fruit poisonous to humans. Aggressive climbing vine capable of smothering native vegetation.
Whiskey grass *Andropogon virginicus*	Species capable of forming dense infestations and spreads rapidly. Prolific seeder dispersed by wind. Primarily occurs in disturbed areas but can encroach into native vegetation.
Pigeon grass *Setaria* spp.	Species capable of forming dense infestations and spreads rapidly. Prolific seeder and can be transported on camping equipment, vehicles and machinery. Primarily occurs in disturbed areas such as slashed firebreaks and internal road edges. Can encroach into native vegetation and will compete with native vegetation to suppress native diversity and disrupt fire ecology.
Mossman River grass *Cenchrus echinatus*	Roadsides and camp areas, Great Walks, Teewah Village and 3rd Cutting. Capable of forming dense infestations and spreads rapidly. Prolific seeder dispersed by camping equipment, vehicles, slasher, machinery, people and wildlife.
Rat's tail grass *Sporobolus africanus, Sporobolus fertilis* & *Sporobolus natalensis*	Cooloola-wide throughout disturbed areas, including townships and roads. Robust, tufted, well-rooted perennial tussock grass, very aggressive with very high seed production.
Singapore daisy *Sphagneticola trilobata*	Teewah Beach east coast foredune system to Double Island Point. Forms dense mats that smother native plants and reduce biodiversity. It also has irritating hairs that can cause health problems to allergic people.
Groundsel *Baccharis halimifolia*	Found throughout Cooloola, mainly on coastal fringes. Groundsel bush is a category 3 restricted invasive plant under the *Biosecurity Act 2014.* Can invade undisturbed ecosystems such as *Melaleuca* wetlands and form a dense shrub layer. The species is capable of very high seed production and the seeds are widely dispersed by wind.
Molasses grass *Melinis minutiflora*	Species produces vast quantities of mobile seeds. It is capable of smothering native plants in the ground stratum.
Slash pine *Pinus elliottii* & *Pinus* spp.	Found predominantly in areas adjacent to state forest pine plantations such as East Mullens and the western section of Cooloola, although large mature trees have been found dispersed throughout Cooloola. Generally invasive, capable of changing ecosystem structure and causing reduction in suitable habitat for rare and endangered species. HQ Plantations currently trialling sterile plantation varieties to reduce dispersal.
Easter cassia *Senna pendula var. glabrata.*	Freshwater east of Lake Cootharaba, Teewah Village north. Well adapted to the sandy soils of Cooloola and capable of forming monocultures to the exclusion of all native plants. Occurs at numerous sites and can feasibly be eradicated.
Queensland umbrella tree *Schefflera actinophylla*	This is native to north Queensland but not to Cooloola. It is well adapted to Cooloola conditions and can rapidly form dense thickets, suppressing native biodiversity.
Broadleaf paspalum *mandiocanum*	Harry's Hut Road and Figtree firebreak. *Paspalum mandicanum* can exist as an integral part of manicured lawns, expanding where other grasses become sparse and regress as a result of drought. *Pasapalum mandicanum* is not palatable to stock grazing, can block waterways and alienate natural values. Paspalum can quickly colonise large areas and dramatically increase biomass, which will exclude many native species and escalate fire intensity. Both inhibits the full range of soil types and is not limited by sunlight, flourishing in areas of full sun to areas within rainforest canopy.

