Appendix

Appendix 1. A brief history of national park selection in Queensland

Queensland's first national park was created at Witches Falls, Mount Tamborine in March 1908. The hard work of a small number of visionaries, backed by strong public support, resulted in some important national parks being declared in the first half of the twentieth century. Most early national parks included spectacular scenery, but also conserved areas of very high biodiversity. The movement to select national parks on a systematic and scientific basis began as early as 1964, when the Department of Forestry Annual Report stated that 'an important objective of the national parks system must be to reserve permanently examples of all the main environments including the less scenic'.

The coordinated effort to establish a representative system of national parks evolved during the late 1960s and 1970s when scientists led the first projects to systematically assess and conserve Australia's biodiversity[1,2]. In 1977, to establish a systematic framework for conservation, a bioregional approach was developed. In ground-breaking work, 13 biogeographic regions were identified in Queensland, and key areas were assessed and proposed for reservation (see the box on the bioregional approach for more details)[3].

By 1980, there was a significant spread of national parks across Queensland—from the Simpson Desert in the west and the Barrier Reef islands in the east to the rainforests of Iron Range in the north, and the dunes and wallum heath of Cooloola and Fraser Island in the south. All of these areas have exceptionally high value in conserving nature, but also exhibit scenic beauty and offer a range of recreational opportunities. In reserving these lands, significant progress towards conservation was also made, as by then an estimated 40 per cent of the state's ecosystem types were to some extent reserved in parks covering 2.5 million hectares[4]. However, there was an increasing realisation that few protected areas existed in many bioregions, especially in the western areas.

By 1985, the parks system had been reviewed to determine which natural systems remained unrepresented in each of these bioregions. Using new computer-based programs, QPWS undertook innovative planning projects to systematically identify conservation priorities in the Channel Country, the Mulga Lands and the southern Brigalow Belt. During this work, the concept of regional ecosystems was

Visitors to Lamington National Park 1938.

Comprehensive, adequate and representative protected area system

Comprehensive means the system samples the full range of regional ecosystems across the landscape.

Adequate means the protected areas are of sufficient size and appropriate shape to enable natural integrity, including species diversity, to be maintained.

Representative means the samples of regional ecosystems include the maximum possible diversity of their plant and animal communities.

1 Specht R, Roe, E.M. & Broughton VH 1974. 'Conservation of major plant communities in Australia and Papua New Guinea', Australian Journal of Botany supplementary series, vol. 7.

2 Fenner F (Ed.) 1975, A national system of ecological reserves in Australia, Australian Academy of Science, Canberra.

3 Stanton JP & Morgan MG 1977, The rapid appraisal of key and endangered sites. Report to the Department of Environment, Housing and Community Development University of New England, Armidale

4 Sattler P 1986, 'Nature conservation in Queensland: Planning the matrix', Proceedings of the Royal Society of Queensland, vol. 97.

developed. These were defined across the state and progressively mapped in each bioregion as a basis for more detailed and focused reserve planning.

In the 1990s, recognition of skewed protected area coverage throughout Australia (the vast majority were in coastal areas) led to Commonwealth, state and territory governments committing to the establishment of a nation-wide comprehensive, adequate and representative (CAR) system of protected areas. Queensland worked towards this commitment by increasing representation of regional ecosystems. Many new protected areas were declared across the state in the 1990s, including large national parks in western bioregions such as Diamantina, Astrebla and Idalia.

Since that time there has been a steady increase in national parks (including those in the high-biodiversity coastal bioregions) resulting from forest transfers and other programs. Detailed planning work has been used to define important forest areas for conservation in the South East Queensland and Wet Tropics bioregions and in the western hardwood forests.

Queensland now has more than eight million hectares of land protected in national parks, which attract significant numbers of international and domestic visitors every year.

The Queensland Parks and Wildlife Service (QPWS) was established in 1975 to select, administer and manage these national parks for the benefit of present and future generations. The move to bring parks and wildlife together under one department followed a period of 67 years during which national parks were administered by the Department of Forestry.

The 1975 action recognised the importance of conserving Queensland's natural heritage and helped establish QPWS' goals to:

- protect natural conditions
- ensure rare and threatened plant and animal species are protected
- provide facilities for minimal impact and nature-based recreation
- protect protected areas from overuse
- concentrate human activity in less sensitive areas
- help visitors enjoy special attractions and understand conservation objectives.

Since it was first espoused in the *Forestry Act 1959*, and repeated in subsequent Acts, the cardinal principle for the management of national parks has guided and determined how those parks can be used. That important principle states: 'a national park is to be managed to 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'.

The enactment of the *Nature Conservation Act 1992* broadened the scope of Queensland's protected area estate. National parks, conservation parks and resources reserves in 2011 account for approximately 4.95 per cent of land in Queensland. By 2020, the Queensland Government aims to protect 50 per cent more land than that protected in 2008 for nature conservation and public recreation.

