



Queensland Parks
and Wildlife Service
Department of Environment
and Resource Management

Lamington National Park

Management Plan
2011



South East Queensland Bioregion

Prepared by:

Planning Services Unit

Department of Environment and Resource Management

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This management plan has been prepared in accordance with the *Nature Conservation Act 1992*.

This management plan does not intend to affect, diminish or extinguish native title or associated rights.

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Centre right photograph: Lamington spiny crayfish. Photo: Sherri Tanner-McAllister, DERM.

Bottom right photograph: King parrot. Photo: Sherri Tanner-McAllister, DERM.

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Vision statement

Lamington National Park will be maintained as one of Queensland's iconic natural attractions, internationally recognised and appreciated for its outstanding world heritage values. Lamington's remarkable natural and cultural values will be preserved and presented in perpetuity, particularly its biological features linked with ancient Gondwana rainforests and continuing evolution, and its dramatic geology formed from Tertiary volcanic activity.

Indigenous flora species and communities are enhanced with special emphasis given to threatened and significant species, such as Lamington eyebright, many orchids and Antarctic beech vine forests. Active management based on a sound understanding of ecological processes and science will be applied to protect these unique values.

Threatened fauna, such as giant barred frog and Coxen's fig parrot, are well protected through recovery plans and careful management of their habitats. Robust, evidence-based research and monitoring programs continue to inform adaptive management of the areas' ecosystems.

Lamington National Park will continue to be a premier nature-based tourism and visitor attraction in the Gold Coast hinterland, with the natural beauty of its largely unmodified landscapes conserved.

A wide range of locals and tourists take opportunities to visit readily accessible key scenic locations and enjoy the solitude of the more remote rainforest ecosystems. Visitors continue to use and enjoy the area for a range of sustainable recreation activities, including sightseeing, scenic drives, walking, bird watching, camping and picnicking without impacting on the natural and cultural values. Remote, wild opportunities for solitude will be protected.

Excellence in interpretation and education will be nurtured to promote understanding and appreciation of the area's significance among the local community and visitors. There is strong community awareness and respect of the area's natural and cultural values.

The community as a whole recognises the value of the protected areas as important to Indigenous people and show consideration for the Traditional Owners knowledge, interests and aspirations for the area through planning and management.

Lamington National Park is managed in a manner that is consistent with the aims of the management plan and community views by working in partnership with the Traditional Owners, community groups and government agencies in relation to their interests.

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1. Management intent

The primary purposes of management for Lamington National Park will be to:

- protect the values that make Lamington an important part of the Gondwana Rainforests of Australia World Heritage Area
- conserve and protect the park's natural environment and aesthetic values
- convey Lamington's natural and cultural values to its visitors and the broader community
- incorporate the interests and rights of Lamington's Traditional Owners and their affiliations to the area by cooperatively protecting and managing sites and places of significance
- protect significant archaeological, historical and cultural features
- provide diverse, safe and sustainable, nature-based recreation opportunities; in particular, extensive walking tracks.
- improve the safety of visitors, staff and neighbours
- have input to, and guide infrastructure development on areas adjacent to the park that might affect its values
- ensure an appropriate balance between public and private commercial access opportunities
- encourage scientific research, surveys and monitoring
- develop cooperative management relationships with neighbours, stakeholders and the local community.

2. Basis for management

The Queensland Parks and Wildlife Service (QPWS) is responsible for day-to-day management of Lamington National Park. The park is primarily managed in accordance with the management principles for national parks defined under the *Nature Conservation Act 1992* to:

- permanently preserve, to the greatest possible extent, the area's natural condition and protect the area's cultural resources and values
- present the area's cultural and natural resources and their values
- ensure that the only uses of the area are nature-based and ecologically sustainable.

As Lamington National Park is part of the Gondwana Rainforests of Australia World Heritage Area, it will be managed according to the following key management principles derived from the World Heritage Convention and the strategic objectives agreed by the Australian, New South Wales and Queensland governments for the area, which are to:

- identify, protect, conserve, present and, where necessary, rehabilitate the World Heritage values of the park
- integrate protecting the park into a comprehensive planning program
- give the park a function in the life of the Australian community
- strengthen appreciation and respect for the park's World Heritage values, particularly through educational programs and providing information and keeping the community broadly informed about the condition of the park's World Heritage values
- take appropriate scientific, technical, legal, administrative and financial measures necessary to implement these principles
- provide for continuing community and technical input in managing the park
- manage the broad range of values, both world heritage and non-world heritage, ensuring that long-term conservation of the parks' World Heritage values is the overriding principle.

As the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* applies to World Heritage Areas, this Act's provisions apply to Lamington National Park.

The Strategic Overview for Management of the Gondwana Rainforest Reserves of Australia also applies to the park.

While Lamington National Park is not subject to a native title claim, Indigenous people have affiliations with the park and involving Traditional Owner groups is an important part of its management.

3. Location and regional context

Lamington National Park lies between the Gold Coast and Beaudesert in south-east Queensland (see Appendix A, map 1). It covers 20 600 hectares of rainforest, open forest, montane heathland and relatively undisturbed freshwater ecosystems featuring hundreds of waterfalls. Declared in 1915, it was one of the first national parks in Queensland and its role in developing conservation practices in the state makes it historically significant.

The park is located in the South East Queensland bioregion and is part of the Scenic Rim, which extends along the McPherson and Main ranges to Mount Mistake. It is part of the Gondwana Rainforests of Australia World Heritage Area that extends from Barrington Tops National Park in central New South Wales to Lamington and Main Range national parks in Queensland, and is one of the most important conservation reserves in the region.

Lamington National Park is widely recognised as one of Queensland's most popular national parks, with the area's natural beauty and extensive tourist facilities attracting visitors from all over Australia and around the world.

South-east Queensland is one of the fastest growing areas in Australia. The number of residents and visitors to the region is expected to grow and urban areas near the park will expand, increasing pressure on the park's natural and cultural resources and facilities. The pressures of high visitor numbers and urban encroachment will need to be addressed to maintain the park's integrity.

4. Protecting and presenting the park's values

Lamington National Park is internationally important. Its outstanding geological history, evolutionary significance and role in conserving nature are recognised through its inclusion in the Gondwana Rainforests of Australia World Heritage Area.

Visitors to the national park can experience its superb natural and cultural values and enjoy recreational activities in settings ranging from well-maintained picnic grounds to remote and rugged terrain with high wilderness values. Its extensive walking track system gives access to many of its world heritage treasures.

Most of the park's vegetation has remained unchanged over thousands, and possibly millions, of years. The park is an 'island' remnant of a past time and place, where some of the last Gondwana species are preserved from a period when the Earth's climate warmed and the continent began drifting northwards (Hutley 2006).

This section outlines the special natural and cultural values and visitor opportunities offered by Lamington National Park, and the actions and guidelines needed to protect and present them.

4.1 Landscape

4.1.1 Scenic amenity

One of the most recognised features of Lamington National Park is its aesthetic value. Crystal-clear mountain streams, hundreds of waterfalls, majestic stands of brush box and hoop pine forest and superb panoramic views are highly valued by visitors. The stunning scenic backdrop of the area represents the landscape before European exploration and non-Indigenous occupation.

The park's landscape values are largely intact. However, there is potential for these values to be compromised by internal and external impacts, such as surrounding urban growth and developing infrastructure on or adjacent to the park. Highly developed freehold properties at key visitor sites have changed the visual amenity of the park. Future development at these locations threatens visual amenity values, and the views at some lookouts are also disrupted by overgrowth.

Desired outcomes 2021	Actions and guidelines
There are no adverse impacts on the scenic amenity of Lamington National Park.	A1. Participate in local government development and planning schemes to maintain the landscape values of the park. A2. Manage lookouts according to the cross-border management agreement with the New South Wales Department of Environment, Climate Change and Water (DECCW). A3. Implement the zoning plan (Appendix A, map 2 and Appendix D) to ensure minimal interference with scenic amenity, particularly when upgrading or

Desired outcomes 2021	Actions and guidelines
	<p>extending tracks, facilities and signage.</p> <p>A4. Prohibit any infrastructure that would detract from the natural landscape settings in the park.</p> <p>A5. Exempt specified areas, namely zones 1 and 2 and Special Management Areas (see map 2) from any further development.</p>

4.1.2 Geological processes

Lamington's geological values are internationally significant and contribute to the Gondwana Rainforests of Australia World Heritage Area listing as outstanding examples of continuing geological processes associated with Tertiary volcanic activity.

Lamington National Park is part of the Tweed Shield Volcano caldera, possibly the best preserved erosion caldera in the world (WCMC/IUCN 1993). The caldera is notable for its size, its age (20 million years), and its prominent central mountain mass with all three stages of shield volcano erosion.

The rock basement of Lamington National Park is comprised of folded sedimentary rock. This is overlaid by volcanic lava flows produced by the Tweed volcano and its subsidiary vents. Mount Warning, 15 km south of the park, is the solidified core of the former central vent of a large volcano, active approximately 23 million years ago. The main vent produced highly mobile basalt flows, which were intermixed with rhyolite lava from subsidiary vents. Some of these vents later filled with rhyolite, forming plugs. These, being more resistant to erosion than the surrounding basalt, have formed characteristic peaks. Examples are Egg Rock in Numinbah Valley, and Charraboomba Rock in Hidden Valley.

The Albert, Coomera, Nerang and Tweed rivers have eroded the Tweed volcano creating characteristic finger-like spurs radiating northwards from the Tweed Valley. The landform conserved by Lamington National Park represents the effects of erosion on the northern section of the volcano. This erosion continues to shape the land, resulting in spectacular peaks, cliffs, gorges, waterfalls and expansive views.

Desired outcomes 2021	Actions and guidelines
The natural processes of erosion associated with the Tweed volcano are maintained.	<p>A6. Ensure park management actions do not accelerate or impact upon the natural processes of erosion associated with the Tweed volcano, apart from managing visitor safety.</p> <p>A7. Restore areas of erosion and degradation caused by human activity back to naturally functioning ecosystems that support natural geological processes.</p>

4.1.3 Freshwater systems

The largely undisturbed nature and extensive size of the forests in the park is a reliable source of high quality water. The park is a principal part of the water catchments for several major waterways. The headwaters of the Nerang River rise in the north-east of the park and feed the Hinze Dam, supplying most of the Gold Coast City region. The Albert and Coomera rivers that supply water to the Beaudesert area also have significant headwaters in the park.

Waste water from toilet and shower facilities associated with campgrounds and accommodation could increase weed invasion, affect wildlife, contaminate land and water resources, create offensive odours and cause illness. Heavy use, extended periods of rainfall, inadequate design and operation, and poorly maintained systems will increase these risks.

QPWS, O'Reilly's Rainforest Retreat and Binna Burra Mountain Lodge extract water from creek systems above Binna Burra and Green Mountains (see section 5.4).

Desired outcomes 2021	Actions and guidelines
Water quality is maintained and water use is sustainable in the park.	A8. Establish a water quality monitoring program at high-use bush camping locations and shower and toilet facilities to monitor impacts on the environment and human health, and where necessary, respond appropriately to any identified impacts.

4.2 Native plants and animals

Lamington National Park is an exceptional area of biodiversity and is a key location in one of the most species-rich and diverse areas of Australia.

The native plant and animal values of Lamington National Park are globally significant, meeting the three criteria for the area's World Heritage listing—outstanding examples of major stages of the earth's evolutionary history, outstanding examples of biological evolution, and the most important and significant habitats for surviving threatened species of outstanding universal value to science and conservation.

4.2.1 Native plants

Lamington National Park's plant species and communities (Appendix A, map 3) have outstanding values. The park's rainforests are exceptionally rich in primitive and relict species, including many similar to fossils from Gondwana. It includes representatives from three major stages in the Earth's evolutionary history—the era of ferns, conifers and flowering plants, including some of the oldest elements of the world's ferns. There are also primitive plant families with direct links to the birth and spread of flowering plants more than 100 million years ago. Lamington is a centre of endemism where evolution continues. Many species found in the park represent evidence of relatively recent evolution.

Lamington National Park's dry rainforest includes one of the most significant centres for surviving araucarians (hoop pine), the most primitive of the world's conifers. The park hosts possibly the largest undisturbed stand of hoop pine *Araucaria cunninghamii* remaining in subtropical Australia (McDonald and Elsol 1984). Both warm temperate rainforests, and cool temperate rainforests dominated by Antarctic beech *Nothofagus moorei*, are found in the park. These Antarctic beech forests are at their northern-most occurrence and contain many plant species that have highly restricted distributions or are at the northern limit of their range. Antarctic beech forest is of exceptional scientific importance as a key to understanding the break-up of Gondwana and the general distribution of life in the southern hemisphere.

There are many species of conservation significance, including those with highly restricted distributions or at their limits of distribution (see Appendix F). Overall, Lamington National Park contains about 880 species of vascular plants (McDonald and Thomas 1989), including nearly 70 species that are of conservation significance under the Nature Conservation Act. The aquatic plant species of Lamington National Park have had limited study. One species of note is a rare freshwater red algae *Ptilothamnion richardsii* that has only been found in two widely separated sites, one of them being in Lamington National Park (Vis et al 2006).

There are 20 regional ecosystems in Lamington National Park, nine of which are identified as of concern and two as endangered under the Department of Environment and Resource Management (DERM) biodiversity status (see Appendix C). There are also small communities that occur as subsets of larger regional ecosystems that have not been mapped because of their small size, but need to be recognised, such as Antarctic beech.

The following species, communities and areas require special protection from human interference and degradation:

- the area south of the main border track, in the vicinity of Mount Merino, which contains the highest proportion of plants of conservation significance in the park (Olsen and Hunter 1986)
- the species that occur along cliff edges that may be affected by recreational use
- areas of Antarctic beech sensitive to some recreational impacts, including bush camping and bushwalking
- beech orchids subject to theft
- the vulnerable *Gaultheria* sp. and endangered Lamington eyebright *Euphrasia bella*
- an underground orchid *Rhizanthella omissa* found in casuarina forest at Dave's Creek.

The dwarf cypress *Callitris monticola* is a near-threatened species highly susceptible to frequent fires and requires long periods (approximately 15–20 years) between burning. Park managers use it as a fire indicator species for the heath communities at Ships Stern and Dave's Creek, where fire monitoring sites have been established. The presence and quantity of seed produced by *C. monticola* helps determine the heath community's ability to regenerate after fire (C. Sandercoe pers.comm.).

Managing fire is important to maintain the natural integrity of the park (see section 5.2).

Desired outcomes 2021	Actions and guidelines
<p>Knowledge of the park's significant plant species, communities and regional ecosystems is enhanced and used as the basis for future management decisions.</p>	<p>A9. Maintain staff training in identifying vegetation types, regional ecosystems and species of conservation significance. Identification skills will help update maps and guide management responses when changes in the extent of species or ecosystems are detected.</p> <p>A10. Work with the Queensland Herbarium to update regional ecosystem mapping and identify unmapped ecosystems.</p> <p>A11. Monitor the distribution and condition of significant vegetation types and species of conservation significance.</p> <p>A12. Assess vegetation types and species of conservation significance before carrying out any management actions.</p> <p>A13. Establish key monitoring objectives for native plant species of conservation significance on the park, and support monitoring programs that achieve these objectives, including:</p> <ul style="list-style-type: none"> • programs that contribute to the understanding of significant plants and their habitats • gathering information on the reproductive ecology, population dynamics and fire regimes of noteworthy and indicator species, such as <i>Callitris monticola</i>, <i>Pultenaea pycnocephala</i>, <i>Eucalyptus oreades</i>, <i>Ceratopetalum apetalum</i>, <i>Nothofagus moorei</i> and <i>Eucalyptus racemosa</i>.
<p>Communities and species of conservation significance are protected and appropriately managed.</p> <p>The diversity of vegetation species and communities and continuing processes of biological evolution are maintained.</p>	<p>A14. Protect and maintain the diversity and health of species of conservation significance, including those with limited geographic distribution by:</p> <ul style="list-style-type: none"> • investigating plant communities that provide habitats for species of conservation significance to enable restrictions to any actions that may have a negative impact • managing visitor access to fragile areas, such as rock pavements, Mount Merino and other areas that support concentrations of species of conservation significance • implementing recovery plans or conservation plans for species of conservation significance (see Appendix H).
<p>The integrity of internationally significant Antarctic beech forest is maintained and enhanced.</p>	<p>A15. Implement the provisions of the Special Management Area – Temperate Rainforest (Antarctic Beech) (Appendix D), including:</p> <ul style="list-style-type: none"> • Manage the impacts of invasive species and visitors on Antarctic beech forests, including beech orchid populations • Encourage programs to monitor the effects of climate change on Antarctic Beech forests and develop appropriate management response strategies to conserve these forests.

