

THE FIRST NATIONAL PARK

A Natural For World Heritage



by

Dr Geoff Mosley



Sutherland Shire
Environment Centre

About The Author

GEOGRAPHER AND ENVIRONMENTAL historian Dr Geoff Mosley is Australia's most experienced world heritage assessor having been involved with the field since 1974 only two years after the signing of the World Heritage Convention. From that year, as CEO of the Australian Conservation Foundation, he led many successful World Heritage campaigns, including those for the Great Barrier Reef (inscribed 1981), Kakadu (1981, 1987 and 1992), The Tasmanian Wilderness (1982 and 1989), Central Eastern Rainforest Reserves (1986 and 1994), Uluru Kata Tjuta (1987 and 1994), Wet Tropics of Queensland (1988), and Fraser Island (1992). Since 1986 he has been an environmental consultant specialising in world heritage, has worked in that capacity for several Governments and NGOs, and is the author of many books on national parks and world heritage, including *Australia's Wilderness World Heritage Vol 1 World Heritage Areas* (Weldon, 1988) co-authored with Penny Figgis. He has played a major role in the campaigns for the Greater Blue Mountains World Heritage Area (inscribed 2000), and for the World Heritage listing of The Australian Alps and South East Forests, and Antarctica. In the early 1950s he joined the International Union for Conservation of Nature and Natural Resources (IUCN) and has been a member of the IUCN's World Commission on Protected Areas since 1979, reviewing world heritage nominations in Australia and overseas. From 1981 to 1988 he represented Australasia and Oceania on the governing body of IUCN.

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National Park.

Foreword

THERE HAVE BEEN some developments in human history that have been overwhelmingly positive. Plain good news if you like. Without a doubt one of these was the establishment of a worldwide system of national parks, networks of public land that protect the natural world.

Over the years the parks, which began as places necessary for our health and recreation, have also become important learning places. This leads to the question of a third role – what can we learn from their history that will help our future?

In this respect The Royal Reserves (Royal and Heathcote National Parks and Garawarra State Conservation Area) clearly have a special story to tell because it was here that a juxtaposition of circumstances – the availability of the land, its location and attractiveness – led to the establishment of the first national park in Australia and one of the world's first national parks along with Yosemite, Yellowstone and Mackinac in the USA. These pioneer parks created waves that still flow around the world.

I feel privileged to have had the opportunity to make my contribution to this evolving story. My hope now is that others knowing the area and its story, will be similarly inspired to help with taking the next step. The purpose of this book is clear: to gain a worldwide audience for the importance of these national parks and their story in terms of both cultural development and nature conservation.

The author argues that this can be done by the placing of The Royal Reserves on the World Heritage List, making them the first of their kind to celebrate these significant historical events. Only the Federal Government can nominate an area for the World Heritage List but whether it decides to take that step will be very much influenced by those people in Australia who believe that the story of the Royal Reserves should be relayed to a wider audience. In that sense every reader will have an opportunity to take up the baton.

SENATOR THE HON. BOB CARR
Australian Minister for Foreign Affairs
September 2012

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Introduction

WE ALL KNOW about the importance of the Industrial Revolution of the Eighteenth and Nineteenth Centuries because it has affected all our lives. One of its effects has been to significantly reduce our contact with nature. Unfortunately, we are far less aware of another important development in human affairs which had its beginnings in the Nineteenth Century and has the potential to help heal the damage to the environment and to our psyches caused by industrialisation and to move us to a more wholesome relationship with the environment. This is nature conservation and its most significant manifestation, the national parks movement.

In 2010 about 12.7% of the terrestrial surface of the Earth lay within protected areas. The current goal, adopted at the 10th Conference of the Parties to the Convention on Biological Diversity in October, 2010 in Nagoya, Japan – one of the ‘Aichi Targets’ – is to raise this by 2020 to at least 17%, an increased area almost the size of Australia .

Like many significant human developments by Europeans the rediscovery of the importance of nature had slow and sometimes hesitant beginnings. It was a case of evolution through a number of steps, the whole process bringing a dawning realisation of what could *be* and what actions might be taken to make it happen.

The national parks movement had its beginnings in the new world countries of Australia, Canada, New Zealand and the United States of America. Each moved in different ways to the same end of providing permanent protection for areas regarded as important for public recreation and for the protection of their natural environments. The first reserves were in effect experiments and some had a ripple effect.

There were precedents for the idea of protecting areas for recreation; for example, in the parks which had been developed in British cities. And an American author, Henry David Thoreau, suggested that the concept of the English Royal Hunting Forests could be adapted to the creation of national parks in the United States. The essential fea-

ture of the new parks which were created in the last four decades of the Nineteenth Century was that their reservation was in the general public interest. They were for all the people – then and in the future. The term ‘national park’ was meant to encapsulate this objective.

So it was that in April 1879 the national park we now know as ‘Royal National Park’ was set aside for “the purpose of a National Park”. The importance of this National Park being the first of its kind is only exceeded by the story of how this came about, how the concept evolved, how it was transformed from an emphasis on recreation to a focus on conservation, and how it helped spawn concepts and proposals for a much more extensive national park estate and the protection of wilderness.

The history of the evolving approach to management sometimes reveals trial and error. Looking back from our perspective we can see that some of the decisions were short-sighted, but everyone makes mistakes when dealing with something new and generally lessons are learned and adjustments made. What is important for us here is to understand these important events from the historical records and from the landscape itself. Both have much to teach us about a movement of outstanding universal importance.

We believe the most appropriate and effective way to bring this knowledge to the world is through the inclusion of three reserves – Royal National Park and its two adjacent reserves, Heathcote National Park and Garawarra State Conservation Area – in the World Heritage List. *For simplicity these three reserves are hereafter collectively referred to as The Royal Reserves* (see Fig. 1).

In addition to their intrinsic suitability for listing as cultural heritage, they are a treasure house of geo and bio diversity. The World Heritage Listing of the Royal Reserves for their cultural significance in the history of the national parks movement and as an associative cultural landscape would be another first. The first sites were placed on the World Heritage List in 1978; 34 years later in 2012 there are no areas currently listed in relation to the beginnings of the national park movement in the world, a significant development in European Culture. The spiritual importance of several places to indigenous

cultures has been recognised in places like Tongariro National Park and Ulura Katatjuta National Park.

As far as a future of the Royal Reserves after World Heritage Listing is concerned, it is important to realise that the educational benefits which would result from listing would extend far beyond what is already being learned by citizens who make visits to these areas. Moreover the listing of the Reserves would be a worthy and timely recognition of efforts made by many generations of national park conservationists. It would also, more widely, be a contribution to the global quest for a sustainable world.

This book sets out the case for World Heritage listing by explaining the Outstanding Universal Values of the Royal Reserves. Chapter 5 includes suggestions for improvements to management.

The book is dedicated to the large number of groups and individuals who over many generations have taken over the baton of guardianship and action from early leaders like Sir John Robertson and Myles Joseph Dunphy. The story continues.

CHAPTER 1

The Physical Environment of The Royal Reserves

A. Geology – Rocks And Landforms

THE ROYAL RESERVES are situated in the south-eastern coastal section of the Sydney Basin (see Fig. 2), a major trough formed during Middle Permian times. More specifically they are located on the northern section of the Woronora Plateau between the coast and the eastern bank of the Woronora River which drains into Botany Bay; the northern boundary is the southern shore of Port Hacking, a drowned river valley, or 'ria'. The base rock of the region was formed by marine sedimentation during the Permian (299 to 251 million years ago). Following this, in the late Permian to Triassic (251 to 200 million years ago), large amounts of fluvial material (deltaic and lacustrine) was deposited in the Basin. They include, in order of deposition: the Narrabeen Group some 250 metres thick made up of alternating shales and sandstones (including the Stanwell Park Claystone, the Bulgo Sandstone and the Bald Hill Claystone); the Hawkesbury Sandstone, up to 250 metres thick, though some 170 metres thick over most of the region; and the Wianamatta Shales Group, much of which has been removed by erosion. The Permian-Triassic boundary is near the top of the Wombarra Claystone. The oldest rock outcropping in the Reserves is the Triassic Stanwell Park Claystone, which means that all the surface rocks are Triassic. The most useful account of the landforms and their relationship to structure and stratigraphy is Bob and Ann Young's *Understanding the Scenery Royal National Park with Heathcote National Park* (2006), which draws on both published and unpublished work.

The dominant surface rock type of the region is the Hawkesbury Sandstone, a massive cross-bedded quartzose coarse-to-medium

grained sandstone with strong vertical joints in its horizontal beds. What remains of the Wianamatta Shales is mainly located in the western section of the region from Sutherland through Loftus, Engadine, East Heathcote, Waterfall, Garrawarra Hospital and Helensburgh to Darkes Forest. The rocks in the Narrabeen Group are exposed only where they have been cut into by the headwaters of some of the streams and in a narrow strip on the coastal headlands from Garie to Coalcliff. Five of the eight formations of the Narrabeen Group occur in the Hacking River Valley.

Igneous rocks in the form of dykes – which occur where magmas have been forced up between major vertical joints in the sandstone from Jurassic to Tertiary times – are the final rock-type in the region. The orientation of the dykes follows the joint structure of the rocks intruded by the magma. Quaternary age clifftop sand dunes occur along the coast from Jibbon to Burning Palms.

The presence of quartz–siderite cement in the grains of the Hawkesbury Sandstone means that it has a low permeability, especially vertically. Cliffs are common where the Hawkesbury Sandstone is underlain by shaly Narrabeen Group sediments or is attacked by wave action.

The major events responsible for the geology of the region are: the existence of the Sydney Basin, a major physiographic feature; the uplift of the mountains in the surrounding areas and their erosion to create the deposition of sediments in the Basin; and the Basin's uplift and erosion, especially the down-cutting of the streams during an uplift in the late Triassic. The Sydney Basin has a saucer-like shape with the highest slopes in the west. The circumstances of the Permian-Triassic deposition in the Sydney Basin have been described by Laseron (1984) and more recently by Branagan (2000). Because there are no marine fossils in the Hawkesbury Sandstone, it is conjectured that deposition took place by means of rivers flowing through huge deltas into a large lake.

Conaghan (1980) has provided a detailed account of the stratigraphy of the Hawkesbury Sandstone and the origin of the massive sandstone facies, comparing the depositional environment with that occurring today on the lower part of the Brahmaputra River. Branagan (2000)

suggests that it was similar to the modern channel system of Cooper Creek and the Diamantina River in Central Australia. These Channel Country streams flood areas of interlocking channels 40 kilometres wide; and while they now deposit muds, they once carried sandy loads under the wetter conditions of the Pleistocene. According to Young and Young (2006) some geologists believe the upper beds of the Hawkesbury Sandstone were deposited in estuarine areas near ancient seas.

1. Landforms

The main landform of the region is the Woronora Plateau, one of six plateaus in the Sydney Basin. It is complemented to the north by the Hornsby Plateau. The Woronora Plateau takes the form of a ramp with a slight dip downwards to the north. The ramp is also slightly tilted downwards from the coast to the west. According to Young and Wray (2000) this tilting occurred no later than the mid-Tertiary. The northern part of the Plateau in the Royal Reserves area is dissected by the gorges of the Hacking River and its tributaries and Estuary, Kangaroo Creek, South West Arm Creek, Cabbage Tree Creek, Loftus Creek, Forbes Creek, Heathcote Creek and Woronora River. The altitude of the main Plateau surface in the Royal Reserves varies from some 200 metres above sea level in the south to sea level in the north at Jibbon Point. Further south the Woronora Plateau reaches its highest point of 600 metres near Robertson. The Illawarra Escarpment, a dominant feature to the south of the region, has its northernmost beginnings in the Royal Reserves, at either Jibbon Point or the higher cliffs of Garie Headland and the Garawarra Ridge on the region's southern coastline, but the Escarpment is a relatively lesser topographic feature at this point. Behind Wollongong the Escarpment is 500 metres high.

The northward dip of the ramp helps to explain the northward-flowing direction of the region's major streams, the Hacking and Woronora Rivers and the Heathcote Creek. Another factor is the joints in the Hawkesbury Sandstone known as 'lineaments'. These are long lines of joints formed by stresses in the rock when it was laid down and during the uplifting of the Woronora ramp. They are easily seen on aerial photographs, especially those taken after a fire and on images taken from

satellites. Many of the lineaments run from north to south and north-east to south-west, others at right angles – north-west to south-east. They have captured the run-off and directed the flow of the rivers and creeks. The course of the Hacking River runs along a major stress feature, the Helensburgh Lineament, running north-east from Stanwell Tops. In its headwaters in the south the Hacking River has cut through to the softer Narrabeen Group rocks where they are closer to the surface, resulting in its valley being wider in its upper course than in its lower where it passes through the deeper more resistant Hawkesbury Sandstone – creating what is known as a ‘bottleneck’ situation similar on a smaller scale to the course of the Grose River Valley in the Blue Mountains to the north-west (Young and Young, 2006).