This important Toward Q2 target reinforces a proud history of protecting Queensland's exceptional and diverse plants, animals, landscapes, scenery, and cultural heritage.

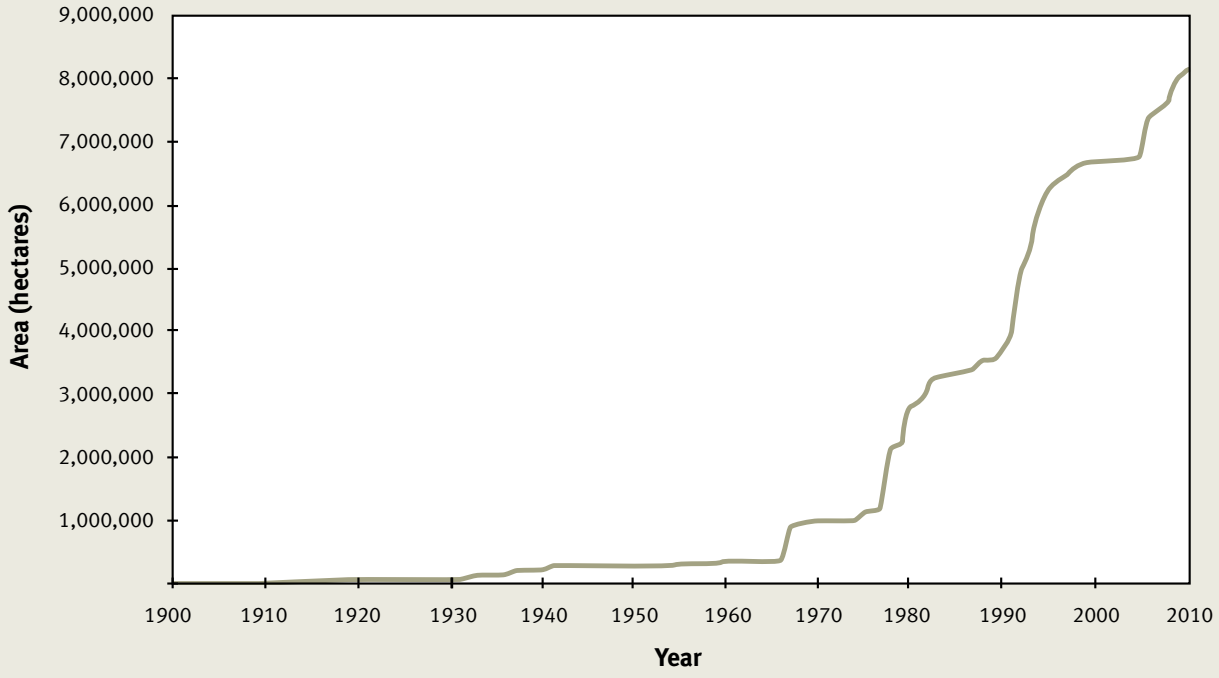

Figure 1. National park area growth in Queensland from 1900 to 2011.

The bioregional approach

Systematic planning for Queensland's terrestrial protected area system over the past 30 years has been based on the bioregional framework, which was initially devised in 1977 by Stanton and Morgan[5], described in Sattler and Williams in 1999, and used as the basis of the Interim Biogeographic Regionalisation of Australia (IBRA) and the National Reserve System. The bioregional framework has been used to develop the concept, used throughout Australia, of the 'comprehensive, adequate and representative' (CAR) protected area system.

Based on the CAR approach, Queensland's protected area planning has focused on the idea of protecting as many kinds of plants, animals and landscapes as possible throughout the state—from the coast to the desert, and from the tropics to the cool southern highlands. There is a need to conserve not only the rainforest giants, bright wildflowers, attractive animals and scenic landscapes; but also the more subtle and less impressive places, the rarely seen and less attractive wildlife, and the prickly plants with dull flowers. As it is not possible to list and protect every species in every place, the best way to systematically conserve biodiversity is to group and classify the natural variation across the state, and then to protect samples of these groupings.

In Queensland, three layers of classification are used, which represent different scales of biodiversity:

- bioregions (the broad classification of Queensland based on landforms)
- subregions (the classification of bioregions)
- regional ecosystems (the classification of different vegetation types within bioregions and subregions).

The bioregions (see the map on page 21) represent the primary level of biodiversity classification in Queensland at a scale of 1:1 million–1:2.5 million. These regions are based on broad landscape patterns reflecting major structural geologies and climate zones as well as distinct groups of plants and animals.