4.2.2 Native animals

Lamington National Park is an area of high species diversity and is important for conserving intact representative areas of habitat for fauna species. The substantial size of Lamington National Park in conjunction with the New South Wales Border Ranges National Park and Limpinwood Nature Reserve helps many animals to breed successfully and maintain viable populations. Without this park, many species in south-east Queensland would be seriously depleted.

More than 190 species of birds have been recorded in Lamington National Park, representing 57 of the 91 families of Australian birds. The park conserves essential habitat for the endangered Coxen's fig parrot *Cyclopsitta diophthalma coxeni*, eastern bristlebird *Dasyornis brachypterus* and red goshawk *Erythrotriorchis radiatus*.

Five vulnerable bird species have been recorded in Lamington: the black-breasted button quail *Turnix melanogaster*, the glossy black cockatoo *Calyptorhynchus lathami*, the powerful owl *Ninox strenua*, the plumed frogmouth *Podargus ocellatus plumiferus* and the rufous scrub-bird *Atrichornis rufescens*. The rufous scrub-bird, found in localised areas of montane rainforest above 600 m, is confined to the World Heritage Gondwana rainforests. The species is currently declining and there is a general concern for its conservation.

Several species within the park descend from ancient lineages linking back to Gondwana. Albert's lyrebird *Menura alberti* and the rufous scrub-bird are highly specialised examples of primitive perching birds. Lamington National Park is valued for providing relatively large areas of refuge for these significant bird species.

Five vulnerable mammal species, the spotted-tailed quoll *Dasyurus maculatus maculatus*, koala *Phascolarctos cinereus* (South East Queensland bioregion), long-nosed potoroo *Potorous tridactylus tridactylus*, brush-tailed rock wallaby *Petrogale penicillata*, and Hastings River mouse *Pseudomys oralis* have been recorded in the park. The brush-tailed rock wallaby has not been seen for many years and the populations of the other four species in the park are not well known.

The endangered Fleay's barred frog *Mixophyes fleayi*, the giant barred frog *Mixophyes iteratus*, and the vulnerable cascade treefrog *Litoria pearsoniana* inhabit Lamington National Park and all have declined in south-east Queensland during the last 25 years.

Lamington provides important habitat for the vulnerable Richmond birdwing butterfly *Ornithoptera richmondia* and the death adder *Acanthophis antarcticus*, which is a species of conservation significance.

There are many other species in Lamington National Park of conservation significance (Appendix E) due to their very limited distribution, being at, or near, the extent of their geographical range, having ties with Gondwanan fauna, or only occurring in the park. Notable examples include the yellow-bellied glider *Petaurus australis*, red-legged pademelon *Thylogale stigmatica*, red-necked pademelon *Thylogale thetis*, eastern pygmy possum *Cercartetus nanus*, dusky antechinus *Antechinus swainsonii*, masked mountainfrog *Kyarranus loveridgei*, whirring treefrog *Litoria revelata*, larval glow-worm *Arachnocampa flava* that produces spectacular night time displays, Lamington spiny crayfish *Euastacus sulcatus*, and earthworms from the genera *Heteropordrilus* and *Digaster*.

Road mortality of Lamington's wildlife has grown significantly in recent years and some native animals have been excessively fed in particular areas. Brush turkey numbers have grown, the birds becoming a nuisance where they can find artificial or incidental food at popular visitor spots.

Use of recorded bird song playback for bird watching can have detrimental impacts on birds, particularly during breeding seasons that can interrupt their breeding routine and/or interrupt territorial species behaviours.

Managing fire is important to maintaining native animal diversity within the park (see section 5.2).

Desired outcomes 2021	Actions and guidelines
Ecological knowledge of the park's native animals is enhanced and used as the basis for future management decisions.	<p>A16. Establish key monitoring objectives for native animal species of conservation significance on the park, and support monitoring programs that achieve these objectives, including:</p> <ul style="list-style-type: none"> • monitor the distribution, abundance and habitat condition of native animal species of conservation significance as listed in Appendix E • encourage tertiary institutions to research the ecology and management requirements of native animal species of conservation significance and ensure that report findings are provided as a condition of research approval (also refer to 4.6.2).
Human impacts on native animal species and populations of species of conservation significance are minimised.	<p>A17. Ensure management and public use of the park has minimal impact on animal species of conservation significance by:</p> <ul style="list-style-type: none"> • identifying habitats vulnerable to human impact, fire, pest plants and animals • developing a program to minimise effects of artificial and incidental feeding of native fauna • implementing any recovery plans or conservation plans for endangered or vulnerable species (see Appendix H). <p>A18. Manage visitor access to known eastern bristlebird habitat areas to reduce impacts caused by human disturbance by:</p> <ul style="list-style-type: none"> • closing Mount Gipps to bushwalking and bush camping for five months from August to December inclusive • maintaining the restricted access area at Snake Ridge year round. <p>A19. Manage the impacts from use of recorded bird song playback on breeding birds, with particular attention on the rufous scrub bird and eastern bristle bird, in particular:</p> <ul style="list-style-type: none"> • the use of playback of recorded bird song is not allowed for birds in

	<p>breeding season as part of commercial permit conditions</p> <ul style="list-style-type: none"> communication tools, such as signage, brochures and web pages, include public information on the issues associated with using recorded song playback. <p>A20. Work with the Department of Transport and Main Roads to finalise and implement the Draft Lamington National Park Road Management Strategy (2007), with a view to:</p> <ul style="list-style-type: none"> establishing maximum speed limits of 40km/hr along access roads in the park investigating the need for traffic calming along road sections where there is high wildlife mortality.
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4.3 Indigenous culture

The Yugambah Aboriginal people have a strong affiliation with Lamington National Park comprising of three family groups, namely Migunberri in the west, Birinburra in the east and Wangerriburra country occupying most of Lamington National Park.

There are many landforms and features in the park, as well as several sites of significance for the Yugambah people. Significant sites are not very well documented and should remain confidential in the interest of continuing protection. A traditional pathway is believed to pass through the southern section of Lamington National Park from south-west of Mount Razorback into New South Wales in an east-south-easterly direction. Historically and archaeologically important evidence of Aboriginal people's occupation has been found in Lamington National Park, including burial sites, rock shelters, scarred trees and stone artefact scatters. It is believed Aboriginal people used the area's sub-tropical rainforests in conjunction with the adjacent eucalypt open forests.

There have been many instances of disturbance, vandalism and theft in culturally significant sites. Some of these sites are close to popular walking tracks, requiring sensitive management.

Consultation was conducted with Yugambah and Wangerriburra people during the drafting of the Lamington National Park management plan. There is an interest by the Traditional Owners to have Lamington National Park renamed along with the three sections of the park to represent the three Traditional Owners: Yugambah (Lamington) National Park, Birin Burra (Binna Burra) section, Wangerriburra (Green Mountains) section and Migunberri (Lost World) section. There is also interest from the Traditional Owners to assist in managing the park and establishing a Traditional Owner partnership with future possibilities of joint management.

Desired outcomes 2021	Actions and guidelines
Indigenous cultural values of the park are well understood by park managers and visitors.	<p>A21. Assist Traditional Owners in conducting a comprehensive cultural heritage survey of the park, including recording stories, language names and cultural heritage places through:</p> <ul style="list-style-type: none"> encouraging and supporting Traditional Owners to develop a 'Caring for Country' plan for the park developing cultural heritage awareness and management training programs for park staff together with Traditional Owners. <p>A22. Interpret culturally significant sites and landscapes in a manner sensitive to Aboriginal people and with input from Traditional Owners.</p>
Culturally significant sites are protected from fire, degradation and vandalism.	<p>A23. Prepare a cultural management program for the park's cultural resources, with guidance from Traditional Owners, to ensure protection of sensitive sites. This program will aim to:</p> <ul style="list-style-type: none"> discourage visitor access to sensitive sites consult with Traditional Owners about including Bushrangers Cave and the burial cave in Hidden Valley as a special management area Indigenous cultural heritage site provide for signage for sensitive areas that discusses their cultural importance without revealing specific locations incorporate protecting cultural heritage values into fire management practices declare Egg Rock as a restricted access area under the Nature

	Conservation Act as outlined in Special Management Area – Indigenous Cultural Site (Egg Rock) (Appendix D).
Relevant Aboriginal groups participate in the determination and management of local cultural heritage values.	A24. Develop and maintain regular, continuing consultation with Traditional Owners about all facets of Indigenous cultural management, in particular: <ul style="list-style-type: none"> • create opportunities for Traditional Owners to become involved in fire management planning and incorporate their interests • encourage cooperative arrangements with the local Aboriginal community to increase visitor and community awareness of the park's cultural values and achieve long-term conservation through culturally sensitive land management.
Indigenous connections to Lamington National Park are recognised and incorporated into the park and its management.	A25. Investigate the possibility of incorporating Indigenous connections into the name of the national park.

4.4 Shared-history culture

More than 30 significant shared-history cultural heritage sites are found in Lamington National Park (Appendix I). They include the Romeo Lahey Memorial, sites associated with the Stinson aircraft wreck and rescue, items of historic park infrastructure and a survey marker tree dating from Francis Roberts's 1863–65 survey that established the border between Queensland and New South Wales. Local Aboriginal people accompanied Roberts on the border survey and provided many of the place names currently used throughout the national park.

Settlement by non-Aboriginal people began in the 1840s. The area surrounding what is today Lamington National Park was cleared for dairy farming, sheep and beef grazing. Much of the area was logged for tall timbers, including red cedar *Toona ciliata*, crows ash *Flindersia australis*, white beech *Gmelina leichhardtii* and, later, hoop pine *Araucaria cunninghamii*.

The campaign to establish Lamington National Park, which began in 1896, is historically important because it encouraged a conservation ethic to develop in Queensland. The campaign was initiated by Robert Collins and later carried on by Romeo Lahey. In July 1915, 19 035 ha was declared national park and named after the previous Governor of Queensland, Lord Lamington.

Stockyard Creek track, which still exists, was the first access into the park. It was built by Tom O'Reilly in 1926 for guests journeying to the O'Reilly's hostel. The O'Reilly family are considered pioneers of nature-based tourism in Australia, and became widely known and awarded as a leading and respected ecotourism operator.

Later, a road for Brisbane Timbers Limited was constructed by Romeo Lahey from Canungra towards Roberts Plateau. This road is now sealed and extends all the way to O'Reilly's Rainforest Retreat and the Green Mountains section of the park. A timber railway was built from Canungra south along Pine Creek to transport logs to the sawmill.

Binna Burra Mountain Lodge was founded in 1933 by Arthur Groom and Romeo Lahey and is one of Australia's longest-established nature-based resorts. Groom and Lahey believed that through interpretive walks and educational programs, more people would become committed to preserving the area's natural wilderness for future generations.

Although not located in the park, O'Reilly's Rainforest Retreat and Binna Burra Mountain Lodge have important histories closely associated with Lamington National Park. The Binna Burra site and many of its features are listed on the Queensland Heritage Register.

The Stinson aeroplane crash site is in the south-west corner of the park, near Christmas Creek. The 1937 disaster triggered a law that made the carrying of radios compulsory in all Australian planes. It also increased the international fame of the park and the bush skills of the local people. The wreckage, the grave of passenger Jim Westray and the 'Stretcher Track' (built by the rescue team to carry the survivors from the wreckage) are historically important. The Stinson wreck attracts many visitors, impacting on the site and its surroundings.

Desired outcomes 2021	Actions and guidelines
<p>Culturally significant sites are protected from degradation and vandalism.</p> <p>Relevant local cultural heritage groups actively participate in the management of local cultural heritage values.</p>	<p>A26. Prepare a cultural management program for the park's cultural resources to protect shared-history cultural sites by prioritising them and adopting appropriate management to conserve them, including:</p> <ul style="list-style-type: none"> • managing visitor impacts at the site of the Stinson aircraft wreck and associated access routes to minimise impacts on the site and its surroundings • developing a training program for park staff about shared-history cultural heritage awareness and management • encouraging engagement with local cultural heritage groups to help identify cultural values and participate in cultural heritage management activities • assessing other known shared cultural heritage site for inclusion into the DERM Cultural Heritage Information Management System database.

4.5 Tourism and visitor opportunities

Lamington National Park is one of the most popular parks in Queensland and attracts about half a million visitors each year from around Australia and overseas. The park offers outdoor, nature-based recreation including bushwalking, picnicking, camping, bird watching, painting, reading and photography.

With more than 190 species of birds recorded in the park, Lamington is highly valued for its variety of bird life by Australian and overseas ornithological groups and other interested parties.

Two internationally renowned resorts providing an appreciation of nature are built on pockets of freehold land surrounded by the national park. O'Reillys Rainforest Retreat has operated for more than 90 years and offers nature-based and guided tours, a tree-top canopy walk and audio-visual presentations to share knowledge and awareness of the area. Binna Burra Mountain Lodge was founded in 1933 and provides guided walks and a Kids Club program, as well as abseiling.

There are also more than 50 commercial tour operators providing recreational opportunities for visitors to enjoy the park.

Visitor numbers are highest in the northern section of Lamington National Park where visitor facilities and amenities are well developed. Green Mountains and Binna Burra currently experience overcrowding and traffic congestion during peak periods, most evidently on weekends and public holidays. Green Mountains car park is designed to accommodate the flow of traffic, but traffic jams occur on the access road, particularly during weekends.

Natural areas in south-east Queensland are under pressure to provide venues for new nature-based activities and events that are rapidly increasing in popularity, such as the Lamington Classic running event. Staged every year for more than 20 years, it has traditionally been restricted to the Border Track between Green Mountains and Binna Burra. Monitoring of this and other proposed events should be managed to ensure that event numbers and conditions preserve the values of the park. More intensive activities, such as mountain-bike riding, trail-bike riding and tree climbing, are not permitted in Lamington National Park as they pose a potential threat to the park's natural values as well as conflicting with the bushwalking experience that the park is renowned for.

The southern section of the park (south of Echo Point) offers unique opportunities for wilderness experiences, such as off-track walking in rugged mountainous country, and the tranquillity and beauty of a natural environment far from the presence or influence of other people. Areas less visited include Running Creek catchment, Widgee massif and the northern Albert River catchment downstream of Black Canyon. This section of the park should be preserved for wilderness experiences and isolation, with minimal reliance on facilities or other infrastructure. Some areas, such as the Stinson and Point Lookout campsites, the Stretcher Track, Rat-a-tat and the Lost World area, receive higher numbers of visitors. There is potential for increased visitor use of the trailhead of Christmas Creek because of its ease of access to the rainforest.

Desired outcomes 2021	Actions and guidelines
Recreational facilities are safe and complement the park's natural setting and do not compromise its natural, cultural or World Heritage values.	A27. Design, locate, construct, operate, maintain and inspect all QPWS managed recreational facilities according to the QPWS Facilities Manual, the DERM Infrastructure Delivery – Site Planning Process and the DERM Procedural Guide – Development Assessment and Environmental Management and Lamington National Park zoning plan (see Appendix A, map 2 and Appendix D).
Maintain a range of settings across the park to provide a diversity of recreational opportunities.	A28. A visitor management strategy (VMS) will be prepared for Lamington National Park. The strategy will provide specific management guidelines for visitor sites and activities. The VMS will include: <ul style="list-style-type: none"> • provisions to maintain the existing range of visitor opportunities • assessment of the landscape settings at selected sites in each management zone using the QPWS Landscape Classification System, and establish visitor carrying capacities at selected sites • periodical assessment of visitor use and satisfaction and development and implementation of management strategies, where appropriate, to address any identified issues. • provisions to implement the zoning plan and special management area system in appendixes A and D to ensure protection of natural and cultural heritage sites of importance • a review of all track classes.
Recreational use of the park is compatible with conserving its natural, cultural and World Heritage values.	A29. Objectives for monitoring visitor impacts on natural, cultural and World Heritage values will be prepared as part of the development of a VMS, including monitoring of: <ul style="list-style-type: none"> • recreational impacts at culturally or ecologically significant sites (especially those occurring at elevations above 900 m or below 300 m), including rates of soil erosion, compaction and vegetation destruction, and implementation of appropriate management response strategies where required • visitor use of Christmas Creek and establish management guidelines based on observed visitor numbers or impacts • visitor numbers and impacts across the range of zones within the park. A30. Promote minimal impact practices and safety awareness through interpretative programs aimed at local accommodation centres and tourist operators.
Support and promote alternative transport options to reduce vehicular traffic at the major access points of the park are provided.	A31. Investigate developing innovative signage along the major access routes to advise motorists about parking availability prior to park entry. A32. Investigate options for alternative access to the park, including off-park car parking and shuttle bus services.