Another major landform feature of the Royal Reserves region is the many cliffs formed on vertical fractures in the Hawkesbury Sandstone, both on the coast and in the valleys. Bob and Ann Young (1988 and 2006) have pointed out that the large horizontal blocks of sandstone collapse through the effects of gravity once they have been undercut by a third of their length. The presence of underlying softer shales plays a part in the undercutting. The height of the cliffs increases southwards with the rise in the Hawkesbury Sandstone from sea level at Gibbon Point in the north to over 100 metres in the south.

Several of the flat surfaces, clearly visible along the coastal section, coincide with the bedding planes in the Narrabeen Group and Bulgo Sandstone series. With the harder Hawkesbury Sandstone measures resting on softer rocks in the south, the coastal landforms in this section are more complex. Caves in the sandstone appear to owe their existence largely to chemical erosion.

On the northern shore of Curracurrang Cove, the rocky clifftop is a flat sandstone bench 25 metres above the water and bare of vegetation, soil and boulders. It is likely that the bench has been stripped of its cover by huge waves sweeping across it. Being well above the level reached by the most severe storm waves, its most likely cause is a tsunami coming onto the coast from the south-east, and sweeping over the bench (Young and Young, 2006).

The valley of Toonoum Brook (near Sir Bertram Stevens Drive) is filled with broken rock of all sizes from small to very large boulders.

There are several major well vegetated debris dams across the brook that divert its flow around them. The Toonoum Cave on the northern side of the valley has been formed by the collapse of a sandstone cliff which overhung a shale outcrop burying the overhang and forming an underground cave used as a nursery cave by bats.

The flatter parts of the Woronora Plateau in the Royal Reserves are those that are cut only by shallow headwater streams above the deeper gorges where most fluvial erosion is concentrated. Bogs have been formed in broad shallow depressions in these relatively impermeable parts of the Hawkesbury Sandstone. Ann Young has shown from radio-carbon dating that sedimentation in these 'dells' began some 17,000 years ago.

A legacy of the major sea level change of the Holocene which resulted in the approximate current height and location of the sea being reached some 6,000 years ago is the drowned valley of Port Hacking and its inlets. At the height of the last glaciation some 20,000 years ago the sea level was some 7 kilometres further east.

2. Major Rock Types

1. *Hawkesbury Sandstone Rocks.* These are the major rock-type of the Royal Reserves and was deposited on top of the Narrabeen Group. In the Sydney Basin it extends for about 100 km radius from Sydney and has a maximum thickness of 250 m. It consists of glistening grains of quartz (sand) held together by cement. Quartz is the main constituent of granite (an igneous rock), which provided the ultimate source of sediment for the Sydney Basin. The quartz grains are cemented with iron and aluminium minerals which weather to form the clay component of the sandy soil. Iron is the cause of the colouring in the sandstone, as quartz crystals are colourless.

Hawkesbury Sandstone rocks consist mainly of sand-sized quartz grains (60-70%), cemented together with clays (20-30%). Pebbles and conglomerate are present at the base of some beds. A small percentage of iron oxides gives it characteristic and often banded colours of yellow, orange, pink and dark red. The banding is called *Liesegang Rings*. The coloured rings were formed by water moving through the

rock mass, probably when the original damp sediments were being compacted into solid rock. This water carried dissolved iron oxide and some of this precipitated out in a diffusion pattern, giving abstract designs of coloured (iron oxide rich) rings across the pale (iron oxide depleted) rock.

The Hawkesbury sandstone rocks are very low in plant nutrients such as phosphorus, nitrogen, zinc, manganese and molybdenum, and support very low nutrient soils.

Hawkesbury Sandstone rock is a moderately strong rock and so it can stand in high cliffs. It is strongly jointed, with vertical joints (fractures) that extend down through several beds (layers) within the rock. These joints and the horizontal beds, divide the sandstone into large blocks, which can break away from a cliff to leave a vertical face. The blocks may lodge in the landscape somewhere downslope as *floaters*, which may continue to move slowly under the influence of gravity. The cross-bedded sandstone separates into sandstone *plates* along the cross-bedded planes.

The Hawkesbury Sandstone Series are excellent hosts for the retention of water, but in general they have low transmissivity. In the Hacking River catchment, the rock is generally more pervious and jointed than in many other areas, and may sustain a flow to streams over much of an average year.

The lower primary porosity of the massive facies reduces the flow of water through them other than through joints and they may form a barrier to the downward flow of groundwater. The groundwater may run along the top of these beds under the ground until it can find its way lower through jointing in the rock. Where the rock approaches the surface the water table may create swampy patches, of irregular sizes, depending on weather conditions; they are important as contributors to the pattern of vegetation over the landscape. The upland swamps have been formed in this way. Lithosere plant communities occur on many flatter rock outcrops, a good example being the Moss Gardens along the Wise's Track. Characteristic features of the sandstone weathering are the formation of honeycombing and caves. Caverning and honeycombing is common in cross-bedded and massive facies.

2. *Narrabeen Series Rocks.* Rocks of the Narrabeen Series outcrop in the upper part of the Hacking River valley, in the southern part of Royal National Park, and in Garawarra State Conservation Area. These rocks can be seen to emerge from the sea in the cliff-line at Curracurrong, gradually rising to the south where they form a significant part of Garie Head. The first rocks to outcrop are the relatively nutrient-rich and readily erodable distinctive purple-red shales of the Bald Hill Claystones, which are underlain by the Bulgo Sandstones and the Stanwell Park Claystones all laid down in the early Triassic. They were most likely laid down in marine muddy estuaries by streams carrying mixed loads of clays and sands. Narrabeen rocks do not outcrop in Heathcote National Park.

3. *Wianamatta Series Rocks.* Wianamatta Series Rocks were laid down in the area towards the end of the Triassic Period. These largely shale rocks came from alluvial, estuarine and beach sediments. Most of the Wianamatta rocks have been eroded from the Woronora Plateau and only small outcrops occur in the area along the western boundary of Royal National Park and between it and Heathcote National Park and along the ridgetops to Garawarra and Darkes Forest. Mostly they are outside the Reserves, which is unfortunate for they add considerably to the bio and geo diversity of the area. There is some contention as to whether the shale outcrops in Royal National Park at Loftus are Wianamatta Series rocks or unusual beds of Hawkesbury Sandstone rocks. Either way the plant communities they support are rare and significant.

4. *Quaternary Dune Deposits.* The relict clifftop dunes between Bundeena and Burning Palms are extensive and well-preserved examples of aeolian coastal dunes. They have additional complexity due to the modern aeolian deposition. They occur at Bundeena, Jibbon and on to Marley, Little Marley, Wattamolla, Curracurang, Garie Headland, Garie, Little Garie, North and South Era and Burning Palms. They have an uncertain origin. Carbon-14 dating suggests those at Jibbon are at least 10,000 years old. Dunes to the north on the Kurnell Peninsula have been dated as ranging from 14 to 26,000 years ago (Bryant et al, 1994).

Young and Young (2006) say that the dunes on the clifftops line up with the dominant south to south-easterly onshore winds, but they do not know how the masses of sand got to their present location. Perhaps they formed under an earlier wind regime and have been reshaped under the present wind regime. Perhaps sand that has weathered on the plateau and accumulated as sand sheets or in swamps has been exposed and shaped into dunes. Old buried soils exist, indicating re-activation in the past.

B. Soils

THE SOILS OF the Royal Reserves are closely related to the underlying rock-types. Those on the Hawkesbury Sandstone, which is the major base rock of the region, derived from the weathering of the coarse-grained quartzitic material, are thin, acidic, contain few minerals and are relatively infertile, being especially deficient in the essential plant nutrients nitrogen and phosphorous. Most of these soils are classified as Tenosols.

There are also some patches of lateritic soils (Ferrosols, rich in iron) on the surface of the Hawkesbury Sandstone, usually on the higher ridges. These are the result of deep weathering of a once more-extensive coverage of laterite of uncertain age. Patches of weathered igneous rocks such as that at Tall Timbers near Bundeena (Young, B. and Young, A., 2006) are relatively fertile. Patches of weathered shale lenses throughout the sandstones also give rise to nutrient-rich soils.

In contrast to the soils occurring over most of the Hawkesbury Sandstone, the clayey shale soils (Kurosols and Kandosols) of the Narrabeen Group, wherever they have been exposed by erosion in the Upper Hacking River Valley and along the coast between South Era and Burning Palms, are deeper, moister, and better-aerated. Having a higher nutrient status, they are more fertile.

On the more restricted Wianamatta Shale Group rocks, the dominant soil type is a podsollic sandy to silty clay loam (Kurosols). This is usually hard-setting, and of moderate acidity and fertility, and it mostly occurs outside the Reserves.

The broad soil picture is completed by reference to the richly organic sandy sediments accumulated in the largely treeless upland dells (Organosols) and the Podosols of the ancient sand dunes.

C. Climate

THE CLIMATE OF the Royal Reserves region is strongly influenced by its mid-latitude position of 34 degrees south and its coastal location. In the Koppen classification the area is described as having a "humid mesothermal type climate" and belonging to a "moderate oceanic climate province". In other words the region has a temperate climate with a maritime influence. This influence prevents extremes of temperature, and the mean temperature range of the area varies from an average January maximum of slightly over 26 degrees centigrade to an average July minimum of under 7 degrees. Frosts are rare.

The upland nature of the plateau, although not high, nevertheless helps to intercept the air masses coming in from the Pacific Ocean. The highest average rainfall occurs in late summer and autumn but there are appreciable falls throughout the year. The highest average falls are in the higher areas in the south (Helensburgh 1444 mm); generally annual falls are in the range 1100-1200mm. The climate of the region can be summarised as having a warm wet summer-autumn period and a drier winter and spring. The sheltered conditions of the major valleys and the deep gullies have created micro-climates in these situations.

D. Natural Vegetation

THE NATURAL VEGETATION of the Royal Reserves region is characterised by the great variety of plant communities which exist in a relatively small area (see Fig. 3). This is largely due to the coastal location and the incision of the Hacking River through the Hawkesbury Sandstone Plateau rocks into the rocks of the Narrabeen Group below. Not only are the soils on the latter rocks more fertile but the dissec-

tion has created sheltered conditions. Study of the vegetation of the Permian-Triassic sequence led Beadle (1954 and 1962) to suggest that the vegetation was controlled by soil phosphate with the vegetation units reflecting the varying phosphate status of the parent materials. Where phosphate levels were highest (the Narrabeen Shales) the vegetation tended to be tall open forest, or, in the more sheltered locations, rainforest. On the Hawkesbury Sandstone or truncated laterite with lower phosphate levels, xeromorphic woodlands and scrubs were dominant.

As a result of these highly contrasted conditions of aspect, moisture, soil texture, depth and nutrient availability, along with the incidence of fire, the plant communities range from heathlands to dry sclerophyll woodlands and dry sclerophyll forests to wet sclerophyll forests and rainforests. The variety evident within each of the major vegetation groupings – heathlands, dry sclerophyll woodlands, dry and wet sclerophyll forests, rainforests and others – is also evident in the individual components of each. Keith and Tozer (2011) have recently developed a new model of vegetation succession for the coastal sandstone plateaus in the Sydney Basin; it provides insight into vegetation succession in the Royal Reserves region. The most comprehensive compilation of plant species and other aspects of the biota of Royal National Park is that by Bob Crombie and Alan Fairley (2007) which also contains lists of fungi and bacteria and other micro-organisms.

Specht (1981) in his *Major Vegetation Formations in Australia* classified the vegetation of the Royal Reserves region as 'Eucalypt open-forest to woodland (with grassy understorey)'. This formation is widespread in South Eastern Australia, Tasmania and South Western Australia. For the purpose of Australia-wide comparison the best source is *The Conservation Atlas of Plant Communities in Australia* (Specht et al, 1995). This comprehensive source contains 910 maps showing the distribution of 921 communities (344 major and 577 minor); on the basis of structure and major diagnostic species, thereby presenting a community-based vegetation regionalisation of Australia. The 13 communities listed as occurring in Royal National Park are provided in Appendix A1. With regard to the great variety of vegetation types in the region the most up-to-date classification allowing comparison with

other parts of South Eastern New South Wales, is the report and maps in “Native Vegetation of Southeast NSW : a revised classification and map for the coast and eastern tablelands”, published in *Cunninghamia* (Tozer et al, 2010). This classifies the vegetation of the region into 191 floristic communities of which 25 of the communities are shown to occur in the Royal Reserves region. These are listed in Appendix A2.