Mother-of-millions *Bryophyllum* spp. & hybrids	Elanda QPWS and visitor nodes. It is well adapted to the sandy soils of Cooloola and capable of forming monocultures to the exclusion of all native plants. Occurs at numerous sites and can feasibly be eradicated from the park.
Pest animals	
Feral pig *Sus scrofa*	Found throughout Cooloola, mainly in wetlands and on the verge of rainforest areas. Rapid breeders that increase in number very fast. Cause high impact on small vertebrate, plant and fungal populations, and habitat transformation. Ongoing collaboration with regional councils to identify populations and implement control programs.
Wild dog *Canis lupus familiaris*	Found throughout Cooloola. Risk to safety of visitors and residents, particularly along Teewah Beach, Teewah Village, Freshwater and other visitor nodes. Ongoing collaboration with regional councils to identify populations and implement control programs
Feral cat *Felis catus*	Feral cats have a significant impact on small native vertebrate populations. Within Cooloola, they have the potential to impact on the ground parrot and black-breasted button-quail, and threatened frog species including wallum froglet *Crinia tinnula*, Cooloola sedge frog *Litoria cooloolensis*, wallum sedge frog *Litoria olongburensis* and wallum rocketfrog *Litoria freycineti*.
Fox *Vulpes*	Risk to safety of visitors and residents, and have a significant adverse impact on smaller native wildlife including shore and roosting seabirds and black-breasted button-quail. Found throughout Cooloola, particularly along Teewah Beach, Teewah Village and Freshwater. Ongoing collaboration with regional councils to identify populations and implement control programs.
Horse *Equus caballus*	Found mainly in state forest plantation adjacent to national park in western Cooloola. Feral horses graze and trample on native vegetation and can damage waterways. This may have negative flow-on effects on native wildlife. Horses can pose a risk to public safety, primarily on adjacent main roads.
Mosquito fish *Gambusia holbrooki*	This species aggressively competes for food and habitat with native fish species and will even eat the eggs and larvae of native fish species when other food is in short supply. It is a threat to two endangered native fish species (honey blue-eyes *Pseudomugil mellis* & Oxleyan pygmy perch *Nannoperca oxleyana*). It has a large impact on native invertebrates due to the high populations it establishes and its voracious appetite.
Pandanus leafhopper *Jamella australiae*	West Cooloola, Double Island Point, Teewah Beach to Noosa. The larvae feed on the plant sap, producing honeydew. This encourages mould (sooty mildew) growth and results in increased moisture build-up. The increased moisture causes the plant's leaves to drop off, killing the growing point (dieback) followed by the death of the tree. Hundreds of trees have died along the eastern beach foreshore (particularly within Teewah Beach camping zone and Double Island Point Headland), and the infestations are rapidly spreading.

References

Commonwealth Bushfire Recovery Program (2019–2022).

Department of Environment, Science and Innovation 2022, Camping and Vehicle Booking System.

Department of National Parks, Recreation, Sport and Racing 2012, *Planned burn guidelines – Bioregion of Queensland*. Queensland Parks and Wildlife Service, Department of the Environment and Resource Management, Queensland Government, Brisbane.

Department of Natural Resources, Mines and Energy 2018, Review of water plan (Mary Basin) 2006 and resource operation plan – Summary of ecological monitoring. Water Services, South Region, Department of Natural Resources, Mines and Energy, Queensland.

Environmental Protection Agency 2005, *Great Sandy management plan, revised 2005*, Queensland Parks and Wildlife Service, Environmental Protection Agency, Queensland Government, Brisbane.

Environmental Reports, *Regional ecosystems*, Department of Environment and Heritage Protection.

Lee Long, W.J. and O'Reilly, W.K. 2009, *Ecological character description for the Great Sandy Strait Ramsar Site*, July 2008, Report for the Environmental Protection Agency, Queensland.

Mary Basin Groundwater Dependent Ecosystems (GDEs) 2018, *Assessing impacts from groundwater resource development*. State of Queensland.

Melzer R. 2019, Natural values health checks. A guide to undertaking health checks for key natural values, Version 1.6, July. Ecological Assessment Unit, Queensland Parks and Wildlife Service & Partnerships, Department of Environment, Science and Innovation, Queensland Government.

Patton, N.R., Shulmeister, J., Rittenour, T.M., Almond, P., Ellerton, D. & Santini, T. 2022, Using calibrated surface roughness dating to estimate coastal dune ages at K'gari (Fraser Island) and the Cooloola Sand Mass, Australia. *Earth Surface Processes and Landforms*, 1–16

Queensland Heritage Register. https://www.qld.gov.au/environment/land/heritage/register.

Thompson C.H. and Moore A.W. 1984, *Studies in landscape dynamics in the Cooloola-Noosa River area*. CSIRO, Brisbane.

Thompson C.H. 1983, Development of weathering of large parabolic dune systems along the subtropical coast of Eastern Australia. *Zits Geomorph*, Supplementary Bd. V45, pp. 205–225.

Wildnet register, Queensland Government.

Universal Value. Report for the Queensland Environmental Protection Agency.