4.5.1 Bushwalking

Lamington National Park is very popular for bushwalking and offers diverse experiences, from easy short walks to challenging full-day walks.

The park contains over 150 km of graded walking tracks, making many natural settings and destinations accessible. It offers some of the most spectacular remote area bushwalking opportunities in south-east Queensland. Several self-guiding nature walks have been prepared with brochures keyed to track-side markers, pointing out important and interesting aspects of the park.

Several long-distance walking track proposals have been suggested for the park. In 1998, the Cross Border Recreational Tracks and Trails Study (EDAW 2000) was commissioned to investigate possible long-distance walking opportunities along the Tweed Caldera and Scenic Rim. The study concluded that constructed walking trails on the caldera edge, particularly west and east of the Border Track, would be cost-prohibitive.

In 2002, a long-distance walking track was proposed as part of the Queensland Government's 'Great Walks' program, linking Lamington National Park and Springbrook National Park. The Gold Coast Hinterland Great Walk officially opened in 2008, providing a long-distance walking connection between Lamington, the Numinbah Valley and Springbrook National Park. It is 54 km long and typically takes three days to complete. The walk passes through some existing walking tracks and fire trails and 700 m of new walking track in Lamington National Park (QPWS 2005).

Walkers may pose significant risks to the park by spreading pest plants and pathogens from pest-infested areas, spreading introduced fungi and walking off-track. Materials imported from areas outside of the park that are used to build tracks are also a potential vector to spread pathogens.

Visitor enjoyment and protecting natural values requires critical routine track maintenance. Bushwalking impacts are most significant where tracks are not clearly marked or defined, leading to shortcutting, creating new tracks.

Safety is a key issue for remote bushwalking. Walkers must be self-sufficient and possess appropriate skills and experience to overcome navigational and terrain difficulties.

Desired outcomes 2021	Actions and guidelines
<p>A variety of safe bushwalking opportunities are available and walkers can easily find their way along formed walking tracks.</p> <p>The park's remote wilderness bushwalking opportunities are retained.</p> <p>Bushwalking does not impact on the park's natural and cultural heritage values.</p>	<p>A33. Guidelines for the safe use and management of walking tracks in Lamington National Park will be prepared as part of the development of a VMS, including provisions to:</p> <ul style="list-style-type: none"> • monitor the condition of walking tracks and maintain all tracks to Australian standards detailed in Appendix J, including any changes to track (see A28) • use track markers where appropriate to clearly define desired pedestrian movement, especially at creek crossings or on lower classification tracks where the pathway is unclear • periodically review the track classifications according to the level of use, maintenance requirements, and to protect natural and cultural values • temporarily close walking tracks that pose a threat to park values or an unacceptable risk to visitors. Implement mitigation strategies to restore public access, reducing risk to an acceptable level or lessening threats. Permanent closure should only be considered where it is impractical to mitigate risks or threats to an acceptable threshold, permanent and irreversible damage will occur or until required funding is secured <p>A34. New, altered or extended formed or graded trails (Class 1–4) may be established in zone 1 (remote natural areas) in line with park management objectives.</p> <p>A35. Amend the Border Track and Best of All Lookout Cooperative Operational Agreement between QPWS and NSW DECCW so that the Border Track is class 4.</p> <p>A36. Manage relevant walking tracks that extend into New South Wales in accordance with the Border Track and Best of All Lookout Cooperative Operational Agreement between QPWS and DECCW.</p>

4.5.2 Camping

Lamington National Park is serviced by two large developed campgrounds—one on national park land in the Green Mountains section, currently maintained by QPWS, and the other on private land in the Binna Burra section, commercially managed by the Binna Burra Mountain Lodge. Both campgrounds are often booked out or overcrowded and some site impacts are evident.

The campground at Green Mountains currently caters for limited camper trailers but not caravans, particularly as the road is not suitable for towing caravans. Binna Burra campground has limited caravan and camper trailer sites.

Remote wilderness camping opportunities are available across Lamington National Park and Limpinwood Nature Reserve in New South Wales. Management of camping areas in Limpinwood Nature Reserve are contained in the Border Track and Best of All Lookout Cooperative Operational Agreement between QPWS and NSW DECCW. Visitors are required to be fully self-sufficient and possess appropriate skills and experience to overcome navigational and terrain difficulties. Along the graded track system in the northern section of Lamington, there are designated sites where bush camping is permitted.

Bush camping is permitted apart from December and January, when all remote bush camping sites are closed. The closures allow for spelling of the sites during the wet season when they are most vulnerable to impacts from camping, including soil being compacted or eroded, vegetation damaged and litter left in the park.

Huts or other built accommodation along the walking track network can only be constructed for management purposes to allow for efficient maintenance, monitoring and track reconstruction works. These structures must be temporary and removable, and subject to environmental management plans that mitigate threats to park values.

Commercial partnerships for the development of nature-based ecotourism accommodation will be investigated for the Green Mountains campground. Any accommodation opportunities must be established within sustainability guidelines, ensuring best-practice environmental protection, cultural sensitivity, sound business operations and high quality interpretation and visitor satisfaction.

Desired outcomes 2021	Actions and guidelines
New camping opportunities are provided, where appropriate, to offer diversity in camping experiences.	<p>A37. Work with operators to encourage and provide improved provision of camping opportunities on private land adjacent to the park at Binna Burra.</p> <p>A38. Investigate options for the redevelopment of the Green Mountains campground to improve the site's quality, amenity, sustainability and carrying capacity. These options will include:</p> <ul style="list-style-type: none"> • consideration and provision of limited camper-trailer camping opportunities, while discouraging access by caravans (as the access road is not considered suitable) • investigation of a possible commercial partnership arrangement to develop, manage and maintain the campground • ensuring that any additions or changes to camping facilities are in line with an approved site development plan • increasing the diversity of accommodation options • ensuring that any commercial operation proposals for the Green Mountains campground are environmentally, socially and culturally appropriate.
Remote wilderness camping opportunities are compatible with the park's significant natural values.	<p>A39. Guidelines for the management of remote wilderness camping opportunities will be prepared as part of the development of a VMS outlined in section 4.5.1. This will include:</p> <ul style="list-style-type: none"> • continued monitoring of the impacts on remote wilderness camping sites or zones with a particular focus on water quality, introduction of weeds, soil erosion or compaction, vegetation destruction and to ensure that designated campsites along the graded track system do not increase in size • maintaining partnerships with bushwalking groups to assist with the remote wilderness campsite monitoring program • placing seasonal closures on remote wilderness camping during December and January to allow vegetation to recover in campsite margins • limiting camping in riparian zones to protect significant frog species.
Camp cooking facilities are safe and adequate.	<p>A40. Allow only fuel stoves for cooking in all QPWS managed camping areas within the park.</p>

4.5.3 Rock climbing and other cliff-based activities

Rock climbing and other cliff-based activities within Lamington National Park have occurred since the 1960s. The potential for climbing within Lamington National Park is relatively limited due to a combination of difficult access, limited suitable sites and variable rock quality.

Cliff faces in and around Lamington consist of either basaltic rock material, which is highly fractured and susceptible to weathering, or rhyolitic rock, which is somewhat more stable. Due to the density of vegetation, cliff instability and landslides, and the absence of long exposed cliff faces, climbing in Lamington has historically been limited to waterfalls and isolated outcrops, such as Egg Rock, Poondahra, Balanjui, Coomera Gorge and some other more remote sections of the Lost World.

Abseiling is conducted by the Binna Burra Lodge on two sites on their freehold property, and under a commercial activity agreement with QPWS for Ships Stern. Rock climbing and other cliff-based activities are permitted in more remote sections of the park as part of wilderness hiking.

Climbing at waterfall locations is discouraged due to the significance and vulnerability of vegetation immediately adjacent to these waterfalls and the known existence of rare and threatened plant and animal species.

It is proposed that rock climbing and other cliff-based activities be declared a ‘special activity’ under the Nature Conservation (Protected Area Management) Regulation 2006 at Coomera Gorge and Balanjui. This will allow some cliff-based activities under a permit in this area. At the time of developing this plan, a policy to guide rock climbing and other cliff-based activities in QPWS managed areas was being finalised. Special activities are defined as activities that require special training and/or supervision before the person can safely engage in the activity.

Potential threats to park values from rock climbing and other cliff-based activities include spreading pest plants and pathogens, and off-track impacts. There are also additional concerns due to the concentrating effect in the areas immediately adjacent to the cliff area and the associated impact on flora and fauna.

There is a significant area of illegally bolted climbing routes at Poondahra. A geotechnical assessment was carried out on the rock faces at Poondahra, which recommended “public access to climbing routes and trails along the base of the cliff should be restricted due to the potential high to very high risk of rock fall”. Poondahra has been a restricted access area since August 2000. Threatened species have been found on the rock faces at Poondahra, such as *Westringia rupicola* (vulnerable), and on the access trail, such as *Marsdenia coronata* (vulnerable).

Opportunities for commercial climbing are provided by Binna Burra Lodge in a sustainably managed and safe environment. Several other key sites on protected areas within south-east Queensland afford other options for rock climbing and are better suited to a providing for the more intensive styles of this recreational pursuit. These include the Moogerah Peaks National Park, Mt French National Park and parts of Mt Barney National Park, including Mt Maroon. The Queensland Government actively supports rock climbing in these locations where the risks to the environment and visitor safety can be sustainably managed.

Desired outcomes 2021	Actions and guidelines
<p>Rock climbing and other cliff-based activities are conducted in a safe and controlled manner with minimal environmental impacts.</p>	<p>A41. Guidelines for the management of rock climbing and other cliff-based activities will be prepared as part of the development of a visitor management strategy outlined in section 4.5.</p> <p>A42. Rock climbing and abseiling is declared a special activity under section 69 of the Nature Conservation (Protected Area Management) Regulation 2006 on Coomera Gorge and Balanjui.</p> <p>A43. Rock climbing and other cliff-based activities are permitted in the remaining areas of the national park, unless the site is within a restricted access area (such as Egg Rock).</p> <p>A44. Poondahra is to remain a restricted access area for conservation and safety reasons. This is based on instability of cliff faces as well as threatened species located on the cliff face and access routes.</p> <p>A45. All other cliff-based activities should be managed in keeping with current levels of use and access, such as open access to remote cliff areas, no provision of infrastructure (no bolting), and small group numbers.</p>

4.5.4 Lookouts

Most of the lookouts in Lamington National Park offer spectacular views over the Gold Coast, south-east Queensland and northern New South Wales. The lookouts attract many visitors and appear to be highly impacted areas. Maintaining these sites is critical to visitor enjoyment of the park and to protect species in the surrounding area. Failure to routinely manage and maintain vegetation at these sites can result in illegal removal or clearing and other unapproved lookouts being created. Exposure to cliff edges at such sites poses a potential hazard to visitors.

Some lookouts and parts of the Border Track managed by DERM extend into Limpinwood Nature Reserve in New South Wales and need to be managed in accordance with the Border Track and Best of All Lookout Cooperative Operational Agreement between QPWS and DECCW.

Desired outcomes 2021	Actions and guidelines
Lookouts are safe and their scenic values are maintained.	<p>A46. Maintain lookouts in accordance with QPWS critical infrastructure assessment and management procedures and maintain the scenic amenity at lookouts by routinely trimming and controlling vegetation.</p> <p>A47. Coordinate management of relevant lookouts with DECCW according to the Border Track and Best of All Lookout Cooperative Operational Agreement between QPWS and DECCW.</p> <p>A48. Review facility needs and demand at Kamarun Lookout to possibly redevelop the site as a popular vehicle-based visitor and commercial operator destination.</p>

4.5.5 Visitor safety

As visitor numbers increase, so do safety issues. Many visitors come to the park unprepared for its terrain and weather. This is of particular concern in remote areas where inexperienced visitors can become disorientated and lost. Weather can change quickly and storms can arrive quite suddenly, which can pose a threat to the safety of visitors, particularly along the outer cliff edges.

Desired outcomes 2021	Actions and guidelines
<p>Visitors are aware of significant threats to safety and risks are minimised within reasonable or acceptable limits.</p> <p>Adequate procedures and facilities are in place to manage safety risks and incidents.</p>	<p>A49. Implement the QPWS Gold Coast Hinterland Great Walk Risk Management Strategy to reduce visitor exposure to dangerous situations and increase awareness of the park's hazards.</p> <p>A50. Provide safety advice to commercial operators, in the information centres, in park brochures, and on signs at park access points and other appropriate locations.</p> <p>A51. Increase off-park visitor safety information through channels such as regular media articles, DERM website, schools, and local community and stakeholder groups.</p> <p>A52. Ensure that visitors are advised at the park entrance of the potential dangers and safety procedures. Provide up-to-date advice about areas that are temporarily closed during unusual and dangerous situations, such as hazardous weather or wildfire conditions.</p>

4.5.6 Commercial opportunities

The natural and cultural values of Lamington National Park provide significant economic value for commercial operators from the Scenic Rim, Gold Coast, northern New South Wales and Brisbane, as well as the broader community.

As well as the resorts at Binna Burra and Green Mountains, there are more than 50 current commercial activity permits issued for a variety of activities, including nature tours and studies, camping, photography tours, wildlife displays, and filming and photography shoots.

The park's large area and multiple access points make enforcing regulations and conditions of permits a challenge for park staff. There is anecdotal information suggesting non-permitted commercial activities take place within the park.

Desired outcomes 2021	Actions and guidelines
<p>Commercial operators comply with DERM guidelines and commercial activities are conducted with minimal impact on the park's natural, cultural and World Heritage values.</p> <p>Potential commercial operation of the Green Mountains Campground to be offered through the Queensland Nature-based Tourism Initiative.</p>	<p>A53. Provide commercial operators with and encourage them to maintain and use correct and up-to-date information on the natural, cultural and World Heritage values of the park.</p> <p>A54. Determine commercial activity conditions on a case-by-case basis, taking into consideration the need to minimise impacts on the natural and cultural resources and the needs and safety of all park users. In particular, conditions will be developed that:</p> <ul style="list-style-type: none"> ensure tour operators adopt minimum impact behaviours and attain ecotourism accreditation

	<ul style="list-style-type: none"> • ensure that commercial operation proposals are environmentally, socially and culturally appropriate. <p>A55. Assess the compatibility of new and renewing permitted commercial activities with the management objectives of the park in relation to management zones, conservation and recreation.</p> <p>A56. Perform regular compliance checks to minimise unauthorised services and inappropriate behaviour.</p> <p>A57. QPWS to offer the rights to redevelop and manage the Green Mountains campground through a public merit based tendering process.</p>
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4.6 Education and science

Lamington National Park’s diverse natural resources and landscapes, evolutionary links to Gondwana, threatened wildlife species, World Heritage values, and ease of access, provide abundant opportunities for scientific research and environmental education conducted by schools, universities and outdoor education centres.

4.6.1 Education

The park’s learning opportunities include geological, biological and historical studies, as well as activities in language, art, music and drama.

With high numbers of local, interstate and international visitors and ease of access from large population centres, Lamington National Park has significant interpretative opportunities. The park’s close proximity to Brisbane and the Gold Coast makes it readily accessible. Information on the park’s natural history and the variety of bushwalking opportunities are provided by the national park visitor information centres at Green Mountains and Binna Burra, and there are specialised facilities for school groups outside of park in the nearby Environmental Study Centre at Binna Burra.

Public education helps minimise the detrimental impacts people can have on the park. Public education also increases community awareness of the park’s values, conservation principles and practices, and promotes access to, and appropriate behaviour at, specific park sites.