1. *Heath*. Heath communities dominate the shallow soils of the exposed Hawkesbury Sandstone Plateau surface of the eastern part of Royal National Park. The most extensive heath community in the region is the ‘Coastal Sandstone Plateau Heath.’ Its heaths are characterised by open to dense shrub canopies and emergent mallee eucalypts. ‘Coastal Rock Plate Heath’ occurs on skeletal soils. At the other end of the spectrum, where drainage is impeded, it is replaced by ‘Coastal Upland Swamp’, characterised also by peaty soils. The ‘Coastal Plateau Sandstone Heath’ community is interspersed with ‘Coastal Sandstone Ridgetop Woodland’ where the soils are somewhat deeper than in the surrounding heathland. ‘Sandstone Headland Scrub’, characterised by dense scrub, is restricted to coastal headlands and is often found clinging to cliff surfaces. ‘Coastal Sandplain Heath’ is restricted to podsolised sand dunes generally perched on the plateau surface. In spite of their relatively low fertility these coastal heath communities are characterised by a high level of floristic diversity.

2. *Dry Sclerophyll Forest*. Dry Sclerophyll Forest is the main forest vegetation type on the Hawkesbury Sandstone. Reference has already been made to the ‘Coastal Sandstone Ridgetop Woodland’ which in the Royal Reserves occurs mainly on ridges surrounded by heath and in some places in association with the ‘Sydney Shale Ironstone Cap Forest’. The ‘Coastal Sand Forest’ is found in small areas in sheltered deep sands on beach hind dunes, coastal flats and sandstone headlands. ‘Coastal Sandstone Gully Forest’ occurs on the lower slopes of sandstone gullies and is often intermediate to ‘Coastal Sandstone Ridgetop Woodland’ on the upper slopes, and ‘Sandstone Riparian Scrub’ occurring in narrow strips along creek lines. Further inland, where rainfall is lower with distance from the coast, its place is taken

by 'Hinterland Sandstone Gully Forest'. The 'Sydney Shale–Ironstone Cap Forest' occurs on Wianamatta Shale lenses and ironstone mantles on ridges near the western boundary of Royal National Park and in a narrower band above the clifftops of the Garawarra Ridge.

Another eucalypt-dominated forest type is the 'Cumberland Sandstone Shale Transition Forest'. It occurs on the boundary between the Wianamatta Shale and Hawkesbury Sandstone and shows similarities with the 'Sydney Turpentine Ironbark Forest'.

3. *Wet Sclerophyll Forest*. Tall Wet Sclerophyll Forest occurs in three main communities in the Royal Reserves. Probably, the best known is the 'Sydney Turpentine Ironbark Forest' which occurs naturally on the soils derived from the Wianamatta Shale Group on the western side of Royal National Park from Sutherland to Darkes Forest including the Loftus Ridge. 'Warm Temperate Layered Forest' occurs on sheltered slopes in gullies and on escarpments, commonly adjoining rainforest; it may contain rainforest taxa below its eucalypt canopy; with higher soil fertility it grades into 'Illawarra Gully Wet Forest'. Tall Blackbutt, Ironbark, Turpentine and Blue Gum trees are common.

4. *Rainforest*. The Royal Reserves region also contains areas of warm temperate and littoral rainforest which represent the northernmost extension of the rainforests of the Illawarra region to the south. The most favoured sites for these are the Narrabeen Group shales in the sheltered valleys of the Hacking River and Bola Creek and in sheltered gullies on the escarpment south of Garie. There are two main types. 'The Coastal Warm Temperate Rainforest' is a closed forest found on clay loam soils in the sheltered gullies and on sheltered escarpment sites, whereas the 'Temperate Littoral Rainforest' occurs at Marley on sand dunes and in a narrow coastal belt between Curracurrong and Otford. It is best recognised in the forest at Palm Jungle near Burning Palms; reflecting littoral influences, it shares some species with sub-tropical rainforest types. The region is the southern limit of many sub-tropical rainforest species on the Australian East Coast. Important patches of rare littoral rainforest occur on the shores of Port Hacking.

Topographic refugia support patches of rainforest throughout Royal National Park in otherwise unsuitable conditions, adding to the area's biodiversity. These are often in the lee of a cliff-line or in a steep cliff-lined valley where it ends in a waterfall. Excellent examples occur at Curracurrang, Flat Rock and Gundamaian.

5. *Wetlands*. There is a wide range of wetland vegetation types in the region, from estuarine wetland along the Port Hacking shore to freshwater swamps in dune depressions and sedge-dominated swamps in upland sandstone valleys. The communities include: 'Coastal Freshwater Lagoon' (at Jibbon and Marley); 'Estuarine Saltmarsh'; 'Estuarine Mangrove Forest'; 'River Mangrove' and 'Estuarine Fringe Forest' (in the Hacking River Estuary). Wetland forest types occurring in the region include 'Floodplain Swamp Forest' and 'Estuarine Creekflat Scrub' which occurs on the shores of estuarine lagoons, wetlands and creek flats. 'Coastal Upland Swamp' vegetation is typically found on the poorly drained headwaters of the creeks where peat soils have accumulated. Examples are the Uloola Swamp in Royal National Park and, in Heathcote National Park, the swamps on the Upper Gironba Creek, Moorabinda Gully and the Upper Heathcote Creek.

6. *Grassland*. It is not clear whether 'Headland Grassland' in the region is a natural community. According to David Keith (personal communication) its presence on headlands at Garie and Era may be largely the product of the burning, clearing and grazing of the 'Sandstone Headland Scrub'.

7. *Scleromorphic Features and Species Richness*. The effect of the combination of low-nutrient-status soils, periodic drought, burning, and geographic isolation over a long period of time is responsible for the unique scleromorphic adaptations occurring in the vegetation and it has allowed a large number of species to survive in Australia. The natural vegetation of the Royal Reserves provides a classic example of this scleromorphy and a list of scleromorphic features found there is provided in Appendix A3.

The three Royal Reserves are also a major centre of plant species richness, having more than 1,300 species, with approximately 1,130 species in Royal National Park alone (Crombie and Fairley, 2007). This wide array of species includes heaths (Ericaceae), peas and wattles (Fabaceae and Mimosaceae), grevilleas and banksias (Proteaceae) and members of the eucalypt family (Myrtaceae).

E. Fauna

THE DIVERSE VEGETATION of the Royal Reserves region has provided a wide range of habitats for native fauna. Among these many habitats, the rainforest and wet sclerophyll forests of the Hacking River catchment support the greatest number of mammal and bird species. Fire is a major factor affecting species and populations. A comprehensive vertebrate fauna survey of the region in the summers 1995-96 and 1996-97 identified 247 species of native vertebrates comprising 164 birds, 37 reptiles, 30 mammals and 16 frogs. Within all these numbers, 14 threatened species were found (Andrew, 2011). The surveys followed an extensive wildfire in January 1994 and the number of species sighted was well under the 358 species known from the region before the wildfire. A 2009-10 fauna survey produced a total count of 347 species (Schulz, M. and Magarey, E. 2011) and included several previously undocumented species. It also found that some 17 previously identified vertebrate species including the Ground Parrot, Parma Wallaby and Greater Glider could no longer be located.

Although there has not been a systematic survey of mammals in the region, the February 2000 *Plan of Management* for the three protected areas reported that Royal National Park supported at least 29 species of native mammals as well as 10 species of bats. It also reported that several species including the Tiger Quoll (*Dasyurus maculatus*) and the Red-necked Pademelon (*Thylogale thetis*) had undergone a marked decrease in numbers. Greater Gliders were sighted in Royal National Park and Stanwell Tops in 2012.

Royal National Park is notable for having a rich avifauna, with 143 regular resident or nesting species and a further 33 offshore species.

The Cabbage Tree Basin and the estuarine sandbar and sand dunes in the Simpsons Bay and Maianbar area provide habitat for a number of migratory birds including the Eastern Curlew (*Numenius mada-gascariensis*), the Great Egret (*Ardea alba*) and the Pied Oyster Catcher (*Haematopus longirostris*). Several previously recorded species occurring in Royal National Park include the Emu (*Dromaius novaehollandiae*) and Diamond Firetail Finch (*Emblema guttata*).

The diversity of the region's habitats is also reflected in an abundant and diverse reptile and frog fauna. 40 species of reptiles and 30 species of amphibians were recorded in Royal National Park and the immediate vicinity in the 2000 *Plan of Management*. The most important habitats for reptiles and frogs are the rainforests and other wet forests along the Hacking River and the Garawarra Ridge, the coastal heaths and the freshwater swamps. The Jibbon Swamp is a breeding place for the Eastern Snake-necked Turtle (*Chelodina longicollis*). The swampy dells provide ideal conditions for the Small Swamp Crayfish (*Euastacus keireiensis*). Rock outcrops provide important habitat for the rare Broad-headed Snake (*Holocephalus bungaroides*).

Royal National Park has a rich invertebrate fauna and a diverse terrestrial mollusc population. The most important areas for the molluscs are the Hacking River rainforests of the Hacking River valley and the Garawarra Ridge including Middle Rill and Palm Jungle. A recent study of aquatic micro-invertebrates in the freshwater coastal lagoons of Marley and Jibbon identified 12 taxa (Kobayashi, T. 2011).

CHAPTER 2

History of The Royal Reserves

A. Aboriginal History

AT THE TIME of the European colonisation which began in 1788, the area now forming the Royal Reserves was the land of the Dharawal-language-speaking people. Their territory extended from what is now southern Sydney through the Illawarra District to Jervis Bay. While there is no definite information about when settlement had begun in the area that now forms the Royal Reserves, there appears to be general agreement that the Aboriginal occupation dates back at least 7,500 years. Archaeological evidence points to their presence at Curracurrang about 7,450 years ago. In 1816 these thousands of years of sustainable living were brought to an abrupt end when Governor Macquarie's Government engaged in a brutal clearance of the Aboriginal people from their land (Bursill et al, 2001 and Organ, 1990). For the survivors, agricultural and mining development in the Illawarra further complicated life, and at the end of the Nineteenth Century some moved to a reserve for Aborigines at La Perouse (established 1895).

It is only during the last two decades that a concerted effort has been made to investigate and restore knowledge of the many aspects of the Dharawal culture, including the language. An account of this effort to date can be found in *Dharawal. The story of the Dharawal speaking people of Southern Sydney* (Ryan, M. 2001).

Evidence of the thousands of years of living by Aborigines in the region is widespread in the environment and takes many forms. *The Plan of Management* for 2000 notes that a systematic survey of Heathcote National Park recorded 100 Aboriginal sites, including a large number of shelters with accompanying art. One of the most obvious records

of the longterm Aboriginal occupation is the existence of substantial shell midden deposits at many sites along the coastline and in rock shelters. On the coast, major shell middens occur behind the beaches at Garie (Middle Rill) and North Era as well as along the shoreline of Port Hacking. There are also many surviving examples of Aboriginal art in the region including paintings, drawings and sandstone engravings in rock shelters and overhangs. Unfortunately, the engravings, usually of food sources such as eels and of totems, are gradually becoming less distinct as a result of natural rock-weathering. Depictions of whales, a major totem of the Dharawal, are a distinctive feature of the area, examples occurring in engravings around Port Hacking (at Maianbar and Jibbon) and in pigment art. Other totems included the kangaroo, stingray and turtle. Axe grinding grooves are widespread in rocks of the region.

The Dharawal people had available and used a large variety of food sources. From the marine environment they collected fish, molluscs, crustaceans, whales, dolphins, seals and sea birds, and from the land their provender included kangaroos, wallabies, bandicoots, possums, seeds and roots. Josephine Flood (1983) has provided us with a picture of fishing activities at Wattamolla; the men fishing with spears, the women with shellfish-hooks and fibre lines, and use of small fires in bark canoes for fishing at night. The Dharawal people similarly drew on the environment for a wide variety of tools and other equipment. Excavations have yielded a record of many implements including spearpoints of bone, fish hooks from shell, fishing lines from natural fibres, and a variety of water receptacles. Their use of the trees of the region included: the bark of Turpentine trees for canoes; the Grass Tree (*Xanthorrhoea*) for glue (from resin), for a drink (nectar from the flowers), and for spearshafts; and Stringybark trees for shields and for shelters (wurlies). Controlled fire was used for attracting grass-eating animals and for driving them during hunting – making burning an important part of the Aboriginal economy.

B. The First National Park

1. Establishment

One of the first natural area reserves to be established in Australia and in the world was an 18,000 acre (7,284 hectare) triangular piece of country only 22 kilometres to the south of the centre of Sydney and bounded by Port Hacking to its north and the sea to the east.

On 26 April 1879 this land was dedicated "*for the purpose of a National Park*" under the 5th section of the *Crown Lands Alienation Act* of 1861 (*Government Gazette*, 26.4.1879). This section of the Act provided for the making of reservations "*for public health and recreation, convenience, or enjoyment*". The same gazette notice advised the appointment of Trustees for the park under the provisions of the *Public Parks Act* of 1854. The land involved had been reserved from sale "*for a National Park*" on 31 March 1879 (*Government Gazette*, 4.4.1879). According to later Government records, areas included in the Park included: "Reserve 23A on account of coal; Reserve No.34; Water Reserve No. 58; and part of Reserve No.11 pending selection of Railway line and other Public Purpose".