Each bioregion contains a number of finer scaled subregions (mapped at 1:500 000) These subregions (Morgan & Terrey 1990) delineate significant differences in the finer grain of landscape patterning associated with geology, geomorphology and subtle climatic differences. Subregions have a characteristic pattern of landform and vegetation, which outline major differences in land-forming processes such as water flows, energy availability (for example, through soil fertility), and species distributions and patterns of movements.

5 Stanton JP and Morgan MG 1977. The rapid appraisal of key and endangered sites. Report to the Department of Environment, Housing and Community Development, University of New England, Armidale.

Moreton Island National Park, South East Queensland bioregion.

Regional ecosystems are vegetation communities in a bioregion that are consistently associated with a particular combination of geology, landform and soil. In regional ecosystems, three major attributes are combined:

- landscape pattern as described by bioregions and at a finer scale by subregions
- geology, landform and soils (as described by land zones—for details see the DERM website)
- vegetation.

Using bioregions, subregions and regional ecosystems is a more robust approach to planning the conservation of biodiversity than using only one thematic layer, such as vegetation. For example, in South East Queensland tall open forest dominated by blackbutt *Eucalyptus pilularis* grows on a range of different soils in higher rainfall areas. Different regional ecosystems based on this vegetation type occur on high dunes on Fraser Island, remnant tertiary surfaces on Blackbutt Range, coarse sedimentary rocks at Helidon Hills, and volcanic rocks at Mount Mee. A protected area system that samples all of these kinds of forest is much more complete and more resilient to threats than one that samples only one kind of tall blackbutt forest in one location.

Due to the bioregional planning approach, significant progress is being made towards representing the different bioregions and subregions within the protected area estate (see the map below). In 2011, an estimated 80 per cent of regional ecosystems are represented to some extent within the protected area system.

Notes

Some of the tools used by QPWS to help manage protected areas and forests are outlined below.

Park categories: these are a comparative rating of protected area and forest values and threats across the state, under the themes of nature conservation, cultural heritage and presentation. They allow broad categorisation of protected areas at state level and were designed to allow logical allocation of resources and standards. For example, for a protected are with extremely high values under threat, a bigger share of the budget and high standards of monitoring effort might be expected.

All of Queensland's protected areas and forests have been placed in categories according to their known value (either outstanding, very significant, high or moderate), and the threat to the values or additional effort required (either very high, high, medium or low).

Park categories will be reviewed every five years.

Park folios: these are used by QPWS rangers, managers and planners. They define and evaluate the park values (natural, cultural, presentation and multiple use), their desired condition and their current condition and threats. They also record context factors including surrounding landuse and its impacts.

Park folios provide a benchmark for evaluations of integrity as an indicator of change, emerging issues and required actions. Park folios assist management plan development and review and are a tool for capturing knowledge from a range of sources. They also provide direction for monitoring and reporting on bioregional and park levels.

Management plans: these plans fulfil a statutory obligation under the *Nature Conservation Act 1992*. Management plans are developed with careful and thorough research and consultation and specify management outcomes for the protection, presentation, and use of the area and the policies, guidelines and actions to achieve the outcomes.

Each marine park has a zoning plan which identifies its different zones and the activities that are allowed in each. It can also designate specific locations for special management. Plans are developed and altered with input from traditional custodians and user groups. They include guidelines on how an area will be managed, and set out the considerations, outcomes and strategies that form the basis for day-to-day decisions. To alleviate problems at particular locations, detailed management plans have been developed for some popular reefs and islands.

Rapid Assessment Program: QPWS uses this program to assess systems, policies and guidelines. The program can be rolled out on a regular basis (currently every two years) and can be readily adapted to allow for new techniques and technology.

State of the Parks reports: These reports will compile information from all parts of the management evaluation framework outlined in Goal 12. They will be periodic and consistent, and will provide an important way that QPWS can evaluate its performance.

▾ Park folios for Currawinya National Park have been compiled over the last 10 years, combining the knowledge of rangers, scientists and Traditional Owners. The management plan guides the protection of its unique ecosystems.

Adam Creed, DERM

Herbie—
a symbol for conservation

The Herbert River ringtail possum *Pseudochirulus herbertensis* has been the symbol of the Queensland Parks and Wildlife Service (and its predecessor QNPWS) since 1976. This symbol is widely recognised in the Queensland community and internationally.

This distinctive possum is unique to Queensland, living only in the tropical upland forests between the Herbert River Gorge and Cooktown. It is rarely seen as its habitat is quite restricted and it is classified as near threatened. It is active at night and it moves around the highest branches of the forest.

Along with other spectacular wildlife, the Herbert River ringtail possum lives in protected areas of the Wet Tropics World Heritage Area, such as Girringun, Mount Hypipamee and Wooroonooran national parks.

The Herbert River ringtail possum is dependent for its survival on careful conservation of the environment, and is a symbol of our need and responsibility to care for our natural heritage.