Desired outcomes 2021	Actions and guidelines
<p>Visitors and the broader community are aware of and appreciate Lamington National Park’s World Heritage values and its cultural and natural features, and are involved in protecting the park’s natural ecosystems and cultural places.</p> <p>Educational opportunities are available to park visitors and the local community.</p>	<p>A58. Review, update and implement the Lamington National Park Public Contact Plan to include the following provisions:</p> <ul style="list-style-type: none"> • provide nature-based educational opportunities in the park • promote public awareness through off-park channels such as regular media articles, Gondwana World Heritage Area website links, DERM website, schools, and local community and stakeholder groups • educate staff about the park’s World Heritage values • establish a roster program for public contact roles and encourage a greater ranger presence in the park • Provide information and resources to support the volunteer program and maintain a volunteer presence at the information centres, particularly on weekends, public holidays and school holiday periods. <p>A59. Encourage coordinated or integrated public contact through the Gondwana Rainforests of Australia World Heritage Area Coordination Committee.</p>

4.6.2 Science and research

Lamington National Park is an extremely valuable scientific reference area. It provides a large area in a genuine wilderness state, devoid of graded tracks, sightseeing roads and past logging disturbances, with which the conditions in other areas can be compared. Increased knowledge of plant and animal diversity, abundance, distribution, habitat requirements and their ability to recover from natural and human impacts can improve national park management.

There are currently more than 30 scientific purpose permits for research conducted on the park, but to date there has been only limited follow up of compliance with permit conditions. Scientific research projects occasionally use unsightly flagging tape and unofficial signage of sites, impacting on visitor experience.

There are several long-term projects being conducted by scientists from Australian and international universities, investigating topics including rainforest regeneration and climate change impacts. There is great value to be gained from furthering knowledge of the ecological processes and interrelationships of the natural environment.

Intense scientific interest and research on particular species in the park has the potential to negatively impact upon those species and other flora and fauna associated with the species habitat.

Obtaining and retaining data generated is essential to improving knowledge, understanding and better park management. There are instances where information is collected but is not adequately used to inform how the park is managed.

Desired outcomes 2021	Actions and guidelines
<p>Knowledge of plant and animal species distribution, abundance and habitat requirements is enhanced and is used as a basis for future management decisions.</p>	<p>A60. Encourage scientific research and monitoring programs that deliver the specific actions and guidelines outlined in this plan and that contribute to understanding and managing significant flora and fauna and their habitats, this will include:</p> <ul style="list-style-type: none"> • liaising with tertiary institutions to benefit from their biological and ecological research and encourage further research into management aspects or implications arising from these research areas • encouraging public involvement in monitoring native species populations through community-based conservation and natural history groups • monitoring research permits to ensure that research results are obtained, processed and forwarded to relevant staff and applied to park management where appropriate.
<p>Scientific research does not impact on the park's natural and cultural values or visitor experiences.</p>	<p>A61. Manage the intensity and frequency of scientific research to ensure the park's natural, cultural and social values are not adversely affected by:</p> <ul style="list-style-type: none"> • carefully assessing scientific research applications and monitoring and ensuring compliance with permit conditions • ensuring permit conditions include rehabilitating any areas subject to environmental disturbance, use of environmentally friendly markers and removing flagging tape and unofficial signage • encouraging educational and scientific users to provide the precise location of research sites so staff can monitor their use and ensure that impacts on significant habitats are minimised • encouraging minimal-impact scientific research and use of off-park resources such as the Queensland Herbarium and Queensland Museum. Specimens should only be taken from the park where there is no alternative • ensuring that educational and scientific research activities are appropriate for their intended purpose and their potential impact on locations in which they take place.

4.7 Partnerships

Lamington National Park is part of World Heritage-listed Gondwana Rainforests of Australia and its southern boundary is shared with the Border Ranges National Park and Limpinwood Nature Reserve located in New South Wales. DERM participates in the Gondwana Rainforests of Australia Steering and Coordination Committees and DERM/DECCW cross-border liaison group that ensures consistent management across these areas.

There are three private in-holdings in the park, including Binna Burra Mountain Lodge and O'Reilly's Rainforest Retreat. DERM has formal agreements with both of these resorts that outline approved activities and conditions for their operations in Lamington National Park.

The eastern, northern and western boundaries of the park are mostly adjacent to freehold property, predominately used for cattle grazing. Park neighbours change regularly. Some rural residential property holders are moving towards ecotourism and other land uses. Management issues to be coordinated with park neighbours include managing fires, controlling livestock, giving access for bushwalking and undertaking voluntary conservation.

The park information centres at Binna Burra and Green Mountains are staffed by QPWS, and the Lamington Natural History Association and the Green Mountains Natural History Association respectively.

This management plan is part of the long-term process where park management is defined and improved with the help and participation of the community. The park's future depends on visitors, neighbouring landowners, community groups, such as SEQ Catchments, and local authority's cooperation to protect its special values.

Desired outcomes 2021	Actions and guidelines
Adjoining landholders are aware of and assist in achieving the desired management outcomes for Lamington National Park.	<p>A62. Enhance cooperative relationships with park neighbours to achieve mutual conservation outcomes by:</p> <ul style="list-style-type: none"> • providing neighbours with information on managing Lamington National Park • involving neighbours in park management planning • continuing to liaise with park neighbours about cooperative arrangements for park management issues including fire, livestock control, pest management and public access • encouraging neighbouring in-holdings to adopt sustainability and conservation principles to manage their land. In particular, approach existing resort operators about possible nature refuge declarations over their properties • engaging park neighbours and encourage them to participate in conservation initiatives on and adjacent to the park.
The community and stakeholder groups are aware of and participate in park management activities.	<p>A63. Encourage cooperative arrangements with community-based nature conservation and land management programs in surrounding areas, including:</p> <ul style="list-style-type: none"> • involving rangers in the rural community by attending functions involving rural producers • encouraging public involvement in monitoring native species populations through community-based conservation and natural history groups • engaging with the local community and encouraging its participation in conservation initiatives on and adjacent to the park.
Management of the park provides a leading role in the coordinated management of adjacent World Heritage listed properties.	<p>A64. Continue a coordinated management approach with adjacent World Heritage-listed properties. Priority should be given to managing threatened species, fire, recreation and tourism, and interpreting the park's world-renowned natural and cultural values according to the Strategic Overview for the Gondwana Rainforests of Australia.</p> <p>A65. Support the Community Advisory Committee for Gondwana Rainforests of Australia World Heritage Area to promote and present ideas for effective engagement about the World Heritage value of the area.</p> <p>A66. Park and regional staff continue to liaise with New South Wales Department of Environment, Climate Change and Water and work together according to the Memorandum of Understanding on Cross Border Management.</p>

5. Other key issues and responses

5.1 Pest management

The Queensland Parks and Wildlife Service (QPWS) has the primary responsibility to control declared and non-declared pests in Lamington National Park. Pest management is undertaken in accordance with the QPWS Pest Management System. A draft Statement of Pest Management Intent for Lamington National Park has been prepared and will be reviewed and included in a Level Two Pest Management Strategy for the park, which details the nature and extent of threats, strategy and operations including monitoring and containment procedures.

There are approximately 30 species of non-native pest plants in the park (Appendix G) with substantial visual and ecological impacts on the park's natural integrity. Identified problem species include crofton weed, mistflower, fireweed and groundsel bush. Mistflower is growing in direct competition with two significant species of native daisy, the near threatened *Ozothamnus whitei* and vulnerable *Ozothamnus vagans*.

Non-native plants, such as groundsel bush, madeira vine, red cestrum, privet and camphor laurel, are often problematic in areas that have been disturbed or previously cleared for agriculture or development.

Pest-plant control is a significant management issue. The high number of visitors to the park can introduce and spread pest-plant species. Pest plants can also be introduced through deliveries of products, such as gravel or mulch, used to maintain or develop park assets.

Practical difficulties arise in attempting to control pest species without impacting on native species. Weed control programs need to encourage natural forest succession and to minimise impacts on fauna that may be using weeds as habitat. Eliminating or controlling pest plant infestations is, in most cases, highly labour-intensive and places considerable demands on management resources.

Feral and domestic animals found in the park include dogs, cats, pigs and foxes. Exact numbers are not known and estimates are based on incidental sightings and visitor reports. Their ecological impacts are also poorly understood. Feral dogs and wild pigs travelling between the national park and adjacent properties are a concern, and wild dogs and pigs have been baited on the park's boundaries and western side.

Dingos have been recorded in Lamington National Park. Some members of the public associate dingoes with wild dogs and consider them a pest animal, but the dingo is a protected native species in Queensland and an important predator helping to keep a healthy balance in the natural environment.

Desired outcomes 2021	Actions and guidelines
<p>The integrity of native plant and animal communities is maintained, and the impacts of pests are minimised through strategic, sustained management.</p>	<p>A67. Develop and implement a Level Two Pest Strategy for the park incorporating the current Statement of Pest Management Intent. Pest management practice on Lamington National Park will:</p> <ul style="list-style-type: none"> • use the Pest Management System and ParkInfo to plan, manage, record and monitor all pests and pest management programs • develop monitoring guidelines for the distribution of pest species and effectiveness of control measures • prioritise long term control measures for threatened vegetation communities and critical species or habitat – in particular the control of mistflower in areas containing <i>O. whitei</i> and <i>O. vagans</i> and their habitat • establish preventative measures for minimising pest introductions and outbreaks including the inspection of imported product deliveries for introduced species • provide guidelines for pest plant control programs and where practicable, rehabilitation of disturbed areas with participation and support of local interest groups • identify new invasive species and initiate control measures as a matter of priority. <p>A68. Review management programs every five years to measure the effectiveness of management efforts.</p> <p>A69. Investigate the feasibility of wash-down facilities for both pest plants and fungi control for bushwalkers and machinery.</p>
<p>Integrated approaches to pest management are supported.</p>	<p>A70. Pest management is conducted in a cooperative and coordinated manner via strategic arrangements with the community and other pest management bodies by:</p> <ul style="list-style-type: none"> • working with the community to limit the impact on park values of domestic animals from neighbouring areas, and encouraging and supporting community conservation programs that minimise pest species being introduced or spread • cooperating with neighbours, Scenic Rim Regional Council and Gold Coast City Council, the two neighbouring local government authorities and Biosecurity Queensland in pest management programs, particularly for feral pigs and wild dogs • liaising with NSW Department of Environment, Climate Change and Water in pest management programs.

Desired outcomes 2021	Actions and guidelines
Limit the distribution of <i>Favolaschia calocera</i> to current areas and prevent other introduced pathogens from becoming established.	<p>A71. Develop a program for the effective management of introduced pathogens including <i>P. cinnamomi</i>, <i>F. calocera</i> and <i>A. muscaria</i>. This will include:</p> <ul style="list-style-type: none"> • educating staff to identify the presence of introduced pathogens • monitoring, recording and research of current infestations in the park • checking for new infestations as part of routine ranger patrols • implementing hygiene procedures for park staff and all park visitors to reduce the spread of introduced fungi.

5.2 Fire management

Fire is one of the major management tools used throughout Australia for the protection of life and property, to fulfil the ecological requirements of plants, animals and other natural assets, and to maintain cultural resources and practices. Fire management in the Lamington National Park is subject to a number of legal and ethical responsibilities relating to the control of fire on and near QPWS-managed estates. There are significant cultural values and fire sensitive communities in the park which need to be protected from fire.

A comprehensive fire history of Lamington National Park is well mapped and recorded on ParkInfo (QPWS internal GIS database). Because of the park's geographical position on top of a plateau, many fires enter the park from adjoining land in the valleys and lower slopes. Suppressing wildfires is necessary to protect life and assets, and to prevent negative ecological impacts on the predominantly fire sensitive ecosystems within the park. Planned burns help to contain wildfires through reduced fuel loads and thereby reduce their impacts, as well as to manage conservation values, to maintain suitable habitats and meet the ecological requirements of fire-dependent species such as the eastern bristlebird and the Hastings River mouse.

A fire management system has been adopted statewide by QPWS who are the primary agency for fire management on protected areas. Fire strategies provide the overall framework and direction for fire management and are the foundation from which planned burn programs are developed. Lamington National Park has a Fire Strategy, which was developed in 2001, and a more up to date Level Two Fire Strategy (statement of fire management intent), which was approved in 2006. These fire strategies will be combined into a new Level One Fire Strategy, incorporating information from *Implications of Climate Change for Australia's World Heritage Properties: A Preliminary Assessment* (Australian National University, 2009). A wildfire response procedure has been prepared, which incorporates the park and supports the management of wildfire operations.

Desired outcomes 2021	Actions and guidelines
<p>Park visitors, infrastructure and adjacent properties are protected from the impacts of fire.</p> <p>Fire is managed to meet the ecological requirements of fire dependant and fire sensitive species and communities.</p>	<p>A72. Prepare and implement a revised Level One Fire Strategy, which is based on a review of the 2001 Fire Management Strategy; 2006 Level Two Fire Strategy (statement of fire management intent); and <i>Implications of Climate Change for Australia's World Heritage Properties: A Preliminary Assessment</i> (Australian National University 2009). The revised fire strategy will include provisions to:</p> <ul style="list-style-type: none"> • ensure life and property is the most important priority for fire management • continue to document the fire history of the park • conduct on-ground assessments of proposed burning sites to ensure mapping is accurate and that there is no loss of species • maintain staff training in vegetation types, species and fire needs of significant species and communities • identify fire-indicator species and structural indicators for those vegetation communities that require active fire management or which are subject to, or influenced by fire • identify the fire ecology requirements of ecosystems and species of conservation significance (including the eastern bristlebird and Hastings River mouse) that may be adversely affected by inappropriate fire regimes or uncontrolled wildfires, and incorporate them into fire strategies and planned burning programs

Desired outcomes 2021	Actions and guidelines
	<ul style="list-style-type: none"> • regulate the frequency and intensity of fire to maintain the plant species composition, structure and ecological dynamics of all vegetation communities.
Culturally significant sites are protected.	<p>A73. Conduct on-ground assessments of proposed burning sites to ensure mapping is accurate and there is no damage or loss of culturally significant sites.</p> <p>A74. Coordinate with and maintain liaison with the Traditional Owners about planned burning programs and managing wildfires.</p>
Integrated approaches to fire management are supported.	<p>A75. Fire management is conducted in a cooperative and coordinated manner via strategic arrangements with the community and other fire management agencies by:</p> <ul style="list-style-type: none"> • maintaining liaison with the local rural fire brigades and neighbouring landholders, about the timing and extent of planned burns and managing wildfires • coordinating planned burning on the park with the activities on neighbouring properties • continuing to liaise with New South Wales Department of Environment, Climate Change and Water about cross-border fire management programs • ensuring that liaison between park rangers, local fire authorities and local landholders continues to be maintained and further develop suitable cooperative burning procedures in the area • working with the Queensland Fire and Biodiversity Consortium on improving knowledge and practices in relation to fire management planning.
Knowledge of the effects of fire on regional ecosystems and species of conservation significance is increased and guides management decisions.	<p>A76. Establish key fire monitoring objectives for ecosystems and native plant and animal species of conservation significance on the park, and support monitoring programs that achieve these objectives including:</p> <ul style="list-style-type: none"> • maintaining established fire monitoring sites to study the relationship of fire and the park's floristic structure and diversity, particularly in areas of montane heath, open woodland with <i>Eucalyptus racemosa</i> canopy and heath understorey, rainforest dominated by <i>Archontophoenix cunninghamiana</i> with some brush box, warm temperate rainforest dominated by <i>Ceratopetalum apetalum</i>, subtropical rainforest/tall open forest ecotone, and tall open forest dominated by <i>Eucalyptus oreades</i> • ensuring fire management meets the ecological requirements of species of conservation significance (including the eastern bristlebird and Hastings River mouse) or communities, and other fire dependent species, which may be adversely affected by inappropriate fire regimes or uncontrolled wildfires • continuing the fire response monitoring program as part of the eastern bristlebird recovery program at representative sites in the park • continuing monitoring the effectiveness of fire regimes to meet the ecological requirements of <i>Callitris monticola</i> and associated heath species at Dave's Creek and Ships Stern to ensure adequate regeneration of the fire-sensitive heath communities.

5.3 Park infrastructure

Regular maintenance or replacement of many QPWS assets in Lamington National Park, including management infrastructure (offices, workshops, staff accommodation) and visitor infrastructure (visitor information centres, toilet facilities, picnic grounds, walking tracks and lookout structures) must be managed cost-effectively to continue to provide a safe and enjoyable experience for park visitors. Public toilets are only provided in park management zone four (developed) (refer to Appendix D).