The dedication of 26 April provided a secure form of tenure for its given purpose since any revocation of such a reserve would require the consent of both Houses of the New South Wales Parliament.

The National Park was extended on 6 October 1879 with the addition of 1,471 hectares of non-renewed and cancelled mineral leases and on 25 November 1879 with the inclusion of 129 hectares of Alexander Stuart's Mineral Conditional Purchase No. 13310. On 3 August 1880 the boundaries of the Park were further extended by 6,880 hectares to bring the total area to 14,164 hectares. The gazette notice referred to "*extensions of the National Park*" and stated that the Park was hereby dedicated as "*the National Park*". Extension moved the Park's southern boundary to a line west from Garie Beach to today's settlement and railway station of Waterfall. The position of this new boundary coincided with the boundaries of four lapsed coal leases in the Bola Heights, Cawleys Creek area, with the result that these former lease areas (also in the name of Alexander Stuart) were not included in the Park. A survey of the whole area of the Park in 1883 showed it to

contain 14,698 hectares. Included were the submerged and intertidal lands of South West Arm, Cabbage Tree Basin and the Hacking River (see Fig. 4). On 16 April 1886 the National Park was also listed to be a "Public Park" under the *Public Parks Act* of 1884, with the added statement that "...it be known by the name of the 'National Park'".

Since it appears that this was the first time in world history that the name "national park" and a statement of the term's purpose had been used in the dedication of a protected area (see Appendix C), and since this had occurred in conjunction with arguments made concerning the contribution the national park could make to public health and recreation, it is important to consider the rationale for this action and the circumstances in which it was taken.

2. Rationale for the Park's Establishment

Reflecting on the origins of National Park the centenary book *Australia's 100 Years of National Parks* (Goldstein, 1979) voiced the opinion that the National Park project was attractive because: it cost the Government little; it was able to be presented as support for the influential gentlemen in the new Acclimatisation Society; and it indicated to urban reformers that the Government shared its views about the need for more recreation areas.

There is little doubt that the major driving force behind the establishment of this large new park was the then widespread belief in England and its colonies that parks and reserves had an important role to play as sanitary measures through the way they could help counter the adverse health effects of urban living conditions and particularly the prevalent miasmas believed to be caused by air and water pollution (Coward, 1988 and Stockton 1985). A contemporary inquiry into Sydney's sewerage system had emphasised the effects of the inadequacies of the system and of overcrowding on health. Sydney was undergoing major growth during this period. Between 1861 and 1881 its population quadrupled – from 56,000 to 221,000. By 1901 it had doubled again, to 481,830. As the city expanded, new parks were seen as part of the answer to the public health problem and hence this was a major factor behind the push for parks in the new suburbs (Goldstein, 1979). Since National Park was then thought to be at a relatively large

distance from the growing city, one important factor in its establishment was the imminent development of railway access to the area.

Such reserves if they were going to be thus beneficial had to be available for the public as a whole and not for a particular class or group and it was the statement of this principle that was behind the contemporary use of such terms as “peoples park”, “national heritage” and “national park”. This sentiment was made clear by various statements made at the time that National Park was dedicated, about the value of Ashfield Park which was located much closer to the city centre.

In 1879 a 20 acre area of land was bought for the purpose of establishing Ashfield Park on the instructions of the Premier, Sir Henry Parkes (five times Premier: 1872-75, 1877, 1878-83, 1887-89 and 1889-91) and the Park was proclaimed in 1885. A *Sydney Morning Herald* report (7 September 1878) of a September 1878 meeting of a deputation with the Hon. J. S. Farnell MP (1825-88) at the Lands Office, noted that at a meeting held earlier in the year Sir Henry had told the deputation that the park in question was:

... most desirable not only because of its natural beauty – because it afforded the means of public enjoyment and refined pleasure, but also because it would give scope for physical culture, and it was important to develop [sic] the physical energy of the people, as well as to cultivate their mental faculties ... and that for the sake of future health, future enjoyment and future culture of the population just growing would not only be a park for the Ashfield People only ... but a park for the use and enjoyment of a great part of the population of Sydney.

The newspaper reported Mr Farnell as agreeing with the idea and saying, “Although a national park, it would be for the people of Ashfield”.

Bruce Baskerville (1994) has drawn attention to the way in which the word ‘national’ was used in contemporary discourse to refer to facilities such as the schools in the National System of schooling (introduced to New South Wales in 1848) which were available to all people, not just those in a particular group or class. It was probably in a similar sense that Charles Walch was using the term with reference to the Queens Domain in Hobart (see Appendix C).

The basis for the purchase of land for a park at Ashfield and also for a park at Waverley was an initiative led by John Lucas MP (1818-1902)

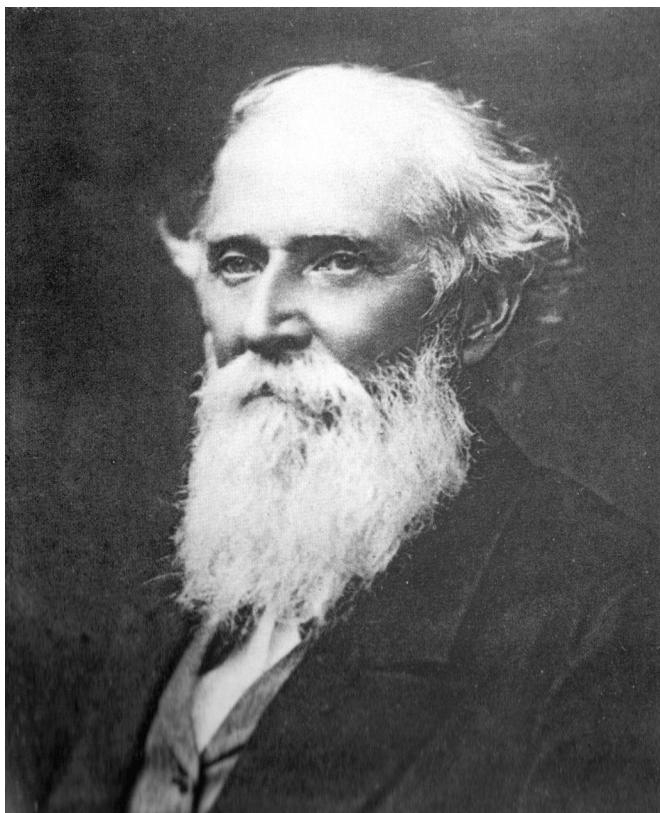
earlier in the year. On 18 February 1879 Lucas, who had made the representations which led to the reservation of the Fish River (Jenolan) Caves in 1866 (see Appendix C), successfully moved for the House of Assembly to set up a Committee to consider two resolutions concerning recreation reserves:

1. *The health of the people should be one of the first objects of all good government, and to ensure healthy consequences, a vigorous and intelligent community, it is necessary that all cities, towns, villages and such other centres of population should possess parks, and pleasure grounds as places of recreation.*
2. *That immediately after the survey of any Crown lands as the sites of future cities, towns or villages, a sufficient number of blocks should be reserved as sites for schools, and other public buildings, and that every 5th section of land of at least 640 acres should be dedicated as parks, pleasure grounds, or other like places of public recreation.*

The record of debate on the resolutions (*Sydney Morning Herald*, 19 February 1879) provides an insight into the health concerns behind the resolutions, with Lucas referring to the bad sanitary situation and the increasing density of the population and arguing for places for recreation as well as for sewerage. In this situation, he said, "...places where people could breathe the fresh air, were indispensable". In response, Sir Henry Parkes referred to what he considered to be the object of the resolutions – "securing what may be called the lungs of a dense population, or one likely to become dense in the course of time".

"Lungs of the city" was a term commonly used in Sydney during the 1870s and 1880s, used for instance in connection with the protection of the Government Domain and Moore Park (*Sydney Morning Herald*, 2 October 1878) and prevention of sale of Moore Park (*Sydney Morning Herald*, 26 November, 1878). In the 1993 *An Official Guide to The National Park of New South Wales* its author Thomas Ewell wrote of how Sir John Robertson had conceived and developed the idea of "... a national domain for rest and recreation" while the ardour of these public men "... was still burning for city lungs".

On 21 March, ten days before the reservation from sale of land for the National Park, the House of Assembly adopted the two resolutions (*Votes and Proceedings of the Legislative Assembly*, Vol 1690, page 370).



Sir John Robertson

The resolutions and their subsequent implementation by means of reservations or resumptions paid for out of a land fund were well received by the public. Reporting on the implementation on 6 August 1879 *The Maitland Mercury and Hunter River General Advertiser* said:

... we have no doubt that the ultimate result will be worthy of a Legislature which seeks to promote happiness, and to protect against the evils of overcrowding the inhabitants of what, in the course of the next 50 years, will be one of the greatest capital cities on the face of the earth.

It was in this highly supportive parliamentary climate that the reservation of National Park came about. Not only did this reinforce the concept of a national park being for all the people but also its natural condition, considerable size and location just beyond the city's boundary gave the title a new dimension.

The person who has been credited with playing the key role in the establishment of National Park was Sir John Robertson. Five times Premier of New South Wales (1860-61, 1868-70, 1875-77, 1877, 1885-86) Sir John was at this stage, in 1879, Vice-President of the Legislative Council (the Upper House of Parliament). He was thoroughly versed in land legislation and its use, having orchestrated the development and passage of the Crown Lands Alienation Act of 1861 aimed at ending the grip of squatters on public lands across wide areas of the colony.

Both Robertson's personal interest in the national park proposal and the nature of the country under consideration are revealed in a report to Sir John from Surveyor-General W. Freeman dated 24 February 1879 (State Records Authority of New South Wales 9/2188) which said in part:

As you have most truly pointed out the land described is very much closer to Sydney, Liverpool etc than is generally imagined. It is within 13 miles of the General Post Office Sydney. The proposed Park has more than 5 miles frontage to the Ocean including Wattamolla Boat Harbour, more than 10 miles frontage to Port Hacking (mainly Southern arms) and the wider part of Port Hacking River, and it has more than ¼ frontage to the Woronora Creek, a fine navigable arm of the Georges River. Port Hacking and the lower part of Georges River abound with fine fish and the scenery is grand and varied. It is of course quite likely that within a few years a very large population will settle near the proposed park, as some of the finest coal seams in the whole world are in the locality commencing a few miles to the South, including those worked at Coal Cliff and Bulli Collieries. Coal Cliff is only 11 miles from Wattamolla Harbour and Bulli 17 miles.

That most of the area had retained its natural undeveloped condition was largely due to the lack of fertility of the soils of the predominant Hawkesbury Sandstone country, making it relatively unsuitable for agriculture. Another favourable factor was the strong likelihood of railway access being provided to the area by means of its proximity to a line which would connect Sydney with the Illawarra District and its coalfields. This worked in favour of the proposed park in two ways, providing a strong likelihood of improved public access and helping to keep the land free from settlement. On 2 January 1874 much of the land which would later be included in the Park had been reserved from sale pending selection of the railway line and other public pur-

poses under the 4th section of the *Crown Lands Alienation Act* of 1861 (*NSW Government Gazette*, 2.1.1874). One of the routes under consideration for this line from Sydney to the Illawarra ran through the centre of the reserved area from the North West Arm of Port Hacking up the Hacking River to Otford in the south. The building of the Illawarra railway line was not assented to until 1881, by which time the favoured route was near the western boundary of the Park, leaving the majority of the park unaffected by its construction.

The original boundary of the National Park extended on its western side to the Woronora River, but the route of the railway constructed in this section in 1886-87 cut through this area. In 1895, with the agreement of the Trustees, the Government authorised the withdrawal of 1,210 hectares from the Park on the western side of the railway in return for a 202 hectare addition to the Park of the Jibbon Government Reserve (about 1849) near the entrance to Port Hacking. The result was that the railway formed the western boundary of the National Park.

Work on the railway line began in 1882. Train services were provided to nearby Hurstville in 1884, and to Sutherland in December 1885, and by March 1886 passengers could travel via a branch line to a station with the name 'National Park' inside the Park above Audley; it would operate until 1991 (Singleton, 1984). Wollongong was reached by the line in 1887. Through these stations and through others opened further south along the line, and helped by boat services operating on Port Hacking, National Park became more easily accessible to the people of Sydney.

A number of freehold areas in Port Hacking were not included in National Park in 1880. These were the 762 hectare Yarmouth Estate of Owen Byrne (from 1827), now Bundeena; the 20 hectare George Simpson holding (1863), now Bonnie Vale; and 12 hectares at Fishermans Bay (1841) with 15 hectares at Constables Point (1859), now Maianbar; private land enclaves further west at Gogerlys Point (26 hectares 1847-54) and Costens Point. On the sea coast there were other isolated areas of private land in the Park at Marley (1861) and Wattamolla (1839).

The history of the acquisition of these lands to the Park by the National Park Trust and the National Parks and Wildlife Service is complex and its detail is provided in the account by Judith Carrick (Carrick, 2012).

Owen Byrne's land to the west of George Simpson's was purchased in 1884 and added to the Park in 1887. George Simpson's land was added to the Park in 1947 and became Bonnie Vale. Wattamolla was added in 1911 and Marley was added in 1950. Most of the Yarmouth Estate was offered for sale in 1892 and 1898 but the offers were declined by the Trust, paving the way for the modern suburb of Bundeena. The modern housing development at Maianbar dates from the 1950s.

The support of the acclimatisation movement which believed that nature could be improved by importing overseas species appears to have been another important mobilising factor. The Zoological Society of New South Wales was formed on 24 March 1879 at the very time when the acclimatisation movement was pressing for the proposed Park to be made available for this purpose. The meeting to establish what was proposed as "a society for the acclimatisation of birds and animals other than birds" initially considered Walter Bradley's suggestion of the name "New South Wales Acclimatisation Society" before settling on "Zoological Society of New South Wales". In the discussion it was pointed out that there was in fact already an acclimatisation society in Sydney. The prospectus for the new society, quoted in *The Sydney Morning Herald* of 25 March 1879, referred to how application would be able to be made for acclimatisation reserves across the colony. Sir Henry Parkes, Sir John Robertson and John Lucas were among the people appointed to the Society's general committee. On 26 March the *Sydney Morning Herald* reported that it understood that the Government strongly supported the objects of the society and in order to promote them "it will set apart a tract of land for the purpose of acclimatisation". It went on to say that "The proposed reserve is on the South side of Port Hacking, extending from the coast some five miles back, and is said to embrace about 30,000 acres".

According to the *Sydney Morning Herald* of 29 April 1879, the Society at its monthly meeting had discussed the National Park, Moore Park, Randwick and the Domain as possible sites for the Society's operations and had decided to try to secure a site at Moore Park. A lease for this was gained from the Sydney City Council in 1880 and its zoological gardens at Moore Park were opened to the public in 1884. In 1909 the

Society changed its name to 'Royal Zoological Society of New South Wales' after a Royal Charter had been granted.

On 27 March 1879 the *Evening News* provided more details of the Park proposal and on 29 March the *Sydney Morning Herald*, announcing the approval of the dedication by the Acting Governor, said that the reservation "is principally due to Sir John Robertson who has thought of the project for years". The news item mentioned the attractiveness of the area's varied and beautiful scenery, its accessibility to various centres and future improvements in accessibility which would follow the construction of the railway. It further predicted that once the area had been brought under management and the railway completed it would "afford the people of the whole colony means of sport and recreation not to be surpassed probably in the world". The title of 'The National Park' was approved. No reference was made to any precedent.

The choice of the word 'National' was similar to its use for other important projects of a self-governing colony at this time. A motive of indicating national importance can be seen in the use of the term in the names of 'The National Gallery of Victoria' (name adopted by Act of Parliament in 1869) and 'the National Gallery of New South Wales' (founded 1880).

Indicating the wide range of uses considered acceptable in the new park at this time, an editorial in the *Sydney Morning Herald* of 2 April 1879 was explicit about the natural attractions of the new park including its splendid stands of timber. It reported that one of the purposes the Government had in mind was that of the acclimatisation of exotic plants and animals and it also speculated that the area might become a great place for sports such as horse racing and cricket.

The concept of a National Park being a major future recreation reserve set aside as an act of foresight for the recreational needs of an expanding metropolis, was also reflected in the comments made about the reasons for the Park's creation in *An Official Guide to the National Park* published in 1893 (Ewell, 1893). Reflecting on how National Park had come into being and suggesting that the Park's creation had been a convenient way of solving a major problem, the *Guide's* author, T.D. Ewell, wrote:

In the early part of the year 1879, several public men both within and without the walls of Parliament, raised their voices in favour of the Government providing public parks, pleasure grounds, and places of recreation adjacent to all thickly populated centres in New South Wales. A set of resolutions was submitted to the Legislative Assembly, affirming that the health of the people should be the prime consideration of all good Government; and to ensure the sound health and vigour of the community it was necessary that all cities, towns and villages should be possessed of pleasure grounds as places of recreation. This necessity was recognised by the leading statesmen of the day, but the resolutions were of a nature so sweeping that their adoption would have imposed an entire change in the policy of the country. At this time Sydney possessed several breathing spaces favoured by nature, but the more densely populated parts of the metropolis and suburbs were destitute of such provision. While the ardour of these well-meaning though impracticable philanthropists was still burning for additional city lungs, the late lamented Sir John Robertson as the acting head of the Government, conceived and developed the idea of bequeathing to the people of this State a national domain for rest and recreation. His first choice was fixed upon a stretch of country, 18,000 acres in extent ...

3. Approach to Management

Just how to achieve these aims would be up to the National Park Trustees appointed in April 1879. Significantly, the eleven trustees appointed for the National Park included Sir John Robertson, who was elected Chairman at the first meeting held on 25 September 1879 once funding had been secured, Walter Bradley of the Zoological Society, and John Lucas the champion of the public parks movement. Some insight into the approach of the Government to the new Park was reflected in comments made in Parliament when funding was under consideration. The choice of the Park had to a considerable extent been determined by its availability for reservation and by the fact that being Crown land it had cost nothing. The potential conflict between the recreation purpose and its relative inaccessibility was seized on by critics in the Legislative Assembly during the debate over the financial vote for the Park in March 1881 one of whom pointed out that until railway access was provided the place was “a mere wilderness” (*New South Wales Parliamentary Debates, 1880-81, page 778*). The response of

the Premier, Sir Henry Parkes, to this and similar comments showed how closely he identified himself with the demand for urban parks. Sir Henry said:

I should like to ask whether it would not have been a good thing for Sydney if anything like foresight had been exercised in reserving ground about the city for public recreation. I can conceive of no wiser act than making such a reserve as this in a direction in which the population is certain to extend. The honorable member says it is a wilderness and that years must elapse before it can be of any use, but is it to remain a wilderness? Would it not be better to plant a few trees and otherwise prepare it for the time when the people will be ready to enjoy it? Certainly it ought not to remain a wilderness with no effort whatever to improve it. Nothing has been paid for this land, it was Crown land, and it has been simply reserved. It seems to me ... it was a very prudent act to reserve this land – an act which showed great foresight and which will be of great benefit to the population of the County of Cumberland.

With the help of a substantial annual grant, the Trustees set about their task of improving the Park for the public and for acclimatising exotic fauna and flora.

4. History of Use and Management

The control of parks by trustees or boards was the main method for managing parks across Australia and remained so until the second half of the Twentieth Century (see Appendix C). In the case of the National Park, Trust control applied until 1967 when executive control was transferred to the National Parks and Wildlife Service of New South Wales. The Trust for nine years (1967-76) became the Royal National Park Advisory Committee. The name of the Park had been changed to 'Royal National Park' in 1955, the Premier, J. J. Cahill, advising on 30 April 1954 that her Majesty Queen Elizabeth¹¹ had approved of the addition of 'Royal' to the name of the Park after her visit of 11 February 1954. A change to this name had been considered by the Trustees in 1939 (Carrick, 2012).

The Powers of the Trustees were formalised by a Deed of Grant issued on 19 January 1887 (Sydney, New South Wales Government Printer). These gave the Trustees the power to:

... use and permit to be used the said lands as a National Park for the recreation of the inhabitants of the said colony, subject to such rules, regulations, and conditions as the 'Trustees of the National Park', with the approval of the Governor for the time being, with the advice of the Executive Council, may declare to be in force in respect of the said lands and of the use thereof, and we do hereby empower the Trustees of the National Park in their discretion to set apart and use such portions of the said Park as they may from time to time think necessary for the purposes following ... first, Ornamental plantations of lawns and gardens; second, Zoological gardens; third, Racecourses; fourth, Cricket, or any other lawful game; fifth, Rifle butt or artillery range; sixth, Exercise or encampment of Military or Naval Forces; seventh, Bathing places; eighth, Any public amusement or purpose which the Governor for the time being may from time to time, by notification in the Government Gazette, declare to be an amusement or purpose which the said National Park, or any portions thereof may be used.

Not mentioned in the Deed of Grant were a number of other uses including grazing and cutting of timber for wood supply.

The establishment of National Park and its management over the next 122 years was a mirror to the social changes at work in New South Wales and the other colonies. More than that, it also served as a birthplace for new ideas about the expansion of the national parks concept and system.

The Trustees quickly set about the task of developing roads and other facilities for visitors. Though they had relatively large grants from the Government there was a temptation to supplement this income in a variety of ways. Hopes for supplementing the annual grant of £1,700 by means of income from licences were not realised in the first 15 years of the Park's existence. One option was obtaining income from the issue of mining licences.

4a. *The Mining Quandary.* There had been some extraction of sand at Gibbon and gravel elsewhere before the area became the Park. Similarly laterite was quarried for road-making material before Heathcote National Park was reserved. However, the mineral resource in the National Park that had the greatest potential for exploitation was the underlying coal. Coal seams in the Coalcliff area to the south had been discovered in 1797 and the Metropolitan Coal Company's

mine at Helensburgh opened in 1888. It seems very likely that the drawing of the southern boundary in August 1880 had taken care not to include areas of potential interest for coal mining. On 26 August 1880 the *Sydney Morning Herald* reported that more than half a dozen applications to mine coal under the National Park had been made. It reported too that the Trustees would perhaps need more money for management than their annual grant. It went on to suggest "it is only common sense that if the park trustees find themselves in possession of a mineral property they should secure the royalty for the purpose of beautifying the park".

There was no legal barrier to coal mining in the Park since the Deed of Grant had also stated:

And we hereby also declare that it shall be lawful for the Trustees of the National Park to grant licenses to mine upon and under the said land for and to take away and dispose of, as the licenses may think fit, all coal, lime, stone, clay, brick, earth or other mineral (excepting gold or silver) that may be found in the said lands.

It was claimed in the 1960s that the existence of these coal deposits may have been a factor in the Park's creation, in that the Minister for Lands at the time was influenced in the decision to have the area dedicated and give the Trustees powers over mining in order to protect mining interests in the coal field to the south of the Park at Helensburgh then about to be developed (*New South Wales Parliamentary Debates*, 17 August 1967, page 576). The coal deposits within the National Park were closer to the main Sydney market than Helensburgh and their opening up by rival companies could have adversely affected the developments to the south. An alternative explanation is that Sir John Robertson and the Park's supporters wanted to protect the area against mining and this was why it gave the responsibility to the protective agency. Sir John continued as Chairman of the Trust until his death in 1891.

Discussion of the issue by the Trust in 1880 included whether such mining deep under the Park, at a depth of 325 metres, would cause any surface damage. Following an 8 November 1889 resolution the Trust placed advertisements in the daily newspapers inviting tenders for "the working of coal land". One application was received and the Trust on 13 January 1890 decided to accept it but, following a resignation by a Trustee on the grounds that the tenderers had formed a syndi-

cate and colluded and that the royalty was inadequate, on 17 February 1890 the Trust reversed its decision. Sir John in a letter to the Trust Secretary had pointed out that there was “great force in this argument that it is preferable that the improvements to the park should be paid for from an income derived from the park rather than be dependent on chance votes of Parliament”, but agreed that the price was “grossly inadequate”.

The Trust also rejected a December 1906 application from Metropolitan Coal for land for coal mining. In 1910 Frank Farnell (Chairman of the Trust from 1903 to 1929) explained the dilemma to the press saying that, with care in confining surface operations and infrastructure “the great object for which the reserve is reserved would be uninterfered with”, that the value of the resource was “enormous”, that the Trustees could gain “thousands of pounds yearly in revenue”, but that the Trust recognised that its duty was to protect a vulnerable asset “that belongs to the State and is vested in us” (*Evening News*, 16 November 1910).

In spite of its reluctance to agree to coal mining activities, the Trust did agree to the extraction of clay for brick making, a licence being granted for a site within the Park at Bottle Forest east of Heathcote in 1885. Also, for its own road-making activities, the Trust sanctioned the quarrying of gravel and ironstone up until the 1960s. As a result extensive areas in the Park were affected by gravel pits and quarries including at the southern end of Lady Carrington Drive, Bundeena Road, on the Plateau near Heathcote, Artillery Hill, Loftus and Chinamans Helipad.

A new approach for mining access was made under trade union pressure in 1920 but agreement on royalties could not be reached (Goldstein, 1979). In July 1932 the Under Secretary of Mines confirmed that the Trustees had full control over all mining with the exception of silver and gold. By the 1960s the Trust was even more certain of its position; in December 1965, it responded to a prospecting application in the Park by advising the Department of Mines that:

... whilst the needs of the mining companies may be pressing, these needs are of little importance compared with the task of preserving areas set aside for conservation and public recreation. The present Trust has resisted successfully past

attempts to mine for mineral, beach sands, thin out timber, removal of gravel, the Trust will continue to exercise its statutory authority especially to protect RNP as part of our common heritage. (National Park Trust Minutes, 10 December 1965).