Placing any new communication and transmission infrastructure in the park could impact on the amenity of the park and its values. Clearing for infrastructure and access fragments habitat and creates potential paths for wildfire and weeds to disperse.

There are unformed road reserves in, and adjacent to, the park. Some assets have been built on the road reserve at Green Mountains.

Desired outcomes 2021	Actions and guidelines
The development, maintenance and replacement of operational assets is done efficiently and as required to meet the needs of park management and to allow staff to devote sufficient time and resources to manage the park's natural and cultural resources.	A77. Use the Strategic Asset Management System (SAMS) to identify existing and required assets, their condition, life cycle costs, maintenance and replacement needs. A78. Close unformed gazetted roads in, and adjacent to, the park. A79. Develop strategies to manage assets that have been built on the road reserve at Green Mountains.
Assets become more energy-efficient.	A80. Develop energy-efficient measures to reduce greenhouse gas emissions.
Management zones one (remote natural), two (natural) or three (recreation) remain free from public utility structures.	A81. No new service facility structures are to be built in the park other than in zone four (developed) and where there are no alternative locations outside the park, and environmental impacts have been assessed and deemed acceptable.

5.4 Water infrastructure

QPWS established water extraction pipelines on Lamington National Park in 1968 with Binna Burra Lodge from the Coomera River (authorised under sections 41 and 43 of the *Forestry Act 1959*) and in 1976 with O'Reilly's Rainforest Retreat from Canungra Creek (West Branch), authorised under section 35 of the *National Parks and Wildlife Act 1975* (NPW Act) to supply water to the resort facilities and QPWS campground, housing and public amenities.

Section 2B(3) of the NPW Act specified that all authorities issued on a national park under the *Forestry Act 1959* shall continue in force as if issued under the NPW Act. Section 183 of the Nature Conservation Act specifies that an authority given or made under section 33 or 35 of the NPW Act and in force immediately before 19 December 1994 is taken to have continued in force until it expires, or is earlier terminated, under its terms. Neither authority was issued with an expiry date.

Water resource plans were established under the *Water Act 2000* for the Logan Basin in 2007 and Gold Coast in 2006, to provide a framework for the sustainable management of water resources and establishment of allocations.

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.

Desired outcomes 2021	Actions and guidelines
The extraction of water from Lamington National Park will be authorised under the Water Act and will continue under agreement between QPWS and other entities.	A82. Investigate and pursue options for authorising the current water extraction from Lamington National Park by QPWS, Binna Burra Lodge and O'Reilly's Rainforest Retreat under the Water Act. A83. The nature of any water use will be subject to conditions that will ensure that sustainable use of water in the park is achieved.
Previous use authorities for water extraction on Lamington National Park will be recognised and re-authorised under the Nature Conservation Act.	A84. Historic water extraction authorities issued to Binna Burra Lodge and O'Reilly's Rainforest Retreat will be re-authorised by QPWS in perpetuity under Section 37 of the Nature Conservation Act. A85. Specific conditions will apply to this authority that will ensure that: <ul style="list-style-type: none"> • water extraction does not impact on the park's values • there is no increase in the volume of water extracted • shared use of the water infrastructure between the resorts and QPWS will be maintained. A86. Additional water extraction locations within Lamington National Park will not be authorised.

Desired outcomes 2021	Actions and guidelines
	A87. The 2009 Deed of Agreement between QPWS and Binna Burra Lodge and the 2009 Deed of Agreement between QPWS and O'Reilly's Rainforest Retreat will be amended to include revised provisions for the maintenance of water infrastructure.

5.5 Climate change

The majority of the World Heritage values in the Gondwana Rainforests of Australia, including Lamington National Park, are at risk from the effects of climate change. Higher temperatures, drought and a consequential change in fire regimes are likely effects of climate change that could impact on the park's natural values (Australian National University 2009).

Climate change threatens many of the significant vegetation communities in the park, including:

- Antarctic beech communities, considered to be particularly at risk. Severe fires allowing invasion by fire-tolerant species can affect this community as beech seedlings are prevented from regenerating
- notophyll evergreen vine forests dominated by coachwood, which are also particularly threatened
- dry rainforests including Araucarian vine forests. Lower and more varied rainfall, increased fire frequency and intensity, and increased invasion by plant species will adversely affect these communities.

Many significant fauna species of Lamington National Park are also susceptible to the impacts of climate change, including:

- fire-sensitive birds such as the vulnerable rufous scrub-bird and endangered eastern bristlebird
- significant frog species including the endangered Fleay's barred-frog and the giant barred-frog. It is believed that climate change (together with the chytrid fungus disease) has contributed to the decline of these species, and that it will increase frogs' vulnerability to the pathogen *Batrachochytridium dendrobatidis* that causes the chytrid disease
- many mammal species, whose core habitat may be reduced due to climate change
- the vulnerable Hastings River mouse and the rufous bettong. Climate change is likely to cause more intense and frequent fires that could threaten the survival of these and other fauna species
- several endemic butterfly species restricted to Gondwanan Rainforest regions, including the vulnerable Richmond bird-wing butterfly, whose habitat is fragmented. This species must move across large areas of hostile environment to reach favourable patches of habitat. Climate change is affecting the life history cycles of butterflies. For example, due to changes in seasonality, the hatching period for Richmond bird-wing butterflies are considerably longer and their densities are low, affecting their mating ability (Australian National University 2009).

Although global warming is difficult to plan and manage for, and is largely outside the scope of this plan, reducing stresses on the environment could make it more resilient to climatic change.

Desired outcomes 2021	Actions and guidelines
Understand potential impacts from climate change, particularly on Antarctic beech forests and species of conservation significance.	A88. Support the Biodiversity of Soil and Canopy Arthropods project, specifically to identify flora and fauna species and ecosystems potentially at risk from climate change and impacts from invasive species associated with climate change. A89. Encourage the Technical and Scientific Advisory Committee of Gondwana Rainforests of Australia to conduct and support research that is associated with climate change impacts and that supports on ground management issues.
Suitable habitats are linked to assist native species to move through the landscape and adapt to climate change impacts.	A90. Promote linking important habitats for climate change-affected species through establishing and maintaining corridors, connections and/or 'habitat stepping stones'.

Desired outcomes 2021	Actions and guidelines
Fire is managed to avoid climate-related changes in fire regimes from adversely impacting on fire-sensitive species and communities.	A91. Implement the fire management actions in sections 4.2.1, 4.2.2 and 5.2 that aim to protect significant species and communities that may be susceptible to altered fire regimes.
Impacts of invasive species as a result of climate change are minimised.	A92. Monitor the impacts of invasive species as a result of climate change and, where necessary, include actions in pest management programs to minimise identified impacts.

6. References

- Australian National University 2009, *Implications of climate change for Australia's World Heritage properties: A preliminary assessment*. (A report to the Department of Climate Change and the Department of the Environment, Water, Heritage and the Arts by the Fenner School of Environment and Society, the Australian National University).
- Burbidge, A.A. and Jenkins, R.Q.G. (eds) 1987, *Endangered Vertebrates of Australia and its Island Territories* (Report of the working group on endangered fauna of the Standing Committee of the Council of Nature Conservation Ministers) Australian National Parks and Wildlife Service, Canberra.
- EDAW 2000, *Cross Border Recreation Tracks and Trails Study*. A report commissioned by the Central Eastern Rainforest Reserves (Australia) Coordinating Committee.
- Hutley, L. 2006, *A Guide to Lamington National Park*, Lamington Natural History Association.
- Hughes, J.M., Mitchell, P.A. and Ramson, W.S. (eds) 1992, *The Australian Concise Oxford Dictionary*, Oxford University Press.
- McDonald, W.J.F. and Elsol, J.A. 1984, *Moreton Region Vegetation Map Series – Summary Report and Species Checklist for Caloundra, Brisbane, Beenleigh and Murwillumbah Sheets* Queensland Department of Primary Industries, Queensland Government, Brisbane.
- McDonald, W.J.F. and Thomas, MB 1989, *The Flora of Lamington National Park: A preliminary Checklist of the Vascular Plant Species, 2nd edn*, Queensland Department of Primary Industries, Queensland Government Printers, Brisbane.
- Olsen, M. and Hunter, J., 1986, *Report on Endemic, Rare and Endangered Vegetation of the Border Track and Lookouts, Lamington National Park*. An internal report compiled for the Q.NPWS, Queensland Government, Brisbane.
- Sattler, P. and Williams, R. (eds) 1999, *The conservation status of Queensland's bioregional ecosystems*. Environmental Protection Agency, Queensland Government, Brisbane.
- State of Queensland 2005, *A summary of potential impacts on Commonwealth values as a result of the proposed Gold Coast hinterland Great Walk*, Queensland National Parks and Wildlife, Queensland Government, Brisbane (unpublished).
- WCMC/IUCN 1993, *World Heritage Nomination – IUCN Summary Central Eastern Rainforests of Australia (Extension)*.
- Vis, ML, Entwisle, T.J., West J.A. and Ott, F.D. 2006, *Ptilothamnion richardsii (Rhodophyta) is a chantransia stage of Batrachospermum*, European Journal of Phycology 41: 125–130.

7. Hyperlinks

- Aboriginal Cultural Heritage Act 2003 <www.legislation.qld.gov.au>
- DERM biodiversity status <www.derm.qld.gov.au>
- DERM website <www.derm.qld.gov.au>
- Environment Protection and Biodiversity Conservation Act 1999 and Regulations 2000 <www.deh.gov.au>
- Nature Conservation Act 1992 <www.legislation.qld.gov.au>
- Nature Conservation (Wildlife) Regulation 2006 <www.legislation.qld.gov.au>
- Queensland Heritage Act 1992 <www.legislation.qld.gov.au>
- Regional ecosystems <www.derm.qld.gov.au>
- Regional Ecosystem Description Database <www.derm.qld.gov.au>
- Strategic Overview for Management of the Gondwana Rainforest Reserves of Australia <www.environment.gov.au>
- Sustainability Guidelines <www.derm.qld.gov.au>
- World Heritage Central Eastern Rainforest Reserves of Australia Strategic Overview for Management <www.environment.gov.au>

8. Appendixes

Appendix A – Maps

Appendix B – Definitions

Appendix C – Regional ecosystems

Appendix D – Zones and special management areas

Appendix E – Animals of conservation significance

Appendix F – Plants of conservation significance

Appendix G – Known pest plants and animals

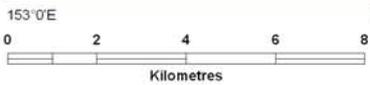
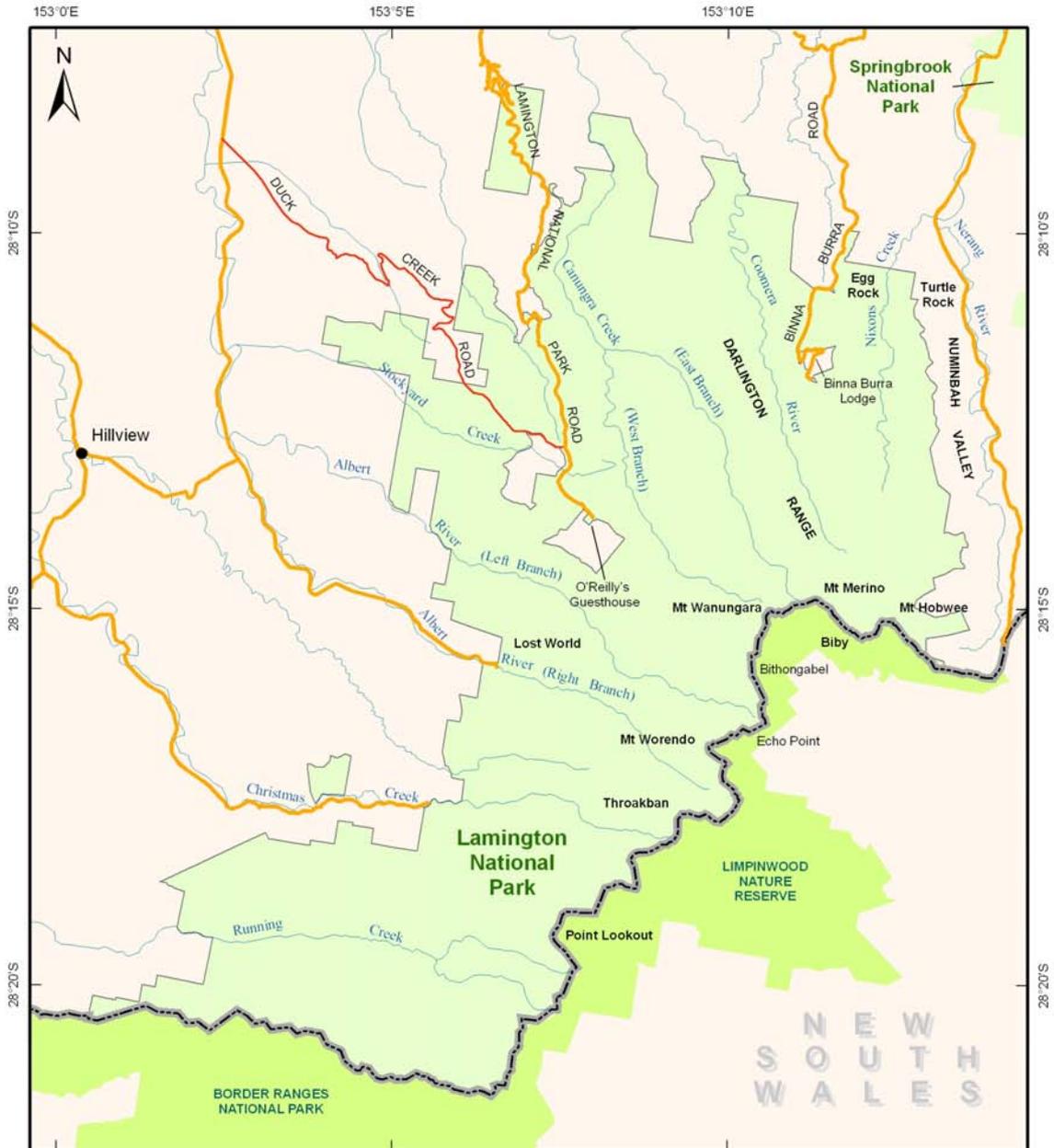
Appendix H – List of recovery/management plans and guidelines

Appendix I – List of known natural and shared-history cultural heritage sites

Appendix J – List of graded walking tracks and their classification

Appendix A – Maps

Map 1 Location



Map Projection:
 Universal Transverse Mercator (MGA) zone <5x>
 Horizontal Datum:
 Geocentric Datum of Australia 1994 (GDA94)

Map Production:
 Spatial Services - Brisbane,
 Queensland Parks and Wildlife Service,
 Department of Environment and Resource Management,
 21 January 2011

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Accuracy statement:
 Due to varying source, accuracy or currency
 of data layers used in this map, the spatial locations
 of features may not coincide when overlaid.