Farnell during his long period as Chairman had taken the view that it would be better for Parliament to legislate on the matter of mining in National Park but that this was a long way off. The controlling powers of the Trust over mining rights continued to be affirmed by Government and no coal mining application was approved during the 80 years the Trust had this responsibility. Mining in national parks, except where there was a pre-existing authorisation, was in fact not prohibited until the passage of the National Parks and Wildlife (Mining Prohibition) Act in November 1990. To preserve an existing right, an addition to Royal National Park in 2005 had a depth restriction set at only 30 metres.

4b. *Timber Getting.* While recreation was undoubtedly the major use of the National Park, the 1893 *Guide Book* stressed the importance of conserving the natural vegetation, stating in bold terms that:

The primeval forests will remain untouched. No woodman's axe is permitted to lay low the lordly forest trees, which are to be allowed to bring forth their springtime buds and shed their withered leaves so long as the trees stand and the roots hold fast. The whole heritage is safe beyond the reach of plunder, safe from the machinations of ambitious schemers, and secured to the people of this country upon express terms fixed and made final by Act of Parliament.

These forests had the potential to be either preserved as the *Guide Book* suggested or exploited for their wood value. In the mid-1860s Surveyor Lord Audley had carried out a survey of the area which became the National Park for the Surveyor-General's Department, making his base camp at the junction of Kangaroo Creek with the Upper Port Hacking Estuary River (now Audley). In his report of 29 September 1865, as quoted by Myles Dunphy (1971), he wrote:

I think it right to observe that some valuable kinds of timber are to be found in brushes along the coast, and that the rapid destruction of these brushes has already excited notice. Those of the Port Hacking River are the only ones remaining, I

believe, within a considerable distance of Sydney, and their reservation in whole or part may become an object of importance.

'Brushes' was a contemporary term used for thickets – thicker more impenetrable types of vegetation.

Dunphy wondered whether this and later reports may have played a part in influencing Robertson to work for the Park.

Cutting of the much sought after Red Cedar along the Hacking River and its estuary, at Costens Point, and Gogerlys Point and along the Garawarra Ridge had occurred in the early years of settlement and it is likely that few mature trees of this species remained at the time of the Park's establishment. The demands of Sydney's rapidly growing population for hardwood construction timber increased markedly in the decade 1875 to 1885 and was supplied from sources on both the North and South Coasts by sailing vessels. One of these sources was the Upper Hacking River Valley. It appears that cutting began in the Otford Valley and moved from there downstream to a sawmill near the site of the later-to-be-built Upper Causeway. From there, timber was hauled by bullocks northwards along the Old Coast Road to Port Hacking from where it was shipped to Port Jackson by sea. When National Park was established there were two timber leases each of 259 hectares but the timber cutter had failed to renew the leases and they were cancelled. (National Parks and Wildlife Service, 1979)

The first rangers appointed in 1879 were required "to prevent removal from the Park, or destruction of the plants, palms, tree-ferns, Christmas Bushes, etc. which are indigenous and for preventing destruction or injury of game" (National Parks and Wildlife Service, 1979). In spite of this the Trustees saw no problem with removing trees in connection with their own roadworks and for cutting timber for other needs of the Park including fencing. For this latter purpose during the Second World War a sawmill for the Park was set up at Reid's Flat on the western side of the Lower Hacking River downstream of the Causeway.

The conservation objectives set out in the 1893 *Guide* proved hard to uphold since there were continuing demands from outsiders for access to the Park's timber resources. Myles Dunphy (1971) identified three periods of timber-getting in the Park. Details regarding the first period are somewhat hazy. In 1879-80 there appear to have been

two sawmills in operation near the Upper Port Hacking River part of National Park. Dunphy believed that one of these, outside the Park, may have remained open to supply the demands of the Park for hardwood beams, planks and other fencing materials.

A second period identified by Dunphy involved the extraction of timber from the Bottle Forest and Forest Ridge areas near Heathcote to supply the wood fuel used for the starting up of coal-burning furnaces on the trains of the Illawarra railway line. Dunphy believed that cutting of *Eucalyptus* species for this purpose, combined with the sparing of the Sydney Red Gums (*Angophora costata*), resulted in the conversion of this forest into an open forest of Sydney Red Gums. There is no record of these operations in the Trustee reports for the period.



LADY CARRINGTON ROAD.

Lady Carrington Road, 1893

In 1920 the Trustees initiated a third period when they gave the Metropolitan Coal Company a five-year licence to remove timber for pit props for use in the Company's mine – a contract that provided for the extraction of 360,000 super feet from 486 hectares, in return for a royalty of about a thousand pounds a year. Coal mining in the northern Illawarra District to the south of National Park had extended northwards at the same time as the establishment of National Park with new collieries opening at Coalcliff and Helensburgh (Metropolitan) in 1879. At first they obtained their timber from outside the Park. The aim of the licence as seen by the Trust was to obtain income from the royalties while having the forest thinned out of "mature and overmature trees". A sawmill was opened in the Park and timber from Blackbutts, Blue Gum/Bangalay hybrids, Ironbarks and Turpentines was cut in surrounding areas including Forest Island, the Couranga Ridge, and Bola Creek, all within National Park, with care being taken to protect the forest along Lady Carrington Drive. A road and a bridge over the lower Waterfall Creek was built from Waterfall for the specific purpose of hauling out the timber.

This episode of timber removal for non-park purposes from National Park was to be the last – a result of perhaps the first national park protest of its kind in Australian history. Slade (1985) indeed has claimed that this was the first major conservation battle waged in Australia. The protest was led by David Stead of the Wildlife Preservation Society (formed 1909) and supported by the *Sydney Morning Herald*. An article in that paper on 18 September 1922, headed 'Trustee Vandals', claimed that "the trustees have sold the birthright of our children", and in response to the "excuses" of the Chairman of the Trust that the revenue was needed and that logging was taking place in an unfrequented part of the park, said: "Even if the area were unfrequented, the excuse would not be valid". The article went on to call for the immediate cancellation of the contract and a review of the Trust appointments.

The protesters criticised the Trust's alleged double dealing by referring to the boast concerning complete protection in the 1893 *Official Guide*. As a result of this high profile protest the Government intervened. The Crown Solicitor discovered that the Trust had no authority to lease timber rights (Schoer, 1988) and in 1922 the Trust broke

the contract with the Colliery; it was, however, successfully sued for breach of contract.

After this, conservation groups kept a closer eye on the Trust and particularly on its cutting-down of Cabbage Tree Palms for building corduroy roads in boggy areas, an action which was described as “vandalism”. The Trust appears also to have sanctioned the removal of Stinging Trees and during World War II rainforest trees were cut for charcoal production as a wartime essential service measure (Total Environment Centre, 1986). Generally though, after this date, the trees in the Park were protected against cutting and ringbarking.

The problem of theft of the natural flora and fauna continued with the Park being considered fair game by people illegally collecting for both private and commercial purposes a wide range of vulnerable resources including wildflowers (notably Boronias, Waratahs, Christmas Bells, Wedding Bush, Christmas Bush and Gynea Lilies), Orchids, Tree Ferns, Birds Nest Ferns, Staghorn and Elkhorn Ferns, Pin Cushion or Pillow Mosses, birds eggs, bush rock, bush soil, reptiles, termites, firewood, shellfish, sea urchins, yabbies, grass trees and palms. So serious were some of these depredations that whole areas of the Park have been denuded of certain species. Pin Cushion Mosses and Staghorn Ferns are extinct now in Royal National Park, probably from over collection. The Waratahs still disappear from roadside areas after almost every October long weekend holiday.

4c. Acclimatisation and Scientific Research. Acclimatisation of exotic plant and animal species was common in Australia throughout much of the Nineteenth Century. The aims of the introductions included provision of food, field sports and the creation, along with changes to landscape, of the familiar conditions of the old country – a ‘Britain of the South’. In general this movement reflected the essentially exploitative/utilitarian view of the environment including its native fauna and flora which prevailed at the time. As an example of this attitude one of the purposes of the *Animal Protection Act*, 1879 was “to encourage the importation and breeding of game not indigenous to the colony”. There was initially little or no consideration given to the adverse effects of such introductions. It was only during the last two decades of the Nineteenth

Century that there began to develop an increased appreciation of the intrinsic values of natural scenery including its wildlife and a concept of parks and reserves serving as the last refuges for Australia's native fauna. Indeed, the first major legislation for the protection of indigenous fauna in New South Wales was the *Native Animals Protection Act*, 1903. The Wildlife Preservation Society established in Sydney in 1909 was Australia's first nature conservation group, another sign of changing views.

Reference has been made to the role the acclimatisation played in the establishment of National Park and to the official statements confirming that acclimatisation would be a purpose of the Park. Clearly the objectives of acclimatisation and conservation of native wildlife were incompatible, but for several decades they were pursued at National Park side by side.

One of the first acts of the National Park Trustees was the building in 1883 of a causeway over the tidal Hacking River Estuary with the dual purpose of providing access to the eastern side of the Park and creating a freshwater pond on the Kangaroo Creek Estuary into which English Perch (1883) and Trout (1885) were introduced. These exotic species were introduced into the Park's freshwater creeks. The weir interfered with natural fish migration. A fish hatchery established at Hungry Point near today's Bonnie Vale was used, 1900 to 1916, to conduct experiments with the acclimatisation of European species. Cabbage Tree Basin was used as a nursery area for both marine and freshwater species. A large aviary erected at Audley in 1888 was stocked with a number of exotic and native species including partridges and pheasants, and doves from Lord Howe Island. Also introduced were some native species not native to the Park, such as Emus. Exotic plant species introduced by the Trust included willows, poplars and Monterey Pines. And planted too were Moreton Bay Figs, Red Cedars, Lillypillys, Jacarandas, Mulberries and Bunya Pines.

In the first half of 1879 the Zoological Society of New South Wales had considered an offer made by Sir John Robertson of land in National Park as a base for their acclimatisation operations, but the Society decided instead to use a part of Moore Park. In 1885, 65 hectares of land at Gundamaian, a peninsula at the entrance to North West Arm,

were partially cleared and fenced for a deer park. The Zoological Society did take up 113 hectares in this same area for the purpose of experimenting with the acclimatisation of a wide range of exotic species, thus acquiring a duplicate for the Society's main stock held at Moore Park. Initially, the deer park was stocked by Fallow Deer, Red Deer and Angora Goats, and Samba Deer and Javan Rusa Deer were added later, the Rusa Deer in 1907. Very soon the deer began to escape not only into the nearby parkland but also, by swimming, to nearby areas outside the Park such as Grays Point. By 1937 the deer herd, with large appetite, was estimated to exceed 600.

With the deer ranging over a wider area, by the 1920s the Trustees began to realise they had a problem on their hands, not only with the invasion of suburban areas such as Bundeena and Grays Point, but also with their impact on the native flora and fauna, the main impact being on grassy, open woodland areas. In 1932 the Royal Zoological Society of New South Wales' licence for the Gundamaian land was revoked. It was many years before the Society gave up its acclimatisation aims to focus on the promotion of science and the conservation of native fauna. A statement of the Society's aims in a 1917 memorandum drawn up to register the Society included, "To introduce and acclimatise desirable and suitable animals from abroad".

The Trustees had power to remove the deer from 1937, but since there was public opposition to their complete removal the policy became one of control through regular culling operations. Today only the Fallow and Javan Rusa Deer survive in the Park (New South Wales National Parks and Wildlife Service, 2000).

The 2000 *Plan of Management* for Royal National Park stated that the continued presence of the deer was not consistent with the protection of the environment and the conservation of native species and that the aim was eventual elimination. It also recorded that since October 1988 several hundred deer had been removed from the park by licensed trappers.

As the decades rolled on the Royal Zoological Society's activities in the Park became more oriented towards scientific research and to finding what would not have a harmful impact on the environment. A cottage at Gundamaian was used for scientific purposes by the Society

until 1932. In 1924 a hut known as 'The Scientist's Cabin' was built near the Upper Causeway in the southern part of the Park and the Society was granted sole use in 1932 when their Gundamaian licence was revoked. The Society was given notice to quit the Cabin in 1935 but continued to use it until 1941. A report on its activities there, published in the *Proceedings of the Royal Zoological Society* in August 1938, shows how this facility was used for scientific study, bird-watching and the education of local students and overseas visitors by means of outings to the area. A particular focus was given to study of the life history of the Satin Bower-bird and observations of its habit of painting its play-arbour with vegetable dye were published in overseas journals attracting worldwide interest. The Society also reported to the Trust on the status of other birds such as the Lyre Bird. The Cabin was abandoned during World War II following vandalism; its use was thereafter discontinued.