- Legend**
- Towns
 - Road network**
 - Highways
 - Secondary roads
 - Connector
 - Drainage network**
 - Rivers and Creeks
 - Tenure**
 - National Park
 - NSW Protected Area

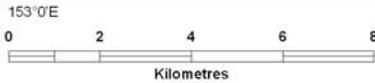
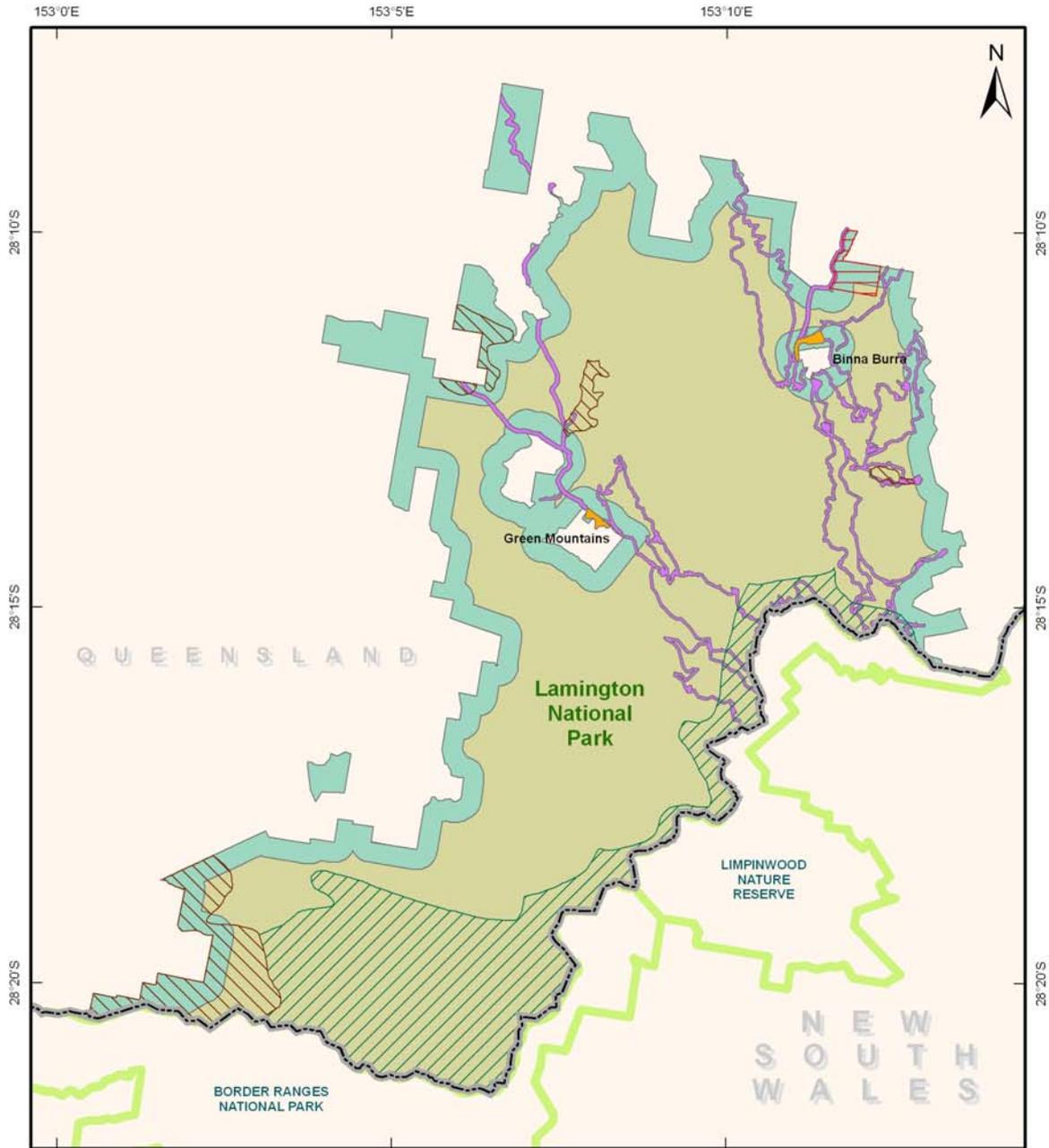
Source Material:
 ● Protected Areas of Queensland, DERM; September 2010
 ● Drainage Network - Rivers QLD; 2010
 © Pitney Bowes Business Insight 2010
 ● State Digital Road Network (SDRN); September 2010
 © Pitney Bowes Business Insight 2010



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Map 2 Management zoning



Map Projection:
 Universal Transverse Mercator (MGA) zone <5x>
 Horizontal Datum:
 Geocentric Datum of Australia 1994 (GDA94)

Map Production:
 Spatial Services - Brisbane,
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Legend

- Special Management Area**
- Eastern Bristle Bird Habitat
 - Indigenous Cultural Site (Egg Rock)
 - Temperate Rainforest (Antarctic Beech) +900m
- Management Zoning**
- 1 (Remote Natural)
 - 2 (Natural)
 - 3 (Roads/Tracks)
 - 4 (Developed)
 - Freehold
 - NSW Protected Area

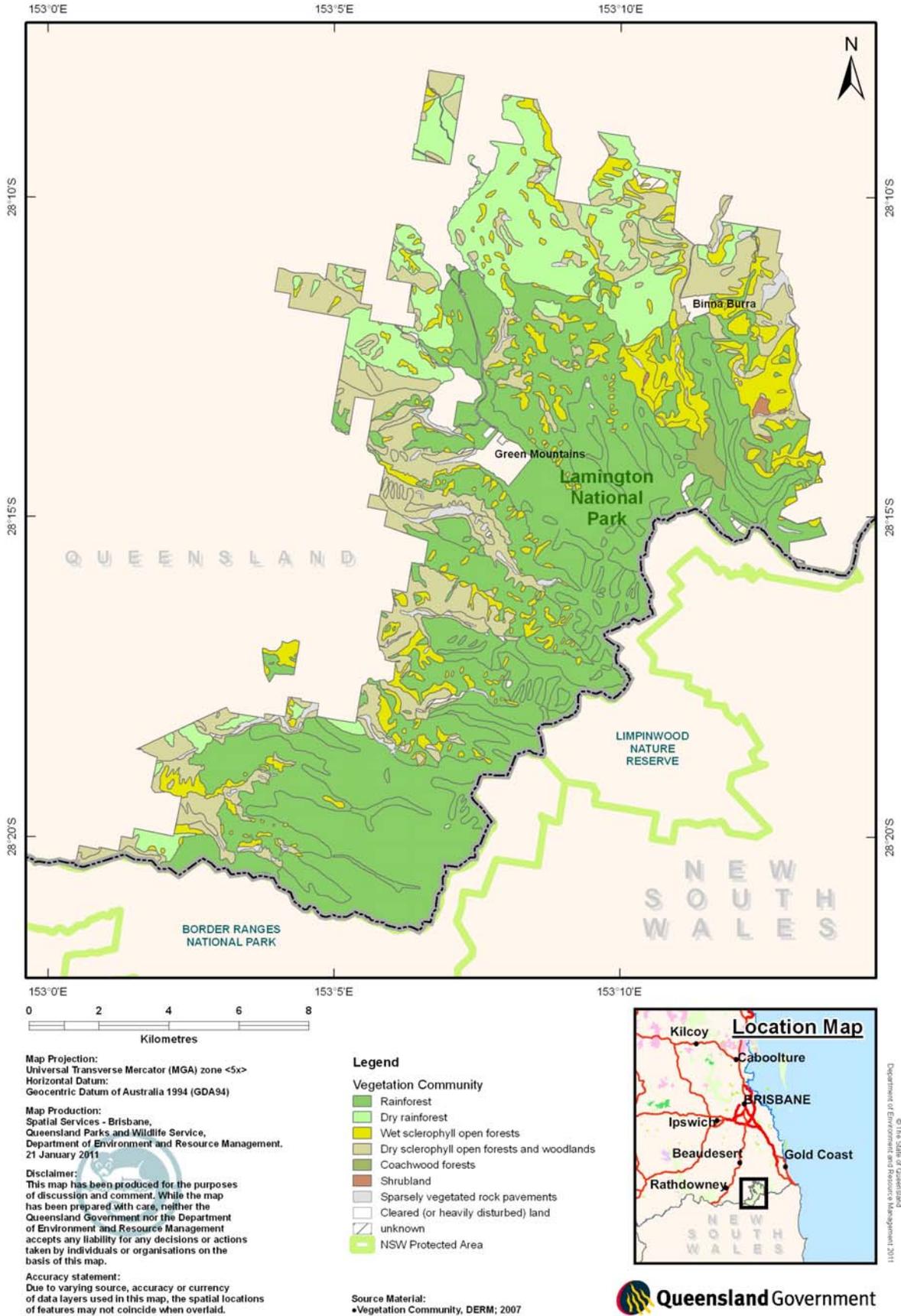
Source Material:
 • Species Management Area, DERM; 2008
 • Management Zoning, DERM; 2008



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 Department of Environment and Resource Management 2011



Map 3 Vegetation



Appendix B – Definitions

Aboriginal cultural heritage

Aboriginal cultural heritage is defined by the *Aboriginal Cultural Heritage Act 2003*.

Authorised management purposes

Authorised management purposes are actions by managing agencies or authorised contractors only, and necessary for the management of Lamington National Park and approved infrastructure, under the *Nature Conservation Act 1992* and subordinate legislation. This includes activities authorised in a national park by another Act (such as the *Native Title (Queensland) Act 1993*). It does not include other actions or activities by groups or commercial operations (such as commercial tourism operations), which may be permitted in Lamington National Park.

Berm

A heap or mound of soil associated with the sweeping of material towards the edge of the road or track and which prevents runoff from draining from the road surface.

Commercial activity

Any activity that is conducted for gain is considered a commercial activity and can be conducted only under a permit or agreement. Examples of commercial activities include the hire or sale of goods or services; supplying services or facilities; commercial photography and filming; undertaking a guided tour, safari, scenic flight, cruise or excursion; advertising or promoting the use of a protected area or recreation area as part of a tour, safari, scenic flight, cruise or excursion; and advertising or promoting the use of a protected area or recreation area as a feature associated with a resort or tourist facility.

Cultural heritage significance

Cultural heritage significance is defined by the *Queensland Heritage Act 1992*.

DERM Biodiversity status (regional ecosystems)

The biodiversity status is based on an assessment of the condition of remnant vegetation in addition to the pre-clearing and remnant extent of a regional ecosystem. The current biodiversity status of regional ecosystems is given on the Regional Ecosystem Description Database. See hyperlink – biodiversity status for further information including the specific criteria used to assess the biodiversity status.

Endangered (regional ecosystems)

For biodiversity planning purposes, a regional ecosystem is listed with a DERM biodiversity status of endangered if:

- less than 10 per cent of its pre-clearing extent remains unaffected by severe degradation and/or biodiversity loss; or
- 10–30 per cent of its pre-clearing extent remains unaffected by severe degradation and/or biodiversity loss and the remnant vegetation is less than 10 000 hectares; or
- it is a rare regional ecosystem subject to a threatening process.

Endangered (species)

At the state level, endangered species are those species listed as endangered under schedule 2 of Queensland's Nature Conservation (Wildlife) Regulation 2006. At the national level, endangered species are those species listed as endangered under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999*.

Landscape Classification System (LCS)

The Landscape Classification System (LCS) is a standard classification system for characterising the biophysical, social and management attributes of sites and areas within QPWS managed areas, from a visitor management perspective.

The LCS framework for assessing a site or area systematically describes settings on the basis of biophysical, social and managerial features.

The LCS is a tool for assessing the naturalness of landscape settings from a visitor use and management perspective. Naturalness is expressed on a range from completely untouched, wild, natural or remote to completely modified, built or developed depending on the proportion of natural and human-modified elements (post-1788) in the landscape. However, naturalness is not an absolute condition.

The naturalness of a particular site or area can vary over time and natural events do not change the degree of naturalness although they may change the natural look of an area.

Management principles for national parks

Under Section 17, *Nature Conservation Act 1992*:

- (1) A national park is to be managed to—
 - (a) provide, to the greatest possible extent, for the permanent preservation of the area's natural condition and the protection of the area's cultural resources and values; and
 - (b) present the area's cultural and natural resources and their values; and
 - (c) ensure that the only use of the area is nature-based and ecologically sustainable.
- (2) The management principle mentioned in subsection (1)(a) is the cardinal principle for the management of national parks.

Management principles for wildlife

As outlined in the *Nature Conservation Act 1992* and subordinate legislation.

Near threatened wildlife

The Nature Conservation (Wildlife Management) Regulation 2006 sets out parameters for the management of species of plants and animals declared by schedule as near threatened. Near threatened wildlife are listed under schedule 5 of the Nature Conservation (Wildlife) Regulation 2006.

Of concern (regional ecosystems)

Regional ecosystems are assigned a DERM biodiversity status of concern if 10–30 per cent of its pre-clearing extent remains unaffected by moderate degradation and/or biodiversity loss. Moderate degradation and/or biodiversity loss is defined as floristic and/or faunal diversity is greatly reduced but unlikely to recover within the next 20 years even with the removal of threatening processes; or soil surface is moderately degraded.

QPWS Pest Management System

Adopted as the QPWS statewide standard the system is a collection of two types of documents allowing QPWS to meet legislative obligations and achieve conservation outcomes:

- planning documents to facilitate pest management planning
- operational documents to guide on-ground pest management.

Sustainability guidelines

Sustainability guidelines have been developed to ensure nature-based tourism opportunities are ecologically, socially and economically sustainable. The sustainability guidelines encourage proposals that demonstrate harmony and integration with the natural and cultural values of the site through appropriate facility layout and design; construction materials and methodologies; energy, water and waste management; and operational and visitor protocols and activities. The guidelines outline key sustainability issues that should be addressed and the benchmarks that government will use to assess performance.

Service facility

Service facility—

- (a) a communications facility, including for example, a communications tower or cable
- (b) a device designed to be used for navigation or the guidance of aircraft or vessels
- (c) a transmission grid or supply network under the *Electricity Act 1994*
- (d) a pipeline for oil or gas
- (e) a water supply or sewerage facility, including for example, a pipeline or pumping station.

Regional ecosystems

Regional ecosystems were defined by Sattler and Williams (1999) as vegetation communities in a bioregion that are consistently associated with a particular combination of geology, landform and soil. Readers should refer to this publication for background information about regional ecosystems and the bioregional planning framework used in Queensland.

Compilation of the information about regional ecosystems presented in Sattler and Williams (1999) was derived from a broad range of existing information sources including land system, vegetation and geology mapping and reports. However, the framework is dynamic and is regularly reviewed as new information becomes available. During the past few years the Queensland Herbarium has developed a program for explicitly mapping regional ecosystems across Queensland. This has resulted, and will continue to result, in updates to the descriptions and status of regional ecosystems. Therefore updated regional ecosystem descriptions in the format of Sattler and Williams (1999) are maintained in the Regional Ecosystem Description Database.

Threatened

Threatened species generally refers to those species that are endangered or vulnerable species. The term may also refer to other species of conservation significance that are subject to substantial threats at a regional or local level.

Vulnerable (species)

At the state level, vulnerable species are those species listed as vulnerable under schedule 3 of Queensland's Nature Conservation (Wildlife) Regulation 2006. At the national level, vulnerable species are those species listed as vulnerable under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999*.

Water bar (also known as invert)

A low-profiled surface drain constructed of stone or similar hard wearing material, across the width of a walking track to divert water off the downhill side of the track. (Water that has collected on the high side of the track or is flowing down the track can be diverted off the track by using a water bar.)

Zones

Zones are smaller units in the national park, established to prescribe individual management regimes to each, based on the conservation of natural and cultural values, on presentation values, or managing hazards and visitor safety in the area. For the purposes of this plan, zones are described in Appendix D and outlined in Appendix A, Map 2.

Appendix C – Regional ecosystems

Table 1: Of concern or endangered regional ecosystem for Lamington National Park.

Regional ecosystem number	Regional ecosystem name	DERM biodiversity status	Reason for status and the threats to ongoing sustainability
12.3.1	Gallery rainforest (notophyll vine forest) on alluvial plains.	Endangered	Remnant extent <10 000 ha and 10–30 per cent of the pre-clearing area remains. Occurs up to about 100 km inland. Extensively cleared for agriculture. Prone to invasion by weeds, e.g. camphor laurel <i>Cinnamomum camphora</i> , broad leaved pepper tree <i>Schinus terebinthifolius</i> , cat's claw creeper <i>Macfadyena unguis-cati</i> on margins and when disturbed.
12.3.2	<i>Eucalyptus grandis</i> tall open forest on alluvial plains.	Of concern	Remnant extent <10 000 ha and >30 per cent of the pre-clearing area remains. Highest-rainfall parts of the bioregion. Habitat fragmented by land uses such as horticulture and rural residential. Much of this regional ecosystem is prone to infestation by weeds, especially <i>Lantana camara</i> . Requires fire for regeneration.
12.8.6	Simple microphyll fern forest with <i>Nothofagus moorei</i> on Cainozoic igneous rocks.	Of concern	Pre-clearing area <1000 ha and >30 per cent of the pre-clearing area remains. All known Queensland occurrences are contained within national parks along the Queensland and New South Wales border.
12.8.8	<i>Eucalyptus saligna</i> or <i>Eucalyptus grandis</i> tall open forest on Cainozoic igneous rocks.	Of concern	Remnant extent <10 000 ha and >30 per cent of the pre-clearing area remains. Mostly restricted to southern border parts of bioregion and Mt Tamborine.
12.8.9	<i>Lophostemon confertus</i> open forest on Cainozoic igneous rocks.	Of concern	Remnant extent >10 000 ha and >30 per cent of the pre-clearing area remains. Tends to occur on exposed ridges among vine forest on basalt and in gullies on lower fertility substrates such as rhyolite. Patches are often too small to map at 1:100 000.
12.8.16	<i>Eucalyptus crebra</i> , <i>E. tereticornis</i> woodland on Cainozoic igneous rocks.	Of concern	Remnant extent >10 000 ha and 10–30 per cent of the pre-clearing area remains.
12.8.18	Simple notophyll vine forest with <i>Ceratopetalum apetalum</i> on Cainozoic igneous rocks.	Of concern	Pre-clearing area <1000 ha and >30 per cent of the pre-clearing area remains.
12.8.19	Montane shrub land on Cainozoic igneous rocks.	Of concern	Remnant extent <10 000 ha and >30 per cent of the pre-clearing area remains. Montane heaths exhibit a high level of species endemism. Frequent fire favours fire-tolerant species at the expense of fire-sensitive species.
12.8.20	Shrubby woodland with <i>Eucalyptus racemosa</i> or <i>E. dura</i> on Cainozoic igneous rocks.	Of concern	Remnant extent <10 000 ha and >30 per cent of the pre-clearing area remains. Frequent fire can favour fire-tolerant species at the expense of fire-sensitive species.
12.9–10.7	<i>Eucalyptus crebra</i> , <i>E. tereticornis</i> ± <i>Corymbia tessellaris</i> , <i>Angophora</i> spp., <i>E. melanophloia</i> woodland on sedimentary rocks.	Of concern	Remnant extent >10 000 ha and 10–30 per cent of pre-clearing area remains. Extensively cleared for pasture.
12.9–10.16	Araucarian microphyll to notophyll vine forest on sedimentary rocks.	Endangered	Remnant extent <10 000 ha and >30 per cent of pre-clearing area remains. Extensively cleared for pasture and cropping. Remnants can be degraded by weed infestation in conjunction with wildfire damage on margins.

Appendix D – Zones and special management areas

Outlined below are stated management characteristics and guiding principles. Activities and structures remain subject to the provisions of the managing legislation and the [management principles](#) for national parks. The conservation of nature and the protection of cultural values therefore remains the cardinal principle for the use of a national park. The presentation of an area’s values is subject to those values being protected, and any use of a national park must be nature based and ecologically sustainable.

Table 1 – Management zone characteristics and principles

- Note:
1. Appendix A, Map 2 shows the location of the zones on the park.
 2. Park management will aim to achieve the stated zone characteristics.
 3. Traditional use, emergency situations and management strategies may override the zone characteristics and will be assessed on a case-by-case basis.
- * DERM staff should refer to the Facilities Manual for further guidance on facilities appropriate to each Landscape Classification System (LCS) setting.

ZONE 1 – Remote natural

General description

Pristine natural areas with minimal evidence of modern human activity, large remote areas.

Management characteristics	Management aims	LCS settings *	Expected levels of visitation	Public vehicle access	Pedestrian access / walking tracks
	<ul style="list-style-type: none"> • Manage almost exclusively for conservation • Provide for very low levels of visitation • No facilities to be provided 	<ul style="list-style-type: none"> • Settings 1–2 	<ul style="list-style-type: none"> • Very low 	<ul style="list-style-type: none"> • None except the minimum required for special protection purposes 	<ul style="list-style-type: none"> • Walk in, natural foot trails • No formed tracks other than those already in existence • Limited number of tracks formed by human use or by management access along tracks in emergencies • Class 5 or 6 trails permitted and managed to ensure minimal disturbance
	Day visitor amenities	Signs and interpretation	Campsites	Visitor self reliance	Maximum group size
	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None, other than along existing track system 	<ul style="list-style-type: none"> • Remote campsites or zones under strict control • Generally one group per location • May be temporary or permanent delineation of sites • No facilities • Permit system, specific conditions, special number limits for certain areas or campsites • No vehicle access 	<ul style="list-style-type: none"> • Very high 	<ul style="list-style-type: none"> • Up to 12. Special group limits may be set for specific areas or campsites, including seasonal restrictions
Guiding principles					
Conservation, low level recreation.					

ZONE 2 – Natural**General description**

Natural vegetation and landscape dominate and are essentially unmodified. Inconspicuous evidence of modern human activity in small limited areas. Includes a 500-metre buffer on the western-northern boundaries of the park which do not border New South Wales and a 500-metre buffer around Green Mountains/O'Reilly's and Binna Burra.

Management characteristics	Management aims <ul style="list-style-type: none"> • Manage predominantly for conservation • Natural environments with minimal hardening • Provide for low levels of visitation • Coordinate fire management, livestock control, bushwalking access and voluntary conservation measures in cooperation with park neighbours. 	LCS settings * <ul style="list-style-type: none"> • Setting 3 	Expected levels of visitation <ul style="list-style-type: none"> • Low 	Public vehicle access <ul style="list-style-type: none"> • None, or access to boundaries where appropriate • Unformed roads • Some restrictions may apply 	Pedestrian access/walking tracks <ul style="list-style-type: none"> • Walk in, natural foot trails, some form trails where necessary
	Day visitor amenities <ul style="list-style-type: none"> • None 	Signs and interpretation <ul style="list-style-type: none"> • Limited, preferably near boundaries 	Campsites <ul style="list-style-type: none"> • Remote campsites or zones under strict control • Generally one group per location • May be temporary or permanent delineation of sites • No facilities • Permit system, specific conditions, special number limits for certain areas or campsites • No vehicle access 	Visitor self reliance <ul style="list-style-type: none"> • High 	Maximum group size <ul style="list-style-type: none"> • Up to 12. Special group limits may be set for specific areas or campsites, including seasonal restrictions

Guiding principles

Managed primarily for edge effects from neighbouring properties. Conservation, low-level recreation.

ZONE 3 – Roads and tracks**General description**

Natural vegetation and landscape mostly dominates and is essentially natural but may have noticeable areas of disturbance.

Management characteristics	Management aims <ul style="list-style-type: none"> • Manage for conservation and low to moderate levels of visitation • Medium-level facilities concentrated at visitor nodes in predominantly natural environment. 	LCS settings * <ul style="list-style-type: none"> • Settings 3–5 	Expected levels of visitation <ul style="list-style-type: none"> • Medium 	Public vehicle access <ul style="list-style-type: none"> • Formed or unformed roads, sealed or unsealed roads for visitor access • Gravel car parks at nodes where necessary 	Pedestrian access/walking tracks <ul style="list-style-type: none"> • Formed trails • Some well-built tracks and boardwalks where necessary
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	Day visitor amenities <ul style="list-style-type: none"> Basic facilities (steps, seats, handrails) may be provided Structures present blend well with the surrounding natural environment 	Signs and interpretation <ul style="list-style-type: none"> Some onsite if needed 	Campsites <ul style="list-style-type: none"> Some defined undeveloped or developed sites or camping zones Permit system, specific conditions, special number limits for certain areas or campsites No vehicle access 	Visitor self reliance <ul style="list-style-type: none"> Moderate 	Maximum group size <ul style="list-style-type: none"> Site dependent
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Guiding principles

Conservation, medium intensity recreation. Includes a 30 metre buffer zone either side of class 2, 3, 4 and 5 walking tracks and fire breaks and a 50-metre buffer zone either side of access roads.

ZONE 4 – Developed

General description

Modified immediate environment at developed sites, but with natural or rural background. Human activity conspicuous. Small areas usually near the edge of a protected area. Hardened (sealed or paved) and open grassy areas may dominate the immediate landscape. Motorised vehicle sights and sounds common. There are only two developed locations (as per Appendix A, map 2), Binna Burra and O'Reilly's day-use locations.

Management characteristics	Management aims <ul style="list-style-type: none"> Manage for moderate to high levels of visitation Highly modified environments in natural areas, with high levels of facilities 	LCS settings * <ul style="list-style-type: none"> Settings 6–7 	Expected levels of visitation <ul style="list-style-type: none"> High to very high 	Public vehicle access <ul style="list-style-type: none"> Sealed or all-weather unsealed roads, sealed car parks, defined parking bays 	Pedestrian access/Walking tracks <ul style="list-style-type: none"> Hardened tracks, well formed and intensively managed
	Day visitor amenities <ul style="list-style-type: none"> Well developed large areas Tables or shelters Toilets 	Signs and interpretation <ul style="list-style-type: none"> Comprehensive onsite as needed 	Campsites <ul style="list-style-type: none"> Well developed camp grounds Car access to campsite and perhaps tent sites Number limits and permit system Toilet facilities Drinking water generally available 	Visitor self reliance <ul style="list-style-type: none"> Low 	Maximum group size <ul style="list-style-type: none"> >25 depending on sites

Guiding principles

High intensity recreation. A high degree of onsite management including the use of physical barriers to constrain movement of pedestrians and vehicles. Well-developed structures and interpretative signage present. Frequent ranger presence likely.

Table 2 – Special Management Area characteristics

Special protection can be designated over areas in any management zone where special measures may be needed to address a specific management issue such as protection of: fragile species, communities or habitats that are fragile or of conservation significance; fragile geological features, items or features of cultural value; or areas of particular scientific significance. They will not necessarily be declared over all such areas, only those requiring special management. Special management areas do not form a separate management zone, they merely overlay existing management zones. Specific issues and provisions will be defined for each special management area. The provisions of the underlying management zone will continue to apply to the area, provided they do not conflict with the provisions of the special management area. Where conflicts occur, the provisions of the special management area will generally prevail.

- Note: 1. Appendix A, Map 2 shows the location of special management areas on the park.
 2. Park management will aim to achieve the stated special management area characteristics.
 3. Traditional use, emergency situations and management strategies may override the zone characteristic.

Special Management Area – Temperate Rainforest (Antarctic Beech), +900 m	
<u>General description</u>	
<p>The temperate rainforests are dominated by Antarctic beech trees and are dependent on cool temperatures. This restricts their distribution to above specific altitudes. Climate change effects may have substantial consequences on these communities. The change in climatic conditions may pose a significant threat to the viability of Antarctic beech communities when the change occurs in conjunction with other factors, such as recreation and weed infestations. It is imperative to minimise the communities' potential vulnerability to changes in climatic conditions by mitigating the factors which can be controlled by management practices.</p> <p>These areas on the Zoning Map (Appendix A, map 2) include all high altitude rainforest.</p>	
<u>Issue</u>	<u>Outcomes/Criteria to be achieved</u>
<ul style="list-style-type: none"> • <i>Visitor access</i> 	<i>Human disturbance does not have significant negative impact on temperate rainforests dominated by Antarctic beech.</i>
<ul style="list-style-type: none"> • <i>Invasive weed impacts</i> 	<i>Impacts of weeds in temperate rainforests dominated by Antarctic beech are recognised and reduced.</i>
<u>Guiding principles</u>	
<ul style="list-style-type: none"> • <i>Monitor visitation numbers and impacts. Limit visitor access to areas of Antarctic beech seedling regeneration.</i> • <i>Monitor and reduce weed impacts.</i> 	
Special Management Area — Eastern Bristlebird Habitat	
<u>General description</u>	
<p>Special management and habitat provisions are essential for the survival of the <i>endangered</i> eastern bristlebird populations. Major threats are habitat disturbance and unsuitable fire regimes (Burbidge and Jenkins, 1987). Future management decisions should work to safeguard existing bristlebird populations from extinction.</p> <p>These areas on the Zoning Map (Appendix A, map 2) include Mt Gipps/Black Snake Ridge/Stretch Track, Snake Ridge, Duck Creek Rd, Dave's Creek Circuit montane heath.</p>	
<u>Issue</u>	<u>Outcomes / Criteria to be achieved</u>
<ul style="list-style-type: none"> • <i>Habitat disturbance</i> 	<i>Ensure visitor access to eastern bristlebird habitat does not negatively impact on the bird's population.</i>
<ul style="list-style-type: none"> • <i>Fire management</i> 	<i>Planned burning and fire management is complementary to eastern bristlebird habitat requirements.</i>
<u>Guiding principles</u>	
<p><i>Visitor access should be limited. Adult birds tend to abandon nests readily. Continual human disturbance during the incubation period (usually August to October) can be highly detrimental to the</i></p>	

population's long-term viability. Unnecessary access to bristlebird territories should be restricted.

Planned burning should not occur in late winter/early spring as this is the peak bristlebird nesting period. Burning should be carried out between Feb and July to minimise disturbance to nesting birds. Current reports suggest that approximately 4-5 years is an appropriate interval between fires, depending on local conditions (Australian National University 2009). In the absence of fire, shrub species can invade the grassy forest to produce either a layer of open forest or rainforest ecotone, which are unsuitable for bristlebird breeding.

Special Management Area – Indigenous Cultural Site (Egg Rock)

General description

Egg Rock is a significant Aboriginal site and the Traditional Owners have requested that public access be restricted to respect the historic significance of this site and to minimise disturbance.

Issue	Outcomes/Criteria to be achieved
<ul style="list-style-type: none"> • Visitor access 	<p>Egg Rock will be declared a Restricted Access Area under the Nature Conservation Act 1992 to restrict visitor access to Egg Rock to reduce disturbance to the site.</p>

Guiding principles

Public access will be restricted through use of signage. Management activities and access will be minimised to key management activities to manage any potential disturbance.

Appendix E – Animals of conservation significance

Table 1: Vulnerable, endangered or near threatened native animals for Lamington National Park.

Scientific name	Common name	Status under the <i>Nature Conservation Act 1992</i>	Status under the <i>Environment Protection and Biodiversity Conservation Act 1999</i>	DERM Back on Track species prioritisation framework rank
<i>Adelotus brevis</i>	tusked frog	Vulnerable		Medium
<i>Assa darlingtoni</i>	pouched frog	Near-threatened		Low
<i>Kyarranus loveridgei</i>	masked mountain frog	Near-threatened		Low
<i>Mixophyes fleayi</i>	Fleay's barred frog	Endangered	Endangered	Low
<i>Mixophyes iteratus</i>	giant barred frog	Endangered	Endangered	Medium
<i>Litoria pearsoniana</i>	cascade treefrog	Vulnerable		Low
<i>Litoria revelata</i>	whirring treefrog	Near-threatened		Low
<i>Accipiter novaehollandiae</i>	grey goshawk	Near-threatened		Low
<i>Erythrotriorchis radiatus</i>	red goshawk	Endangered	Vulnerable	High
<i>Lophoictinia isura</i>	square-tailed kite	Near-threatened		Low
<i>Lewinia pectoralis</i>	Lewin's rail	Near-threatened		Low
<i>Turnix melanogaster</i>	black-breasted button quail	Vulnerable	Vulnerable	Critical
<i>Calyptorhynchus lathami</i>	glossy black cockatoo	Vulnerable		High
<i>Cyclopsitta diophthalma coxeni</i>	Coxen's fig parrot	Endangered	Endangered	Critical
<i>Ninox strenua</i>	powerful owl	Vulnerable		Medium
<i>Tyto tenebricosa tenebricosa</i>	sooty owl	Near-threatened		Low
<i>Podargus ocellatus plumiferus</i>	plumed frogmouth	Vulnerable		Low
<i>Menura alberti</i>	Albert's lyrebird	Near-threatened		Low
<i>Atrichornis rufescens</i>	rufous scrub bird	Vulnerable		Critical
<i>Climacteris erythrops</i>	red-browed treecreeper	Near-threatened		Low
<i>Dasyornis brachypterus</i>	eastern bristlebird	Endangered	Endangered	High
<i>Ornithoptera richmondia</i>	Richmond birdwing	Vulnerable		Critical
<i>Cercartetus nanus</i>	eastern pygmy possum	Least concern		Medium

Scientific name	Common name	Status under the <i>Nature Conservation Act 1992</i>	Status under the <i>Environment Protection and Biodiversity Conservation Act 1999</i>	DERM Back on Track species prioritisation framework rank
<i>Dasyurus maculatus maculatus</i>	spotted-tailed quoll (southern subspecies)	Vulnerable	Endangered	High
<i>Phascogale tapoatafa</i>	brush-tailed phascogale	Least concern		Low
<i>Saccolaimus flaviventris</i>	yellow-bellied sheath-tail bat	Least concern		Low
<i>Ornithorhynchus anatinus</i>	platypus	Least concern		Low
<i>Petaurus australis australis</i>	yellow-bellied glider	Least concern		High
<i>Phascolarctos cinereus</i> (south-east Queensland bioregion)	koala (south-east Queensland bioregion)	Vulnerable		
<i>Aepyprymnus rufescens</i>	rufous bettong	Least concern		Low
<i>Potorous tridactylus tridactylus</i>	long-nosed potoroo	Vulnerable	Vulnerable	Medium
<i>Petrogale penicillata</i>	brush-tailed rock wallaby	Vulnerable	Vulnerable	High
<i>Mormopterus norfolkensis</i>	eastern little mastiff bat	Least concern		Low
<i>Chalinolobus dwyeri</i>	large-eared pied bat	Vulnerable	Vulnerable	Medium
<i>Kerivoula papuensis</i>	golden-tipped bat	Near-threatened		Medium
<i>Myotis macropus</i>	large-footed myotis	Least concern		Low
<i>Scoteanax rueppellii</i>	greater broad-nosed bat	Least concern		Medium
<i>Pseudomys oralis</i>	Hastings river mouse	Vulnerable	Endangered	High
<i>Harrisioniascincus zia</i>		Near-threatened		Low
<i>Coeranoscincus reticulatus</i>	three-toed snake-tooth skink	Near-threatened	Vulnerable	Medium
<i>Eulamprus tryoni</i>		Least concern		Low
<i>Ophioscincus truncatus</i>		Least concern		Low
<i>Saproscincus spectabilis</i>		Near-threatened		Low
<i>Acanthophis antarcticus</i>	common death adder	Near-threatened		Medium

* Protected under JAMBA and CITES (Appendix I).