Today not only is the acclimatisation phase long over but, in a sense, the situation has been reversed, with the wildlife of the Royal Reserves expanding its range into the suburbs, where most residents are proud of the native animals with which they share their lives. The list of these is long and includes Black Cockatoos, Owls, Galahs, Rosellas, Lorikeets, Bower Birds, Wrens, and Sugar Glider, Feathertail Glider, Pygmy, Ringtail and Brushtail Possums, Echidnas, Bandicoots, Bushrats and Antechinuses.

4d. *Cattle Grazing.* Grazing was allowed in the Park from its earliest days – as a source of revenue. This appears to have been encouraged during the time Frank Farnell was the Chair of the Park Trust (1903-26). Stanley (1976) has recorded that in March 1920 grazing tenders were invited for 20,000 acres of Park land, the most attractive areas being the less forested coastal heathlands including the northern district between Gibbon and Wattamolla; but cattle tended to stray onto the flats at Audley and other cherished places. In the south, landholders of freehold Era lands ran cattle on the Park to the north as well as on their own land. In 1965 the Trust decided against further cattle grazing and removed all cattle including feral stock from the Park.

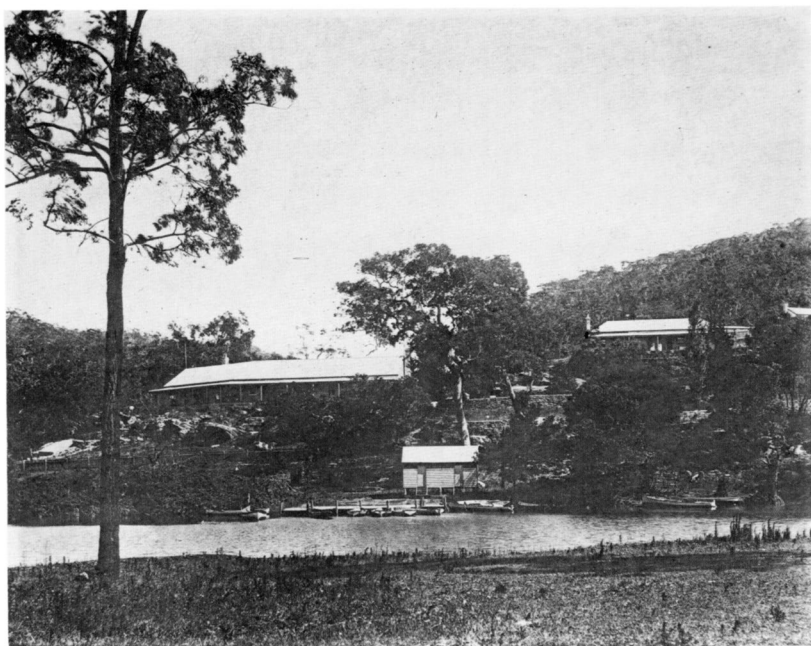
4e. *Military Activities.* The 1887 Deed of Grant specified the possible use of the Park for military purposes, a use which had already occurred. In 1886 an Easter encampment of military forces held at Loftus Heights inside the Park had attracted over 30,000 soldiers and visitors using the new facility of excursion trains (introduced 1885). A 91 hectare area of land on the plateau south of Loftus had been cleared in 1884 for this purpose and four years later it was put down to grass. By 1886 the Loftus encampment area was served by the branch line from Loftus to what became known as National Park Station (with a dam for water supply and a road to a signalling station at Bungoona Lookout). The Easter encampment became an annual event. In 1890, following a site inspection by the Trust, some 4,000 hectares south of Audley was made available as a firing range, involving the use of live ammunition. Because of risk to visitors the Trustees subsequently restricted the firing to the western Heathcote section of the Park with the firing directed westward over the Woronora River. In 1914 this use ended and the activities were transferred to the Holsworthy Firing Range located in the western catchment of the Woronora River. A small-arms firing range was constructed at Curracurrong. Some areas of the Park still retain names resulting from these activities, for example Artillery Hill and Shrapnel Hill. Fire control activities in the Shrapnel Hill area were still hazardous into the 1970s due to scattered live ordnance being detonated by wildfires and prescribed fires.

From 1941 to 1944, during World War II, partly because of the security risk, the whole Park was subject to army control with artillery and infantry manoeuvres taking place, the artillery range being brought back into use, and the Park being closed to the public on some days. A barrier was built across the Causeway at Audley, land mines were laid at Artillery Hill, and the beaches and Wattamolla southern cliffs were defended by gun emplacements and barbed wire. Some of these activities have contributed to subsequent man-made erosion.

In 1931 the military exercise area at Loftus Heights had been extended to 172 hectares, and military exercises continued from time to time until 1967 at Wattamolla.

4f. *Catering for Growing Numbers and Changing Transport Modes.* With public recreation being the main driving force behind the Park's creation it is not surprising that the Park Trust got quickly to work on the task of making the Park more accessible. To open it up for this use the Trust began to develop a road network. Roads were constructed in the main parts of the Park: from the main Sydney to Illawarra Road to the Park hub at Audley and from there via the Causeway (built in 1883) over the Hacking River Estuary to Wattamolla on the coast; along the coast from Jibbon to Garie; and in the interior a road south from Audley along the right bank of the Hacking River, opened in 1886 as the 'Lady Carrington Road'. (In 1916 the name was changed officially to 'Lady Carrington Drive', but some locals continue to use the term 'Road'.) The Trustees believed the new road would "provide convenient access to the finest forests trees in the forest below Waterfall Creek" (National Park Trustees *Annual Report* for 1887). Near the end of this road a circular 'Forest Path' was cut around the prominent hill-feature known as 'Forest Island' for the use of walkers and equestrians. Here a major attraction was seen as being "the noble forest trees". The 1893 *Official Guide* described the species in this forest as including "gigantic Black-butts", and "Turpentine trees... and Forest Mahoganys" and noted that "occasionally a Red Cedar is seen in these primeval forest glades". In 1891 Red Cedar saplings were planted along the Hacking River (Schoer, 1988) to replace those logged.

By 1888 the Lady Carrington Road was linked via the Waterfalls Road from the Upper Causeway to the settlement of Waterfall located on the main road and railway to the Illawarra, and it was also connected up with a timber track running south to Otford, which subsequently was variously referred to in this section as the 'River Road' and the 'Lady Carrington Road'. The Lady Wakehurst Drive opened in 1945 was basically an upgrade of this road east of Hacking River from the southern National Park boundary to Otford with variations at the northern end (where it was moved closer to the River) and at the southern end (where it now climbs out of the valley above Otford, taking several kilometres off the Cliff Track).



PUBLIC PAVILION.
(Residence.)

Public Pavilion, 1893

After the introduction of railway excursions and the establishment of the branch line to National Park Station in 1886, there was a major increase in Park visitation with annual numbers growing from 38,000 in 1892 to 170,000 in 1903 and to 250,000 in 1910. The building of the Audley Causeway facilitated access to the eastern bank of the Hacking River Estuary and turned the water upstream into a freshwater body. Downstream of what became known as the Lower Causeway, training walls were built along the Hacking River Estuary to keep the channels deeper for the passage of boats. Audley was developed by the Trust as a small village in a pleasure garden setting. Among the facilities provided for this influx at Audley was an accommodation house 'The Rest' (1891), a picnic pavilion (1901), and a boatshed (1893). Rowing boats were made available for hire (1891, extended in 1901 and 1938). In 1938 The Rest later underwent a major upgrade and was renamed 'Allambie House'. When it later became dilapidated, the National Parks

and Wildlife Service destroyed it in 1975 and it was not replaced. Other facilities provided for visitors included a guest house at Warumbul (1891) and a cleared playing field of about 7 hectares at Loftus (1906).

The increased ownership and use of motor vehicles in the post First World War period and the Park's close proximity to Australia's largest city brought about major changes in the pattern of visitor-use causing the Trust to respond by further extending the vehicle road network and beginning to regulate parking. New visitor facilities provided by the Trust included tennis courts and putting greens.

After World War II, with car ownership becoming almost universal, control of traffic and parking became an even greater problem for the managers. Traffic signs were introduced in 1964. As car-use continued to grow the Trust came to regard catering for these visitors as one of its most important responsibilities with consequent reduction in the Park's attractiveness for pedestrians. In 1939 the control of the Park's major roads was taken over by the Department of Main Roads. When the Park came under the control of the National Parks and Wildlife Service in 1967 restriction of cars to formed roads and special parking areas was given a high priority. In 1987 because of heavy use and high maintenance costs the Lady Carrington Drive was closed to motor vehicles.

By the time of the 2000 Royal Reserves *Plan of Management* there were six public roads in the Park. Four of these, comprising 'Main Road 68' (Farnell Avenue, Sir Bertram Stevens Drive, McKell Avenue and Lady Wakehurst Drive) and the Wattamolla Road and the Garie Beach Road, were maintained by the Roads and Traffic Authority, two others – Bundeena Drive and Maianbar Road (serving suburban enclaves) – were maintained by the Sutherland Shire Council. Other roads in the Park were maintained by the Parks Service. A regular ferry service connected Cronulla with Bundeena. The Sir Bertram Stevens and Lady Wakehurst Drives are now a part of the spectacular 140 kilometre-long Grand Pacific Drive, launched in August, 2008. Commencing at Loftus this has brought additional through-traffic into Royal National Park.

In 1979 the annual number of visitors to the Park was put at about two million (National Parks and Wildlife Service, 1979). A survey carried out in 1990 and reported in the 2000 *Plan of Management* estimated

that the number of visitors to Royal National Park was 3 million per annum and that 94% of the travel was by private car (NSW National Parks and Wildlife Service, 2000). The survey found that on average 4.4% of the population of metropolitan Sydney visited Royal in a month, meaning that there was exceptionally heavy traffic during weekends. The greatest density of use was along the Hacking River, particularly at Audley, the foreshores of Port Hacking and the coastline. The least-visited area was Kangaroo Creek north-east of Waterfall.

Visitors arriving by private vehicle are required to pay a park entry fee. There is a wide range of picnic facilities in all the major parts of the Park. During particularly busy times such as public holidays, traffic management plans are applied by the Police which may limit or prevent vehicle access to designated Park roads for safety reasons.

4g. *Camps, Cabins and Youth Hostels*. Both land subdivisions and recreational use preceded the establishment of National Park but the publicity for the Park and the improved access increased public interest in people having weekenders (weekend cabins, or 'shacks') in the Park, especially along the Port Hacking foreshore and later along the sea coast.

Camps of this kind began to increase in numbers in the Audley/Port Hacking area in the early 1900s. In a 1917-18 report the Trustees noted that hundreds of visitors had established weekend camps along the river frontages under a system of Permissive Occupancies. By October, 1920 the rent charge was 30 shillings per annum. During the early 1920s the Sutherland Shire Council, concerned over public health issues, tried to have these facilities removed but the Trust's sympathy lay with the cabin holders and there was little change in the situation.

In the early 1930s bushwalkers began to publicly complain about the cabins' impact on the scenery and its enjoyment. A letter from the Sydney Bush Walkers (formed 1927) published in September 1931 in the *Sydney Morning Herald* (Stanley, 1976) said:

Many organisations such as our own, feel very strongly on the matter and to our knowledge the shacks have been the cause of a great deal of criticism of an adverse nature. It seems a great pity that such a glorious park should be defaced by these unsightly buildings.

But with little effort being made by the Trust to remove them, in March 1933 the press began a campaign against the cabins, which at this time numbered 76 (34 in the Audley area, the main visitor centre). By 1944 they were reduced in number to 43. Fourteen of these were in the northern coast section between Jibbon and Garie (Jibbon 6, Big Marley 3, Little Marley 2, Wattamolla 2 and Garie 1). The ones at Audley were finally transferred to other locations in the Park in the 1950s.

One of the most popular areas for the development of the week-enders, because of easy access by ferry, was near Bonnie Vale on Port Hacking. When the Trust purchased land at this site in 1947 there were 180 permanent cabins and tents there; but with the removal of ramshackle cabins over the following 20 years and the building of new cabins under the supervision of the Trust the number was greatly reduced. During the Great Depression a camp for the unemployed was established in the Park near Sutherland and acted as a source of casual labour for the Park. It survived until the 1950s when the land was transferred to Sutherland Shire Council to become Waratah Park.

Another major location where some 200 shacks and permanent tents had developed in the 1930s to 1950s was on the southern coast south of Garie. These were established on private land all of which was added to the National Park by 1954. Cabin communities were established at Little Garie, South Era, Burning Palms and Bulgo. During mine stop-pages, workers from Helensburgh established tents and humpies on the coast. These were later upgraded to shacks (cabins). During the Depression years of the 1930s many of these became occupied permanently as unemployed miners from the nearby mining areas such as Coalcliff and Helensburgh sought refuge there. They included some who, by living independently of their parents, were able to claim the dole, while others simply wanted a weekender. The establishment of Garawarra Park in 1934 resulted in the cabins being moved from the north of Burning Palms Beach onto private land on the north headland.