** Note *Eulamprus tryoni* – most restricted skink in south-east Queensland.

Source: QPWS Wildnet.

Appendix F – Plants of conservation significance

Table 2: Vulnerable, endangered or near threatened native plants for Lamington National Park.

Scientific name	Common name	Status under the <i>Nature Conservation Act 1992</i>	Status under the <i>Environment Protection and Biodiversity Conservation Act 1999</i>	DERM Back on Track species prioritisation framework rank
<i>Parsonsia tenuis</i>	slender silkpod	Near-threatened		Low
<i>Pararistolochia laheyana</i>	native dutchman's pipe	Least concern		Low
<i>Marsdenia longiloba</i>		Vulnerable	Vulnerable	Low
<i>Brachyscome ascendens</i>	Binna Burra daisy	Near-threatened		Low
<i>Olearia heterocarpa</i>	Nightcap daisy bush	Near-threatened		Low
<i>Ozothamnus vagans</i>		Vulnerable	Vulnerable	Medium
<i>Ozothamnus whitei</i>		Near-threatened		Low
<i>Podolepis monticola</i>	mountain podolepis	Vulnerable		Low
<i>Pandorea baileyana</i>	large-leaved wonga vine	Near-threatened		Low
<i>Thismia rodwayi</i>		Near-threatened		Medium
<i>Cassia marksiana</i>		Vulnerable		Low
<i>Senna acclinis</i>		Near-threatened		Low
<i>Wahlenbergia glabra</i>	native bluebell	Near-threatened		Low
<i>Wahlenbergia scopulicola</i>		Near-threatened		Low
<i>Corynocarpus rupestris</i> subsp. <i>arborescens</i>	southern corynocarpus	Vulnerable		Medium
<i>Callitris monticola</i>	Steelhead	Near-threatened		Low
<i>Cyathea cunninghamii</i>	slender tree fern	Near-threatened		Low
<i>Cyperus rupicola</i>		Near-threatened		Low
<i>Gahnia insignis</i>		Near-threatened		Low
<i>Hibbertia hexandra</i>		Near-threatened		Low
<i>Lastreopsis silvestris</i>		Vulnerable		Low
<i>Gaultheria</i> sp. (Mt Merino G.Leiper AQ502686)		Vulnerable		Low
<i>Callerya australis</i>	austral wisteria	Least concern		Low
<i>Pultenaea pycnocephala</i>		Near-threatened		Low

Scientific name	Common name	Status under the <i>Nature Conservation Act 1992</i>	Status under the <i>Environment Protection and Biodiversity Conservation Act 1999</i>	DERM Back on Track species prioritisation framework rank
<i>Sophora fraseri</i>	brush sophora	Vulnerable	Vulnerable	Low
<i>Argophyllum nullumense</i>	silver leaf	Near-threatened		Low
<i>Westringia blakeana</i>		Near-threatened		Low
<i>Westringia rupicola</i>		Vulnerable	Vulnerable	Low
<i>Cryptocarya foetida</i>	stinking cryptocarya	Vulnerable	Vulnerable	Medium
<i>Endiandra hayesii</i>	rusty rose walnut	Vulnerable	Vulnerable	Low
<i>Huperzia varia</i>	long clubmoss	Vulnerable		High
<i>Owenia cepiodora</i>	onion cedar	Vulnerable	Vulnerable	Medium
<i>Acacia orites</i>	mountain wattle	Near-threatened		Low
<i>Eucalyptus codonocarpa</i>	mallee ash	Near-threatened		Low
<i>Eucalyptus dunnii</i>	Dunn's white gum	Vulnerable		Low
<i>Lenwebbia prominens</i>	<i>Austromyrtus</i> sp. (Upper Mudgeeraba Creek N.B.Byrnes+4069)	Near-threatened		Low
<i>Lenwebbia</i> sp. (Blackall Range P.R.Sharpe 5387)		Endangered		Low
<i>Uromyrtus lamingtonensis</i>		Vulnerable		Low
<i>Acianthus amplexicaulis</i>		Least concern		Low
<i>Bulbophyllum argyropus</i>		Near-threatened		Data deficient
<i>Bulbophyllum globuliforme</i>		Near-threatened	Vulnerable	Low
<i>Bulbophyllum weinthalii</i>	blotched bulbophyllum	Vulnerable		
<i>Corybas montanus</i>		Vulnerable	Vulnerable	Low
<i>Genoplesium sigmoideum</i>		Near-threatened		Data deficient
<i>Papillilabium beckleri</i>		Near-threatened		Low
<i>Pterostylis bicornis</i>	horned greenhood	Vulnerable	Vulnerable	Low
<i>Rhizanthella omissa</i>		Near-threatened		Data deficient
<i>Rhizanthella slateri</i>		Least concern		
<i>Sarcochilus fitzgeraldii</i>	ravine orchid	Endangered	Vulnerable	Critical

Scientific name	Common name	Status under the <i>Nature Conservation Act 1992</i>	Status under the <i>Environment Protection and Biodiversity Conservation Act 1999</i>	DERM Back on Track species prioritisation framework rank
<i>Sarcochilus hartmannii</i>		Vulnerable	Vulnerable	Critical
<i>Sarcochilus weinthalii</i>	blotched sarcochilus	Endangered	Vulnerable	Critical
<i>Helmholtzia glaberrima</i>		Near-threatened		Low
<i>Pittosporum oreillyanum</i>	thorny pittosporum	Near-threatened		Low
<i>Alloxylon pinnatum</i>		Near-threatened		Low
<i>Banksia conferta</i> subsp. <i>conferta</i>		Least concern		Low
<i>Helicia ferruginea</i>	rusty oak	Vulnerable		Low
<i>Macadamia tetraphylla</i>		Vulnerable	Vulnerable	Medium
<i>Clematis fawcettii</i>		Vulnerable	Vulnerable	Low
<i>Pomaderris clivicola</i>		Endangered	Vulnerable	High
<i>Pomaderris notata</i>		Near-threatened		Low
<i>Acronychia baeuerlenii</i>	Byron Bay acronychia	Near-threatened		Low
<i>Leionema elatius</i> subsp. <i>beckleri</i>		Endangered		Low
<i>Zieria adenodonta</i>		Near-threatened		Low
<i>Cupaniopsis newmanii</i>	long-leaved tuckeroo	Near-threatened		Medium
<i>Lepiderema pulchella</i>	fine-leaved tuckeroo	Vulnerable		Low
<i>Euphrasia bella</i>	Lamington eyebright	Endangered	Vulnerable	Critical
<i>Rulingia salviifolia</i>	sage-leaved rulingia	Near-threatened		Low
<i>Pneumatopteris pennigera</i>	lime fern	Near-threatened		Low
<i>Pimelea umbratica</i>		Near-threatened		Low
<i>Antrophyum austroqueenslandicum</i>		Extinct in the wild		

Source: QPWS Wildnet.

Appendix G – Known pest plants and animals

Family	Scientific name	Common name
Plants		
<i>Gomphocarpus physocarpus</i>	balloon cotton bush	Non declared
<i>Ageratum houstonianum</i>	blue billygoat weed	Non declared
<i>Cinnamomum camphora</i>	camphor laurel	Class 3
<i>Macfayena unguis-cati</i>	cats claw creeper	Class 3
<i>Asarina erubescens</i>	creeping gloxinia, Mexican twist	Non declared
<i>Oxalis corniculata</i>	creeping oxalis	Non declared
<i>Ageratina adenophora</i>	crofton weed	Non declared
<i>Bidens pilosa</i>	cobblers pegs	Non declared
<i>Senecio madagascariensis</i>	fire weed	Class 2
<i>Lilium formosanum</i>	formosa lilly	Non declared
<i>Baccharis halimifolia</i>	groundsel bush	Class 2
<i>Pennisetum clandestinum</i>	kikuyu grass	Non declared
<i>Lantana</i> spp.	lantana	Class 3
<i>Anredera cordifolia</i>	Madeira vine	Class 2
<i>Sonchus oleraceus</i>	milk thistle	Non declared
<i>Ageratina riparia</i>	mistflower	Non declared
<i>Melinis minutiflora</i>	molasses grass	Non declared
<i>Araujia sericifera</i>	moth vine	Non declared
<i>Solanum</i> spp.	nightshades	Non declared
<i>Centella asiatica</i>	pennywort	Non declared
<i>Ligustrum lucidum</i>	privet	Class 3
<i>Sporobolus pyramidalis</i>	rats tail grass	Class 2
<i>Cestrum elegans</i>	red cestrum	Non declared
<i>Desmodium uncinatum</i>	silver leaf desmodium	Non declared
<i>Ligustrum sinense</i>	small-leaved privet	Class 3
<i>Trifolium repens</i>	white clover	Non declared
<i>Passiflora subpeltata</i>	white passionflower	Non declared
<i>Solanum mauritianum</i>	wild tobacco	Non declared

Family	Scientific name	Common name
Animals		
<i>Felis catus</i>	cat	Class 2
<i>Canis familiaris</i>	dog	Class 2
<i>Vulpes vulpes</i>	European red fox	Class 2
<i>Sus scrofa</i>	pig	Class 2
<i>Bufo marinus</i>	cane toad	Non declared

Source: Statement of Pest Management Intent (QPWS 2007).

Appendix H – List of recovery/management plans and guidelines

Australian Department of Environment and Heritage 2004. Administrative guidelines on significance — Supplement for the tiger quoll (south-eastern mainland population) and the use of 1080.

Australian National University 2009 Implications of climate change for Australia's World Heritage properties: A preliminary assessment. A report to the Department of Climate Change and the Department of the Environment, Water, Heritage and the Arts by the Fenner School of Environment and Society, the Australian National University

Costello G, Gregory M and Donatiu P 2009. Southern Macadamia Species Recovery Plan. Report to Department of the Environment, Water, Heritage and the Arts, Canberra. Horticulture Australia Limited, Sydney.

Coxen's Fig-Parrot Recovery Team 2001. Coxen's fig-parrot *Cyclopsitta diophthalma coxeni* recovery plan 2001-2005. Report to Environment Australia, Canberra. Queensland Parks and Wildlife Service, Brisbane.

Department of Environment and Heritage (C'wlth) 2000. World Heritage Central Eastern Rainforest Reserves of Australia, Strategic Overview for Management November 2000.

Department of Environment and Resource Management 2009. National recovery plan for the red goshawk *Erythrotriorchis radiatus*. Report to the Department of Environment, Water, Heritage and Arts, Canberra. Queensland Department of Environment and Resource Management, Brisbane.

Department of Environment and Conservation (NSW) 2006. NSW Recovery plan for the large forest owls: Powerful owl (*Ninox strenua*), sooty owl (*Tyto tenebricosa*) and masked owl (*Tyto novaehollandiae*). DEC, Sydney.

Department of Environment and Conservation (NSW) 2005. Draft recovery plan for the brush-tailed rock wallaby *Petrogale penicillata*. DEC, Sydney.

Department of the Environment, Water, Heritage and the Arts 1999. The Action Plan for Australian Bats, Recovery outline: Grey-headed Flying Fox,

<http://www.environment.gov.au/biodiversity/threatened/publications/action/bats/13.html>, accessed 4 March 2009.

Department of Environment, Heritage and the Arts 2009. Draft Border Ranges Rainforest Biodiversity Management Plan.

Hines, H.B. and the South-east Queensland Threatened Frogs Recovery Team 2002. Recovery plan for stream frogs of south-east Queensland 2001-2005. Report to Environment Australia, Canberra. Queensland Parks and Wildlife Service, Brisbane.

Mathieson M T and Smith G C 2009. National recovery plan for the black-breasted button-quail *Turnix melanogaster*. Report to the Department of Environment, Water, Heritage and the Arts, Canberra. Department of Environment and Resource Management, Brisbane.

NSW National Parks and Wildlife Service 2002. Approved recovery plan for the Red Goshawk (*Erythrotriorchis radiatus*). NSW National Parks and Wildlife Service, Hurstville.

NSW Department of Environment and Climate Change 2005. Recovery plan for the Hastings River Mouse (*Pseudomys oralis*). Department of Environment and Climate Change (NSW), Hurstville.

Parsons Brinckerhoff 2005. Gold Coast Hinterland Great Walk Impact Assessment Report, Queensland Environmental Protection Agency, Queensland Parks and Wildlife Service, Brisbane.

Pedersen, A 200 Managing tourism at World Heritage sites: A practical manual for World Heritage Site Manager 2002, UNESCO World Heritage Centre, Paris, France.

Queensland Environmental Protection Agency 2006. Nature Conservation (Koala) Conservation Plan 2006 and Management Program 2006-2016. Queensland Government.

Queensland Department of Environment and Resource Management 2009. South East Queensland Natural Resource Management Plan 2009-2031. Queensland Government, Brisbane.

Queensland Environmental Protection Agency 2008. Draft South East Queensland 'Back on Track' (BoT) Biodiversity Action Plan, Queensland Government, Brisbane.

Sands, D.P.A. and New, T.R. 2002. The action plan for Australian butterflies. Environment Australia, Canberra.

World Wildlife Fund Australia, SEQ Rainforest Recovery Plan (2005-2010)

Appendix I – List of known natural and shared-history cultural heritage sites

Shared-history cultural heritage sites	
Rat-a-Tat Hut Site	Queensland Naturalist Club Cairn
Roberts' Survey Tree "Coolya"	Gus Kouskos Memorial
Bill Muller's Ashes	Stockyard Creek Track, original gate post
Robert Martin Collins Memorial Seat	Forestry Camp—Green Mountains
Forest Camp—Gwongoorool Pool	Bithongabel Lookout
Binna Burra QPWS Office and Information Centre	Old track signage—Darlington Range Track
Bert Rankin's Homestead	R.M. Collins Memorial Bird Bath
Bert Rankin's Dairy Farm	Slab hut behind the Binna Burra Information Centre
Cainbale Firestone Rings	Cairn at Bithongabel
Kamarun Lookout / Romeo Lahey Memorial	Water Sign on Darlington Range Walking Track
Romeo Watkins Lahey Memorial	Natural Rock Water Hole
Lightning Strike Site	
Stinson complex	
Westray's Grave	Stinson wreck and gravesite
Stinson Complex	
Natural heritage sites	
Fountain Falls	Oldest Antarctic Beech (Green Mountains)
Antarctic Beech Forest — Green Mountains	Joalah Lookout

Appendix J – List of graded walking tracks and their classification

Note: This list is subject to review of track classifications.

Binna Burra tracks	Class	Green Mountains tracks	Class
Rainforest Circuit	2	Rainforest Return	2
Tullawallal Circuit	3	Python Rock	3
Caves Track	4	Moran's Falls Track	4
Bellbird Lookout	4	Border Track	4
Gwongoorool Track	4	Box Forest Circuit	4
Lower Bellbird Circuit	4	Toolona Creek Circuit	4
Daves Creek Circuit	4	West Canungra Creek Circuit	4
Border Track	4	Albert River Circuit	4
Ships Stern Circuit	4		
Coomera Circuit	4		
Mount Hobwee/Wagawn Track	4		
Illinbah Circuit	4		
Araucaria Track	4		