These cabin settlements continued to expand in the post-war period with a further 22 cabins being built in the area between 1945 and 1950. A factor adding to the attraction of the area was its popularity for surfing. Surf Life Saving Clubs were established at Garie and South Era in

1938 and at Burning Palms in 1939. A club house was built at Garie for the Surf Club in 1938.

When the Government resumed the six portions (totalling 142 hectares) of the Era Lands for addition to National Park (see below), no compensation was paid for the cabins and this has been interpreted by the cabin communities (Stitt, 2010) as a de facto agreement, brokered by the Deputy Premier and National Park Trust President, Joe Cahill, that the cabins could remain on the land.

When the bushwalking clubs complained about the existence of these cabins the Trustees efforts were largely directed to removing unauthorised campers, until in 1959 the Trust stated that no new cabins could be built but that it would approve a transfer of ownership. This policy changed in 1964 when the Trust introduced a 'Conditions of Occupancy' agreement that prevented transfer or sale of ownership and provided for the removal of vacated cabins.

Under the National Park Trust, cabins could be bought or sold until 1966 when the Trust was required by the Minister to impose conditions that prevented any future transfers. Previously, anyone interested could become involved with the cabin communities and, when a shack came available, purchase it.

Over the next 30 years the situation with regard to the cabins vacillated between the removal of some and the licensing of others. When the National Parks and Wildlife Service took over control of the Park in 1967 it began to enforce the 1964 approach, replaced permissive occupancies with non-transferable licences, and demolished some cabins. These transferable licences (introduced at Bulgo in 1977 and Era in 1979) required the demolition of the cabin on the death of the owner, or if the rent payment fell into arrears; 117 cabins were removed from the Park between 1971 and 1992 (Carrick, 2012). The 1975 *Plan of Management for Royal National Park* included a policy of demolition of private residences and the return of the areas to a natural condition.

Between 1978 and 1990 a new factor of 'heritage significance' came into play, with the cabin settlements at South Era, Little Garie and Burning Palms and Bulgo being listed on one or other of the Wollongong City Council, National Trust, and Australian Heritage Commission heritage lists. The Bonnie Vale Cabin Community, Burning Palms

Settlement, Era Beach Settlement and Little Garie Cabin Community were all placed on the Register of the National Estate in March 1978. In April 2012 the cabins at Burning Palms, Era and Little Garie were placed on the New South Wales State Heritage List.

In early 1990 the Era cabin owners applied to the New South Wales Heritage Office for an order to halt the demolitions and the Office requested the Parks Service to undertake a heritage assessment

In 1994 the National Parks and Wildlife Service produced a *Draft Cabins Conservation Plan*, which was strongly supported by the cabin communities. The 2000 *Plan of Management* for Royal National Park recorded that there were 229 licensed cabins in the Park. In his Foreword to the *Plan* the Minister for the Environment, Bob Debus, stated that the Service:

...will seek to retain a substantial number of cabins in the park through licensing with strict conditions which ensure that their cultural heritage values are retained and their environmental impact is considerably reduced by meeting environmental performance standards.

The 2000 *Plan*, gave high priority to the preparation of “conservation and management policies for the cabins”. A *Coastal Cabin Areas Conservation Management Plan* was produced in 2005 and adopted, setting out guidelines for the conservation management of the cabins (Parks and Wildlife Division, 2005). The NPWS’s proposed licensing scheme was opposed by the cabins communities and a case was mounted in the Land and Environment Court. The matter was settled by mediation out of court, leading to the current licence arrangements. In 2006 an agreement was reached which resulted in the majority of cabin owners being given a 20-year licence. By the end of 2011 most of the cabin owners at Burning Palms, South Era and Little Garie had 16 years remaining on their occupancy licence while those at Bulgo and Bonnie Vale were on an indefinite term with the official intention being to apply a new licence to them in the next few years.

The cabins communities viewed the Conservation Management Plan as deeply flawed, with many errors and inconsistencies. The second page of the Conservation Management Plan contains the following note:

This document was commissioned by the Department of Environment and Conservation to guide the management of cultural heritage in Royal National Park cabins areas. The Department acknowledges that there are differences of opinion between the Department and groups representing the cabins communities with regard to: the historical analysis as set out in this document; the evolution of the cabin communities; and the preservation of the communities into the future.

By 2011 the number of cabins in the Park had been reduced to 205 and the distribution was as follows: Bonnie Vale 8; Little Garie 20; South Era 94; Burning Palms 28; and Bulgo 55.

While bushwalkers believed that the existence of the private cabins was contrary to the fundamental public ownership concept of national parks they were generally supportive of the provision within the park of accommodation that was available to all.

It is fair to say that many Park users not associated with the cabins do not find the existence of the cabins communities a problem and some say they add interest to the landscape.

In 1943 the National Fitness Council erected a Youth Hostel at Little Marley, the first in the State. Destroyed by bushfires in 1959 it was replaced by a Youth Hostel at nearby Marley which operated from 1964 to 1973. Another Youth Hostel built at Middle Rill near Garie Beach in 1952 operated until December 2010 when it also was destroyed by fire. It is being rebuilt at Garie Beach behind the Surf Club building.

4h. *Walking and Camping.* The National Park was a very obvious place for both walking and cycling, both of which became popular during the 1890s. By 2010 the National Parks and Wildlife Service's map of Royal National Park recorded that there were "over 150 kilometres of walking track" in the Park and that cycling was permitted on public roads and fire trails (including marked single walking tracks). Swimming (salt and fresh water), boating and canoeing were other popular non-motorised recreational activities.

Walking began as an organised activity in the 1890s. The Warragamba Walking Club was formed in Sydney in 1895 (the second in Australia) and it is a sign of how rapidly the popularity of walking blossomed that between 1907 and 1914 the Government Tourist Bureau brought

out three editions of *With Swag and Billy*, a book providing advice for walkers.

Members of the Orizaba Tourist Club (formed in 1908 by Annandale brothers Myles and Bryan Dunphy) began their walking in 1908 in the nearby National Park and Heathcote Creek area and also near their former home in the Kiama district. In 1914 this Club transformed itself into the Mountain Trails Club.

In 'The New Conservators' (1975) Myles Dunphy recalled walking trips he undertook in National Park in 1913 and 1914. One walk took his party from Audley via Flat Rock Crossing and the Old Coast Road to Marley Lagoon and from there via Wattamolla and Curracurrong to North Garie Head where they met up with three members of Walkers Limited. They finished by walking to Waterfall Station by way of the Upper Causeway. It has been suggested that Burning Palms gained its name from the lighting of a Cabbage Tree Palm by Myles Dunphy and other bushwalkers to celebrate the New Year in 1910 (Parks and Wildlife Division, 2005).



Joseph Myles Dunphy

There were many tracks in National Park suitable for walking, some formed before the area became a park, including the Old Coast Road which ran along the divide from Otford to Port Hacking and which had been used to haul timber to the port, and the Burgh Track from Helensburgh to the coast and these were much appreciated by walkers and cyclists until the 1920s when the increased number and speed of motor vehicles began to make the area less attractive. The first track developed by the Trust for walking and horse riding was the 4.5 kilometre 'Forest Path' developed in 1887 at the end of Lady Carrington Road. Bicentennial project funds were made available for track upgrading in 1979, and in 2012 the Forest Path is extensively used.

The 2000 *Plan of Management* describes how the 'walking track system' evolved in an ad hoc manner from tracks constructed for other purposes such as management and tracks specifically for walking. Lady Carrington Drive (as it became known) was closed to vehicles in 1987 and this – a distance of 15.5 kilometres from Audley to Waterfall via the Couranga Track – became one of the most popular walks and bicycle rides in the Park. An October 1931 request to the Trust by bushwalking cubs resulted in the Uloola Track being cleared to the Uloola Falls. In 1934 Myles Dunphy used his influence with the Surveyor-General to improve the size and content of two new maps produced by the Lands Department. Published in 1935 these were: the 'Tourist Map of the Port Hacking District', and a map of National Park (Dunphy, 1975). With additional topographical information and names supplied by Dunphy the maps facilitated bushwalker use of the Park.

The most popular bushwalking track to be gradually developed was the 26 kilometre long 'Coast Track' from Bundeena to Otford which underwent a number of route changes from time to time. Today, bush camping in Royal National Park is by permit only, on payment of a fee, and is limited to sites at North Era and Uloola Falls. Bush camping in Heathcote National Park at the designated sites of Lake Eckersley, Kingfisher Pool and Mirang is also by permit. The only car-based camping is at the Bonnie Vale campground. The only place where horse riding is permitted is at the old railway construction camp near Cawleys Creek in the Garawarra State Conservation Area.

It was the use of the Park by bushwalkers that led to the eventual addition of the Garawarra area to Royal National Park in 1967. In the early 1930s the Mountain Trails Club began to increasingly use Burning Palms Beach (accessible via the Burgh Track) for weekend camping or as a lunch-break on walks nearby (Goldstein, 1979). When shacks were built on this section of the coast, the bushwalker conservationists led by Myles Dunphy responded by developing longer-term conservation plans.

In 1931 Dunphy included a 'Garawarra Primitive Area' and a 'Heathcote Primitive Area' in a comprehensive set of national park and primitive area proposals which he submitted to the Lands Department. This proposal was supported in 1932 by the New South Wales Federation of Bush Walking Clubs (recently formed) with the suggested name of 'Garawarra Primitive-Area Park' (Mosley, 1999). The proposal that thus developed for a separate park (see Fig. 5) was based on distrust of the Trustees of the National Park who, the bushwalkers believed, were interpreting their duty to provide for public recreation as requiring the provision of access for motor-based tourists – which would lead to the building of roads in this popular bushwalking area.

It was also concern about the focus of the Trustees on roads and vehicle-based recreation that led to the establishment in August 1943 of the Heathcote Primitive Area. This was another of the primitive area proposals which Dunphy had submitted to the Lands Department in 1931.

In commemoration of their conservation efforts the Federation used Burning Palms as the venue for several of its annual camps and reunions, noting in *The Bushwalker* (No. 10, 1947) with regard to its choice for the 1946 camp that "the venue Burning Palms, in a park set aside through early Federation efforts, was felt to be the most appropriate". In 1948, alarmed at the possibility of development at North Era, another favourite camping site, the Sydney Bush Walkers Club decided to buy the 16 hectare Portion 7, which had been owned by the Zeims family since 1941. The sale was concluded in 1948. As the Sydney Bush Walkers Club was unincorporated, the purchase was made in the name of three members and held in trust for the Club. However, all six portions of the Era lands totalling 142 hectares were

resumed by the Government in February, 1950 “for the establishment of a public recreation ground” and the area was declared a “public park” and added to the National Park in January, 1954. By 2001 North Era was one of only two authorised (by permit) bush camping sites in Royal National Park.

4i. *Educational and Research Use.* As a result of its location within an hour’s drive of Wollongong and half of Sydney, Royal National Park has a long history of use for educational purposes, serving in effect as an environmental classroom for Sydney. The chief facilities in the Park for this, on the Audley approaches to Royal, are the Visitor Centre and the Department of Environment’s Royal National Park Environmental Education Centre which is run by trained teachers and is used by many schools for both visits and video-conferencing. This Centre was set up during the 1979 Centenary Celebrations, originally with the name of ‘Field Study Centre’.

In 1974-75 the Wallumarra Track, running from the Garie Trig on Sir Bertram Stevens Drive and connecting with the upgraded Forest Path, was developed with a specific educational aim as part of Royal National Park’s Interpretation Programme. The Track (‘Wallumarra’, an Aboriginal term, meaning ‘protect’ and ‘education’) was in 2012 still being extensively used by students from schools, TAFE colleges and universities, providing an introduction to the diverse natural vegetation communities of the Park and particularly to their zonation from heathland and woodland down the slope through dry and wet sclerophyll forests to rainforest. A 1984-85 film on the Track, “Wallumarra” – prepared by the NSW TAFE School of Horticulture for its students throughout New South Wales – won a number of awards. The Zoology and Botany Departments of Sydney University have long used Royal National Park as a venue for student field excursions.

An example of the use of the Park’s history to illustrate themes in Australian history is Gary Schoer’s 1981 book, *Royal National Park Centenary 1879-1979: Historical Insights*, produced for the New South Wales Department of Education. In 1975 Wendy Goldstein wrote a teachers handbook for Royal National Park which was frequently republished until 2006 when a revised edition was produced.

The 2000 *Plan of Management* for the Park gave high priority to the preparation of a “scientific research prospectus” and provided for Royal National Park to be used as the primary venue in the State for the promotion of natural and cultural heritage conservation and of the work of the Parks Service.

4j. *Nature Conservation.* Though the emphasis in the establishment of National Park was on public recreation, just how that would be met in relation to the role of the Park in nature conservation separate from recreation, was far from clear. Growing out of the concept of a park established to meet the needs of an urban population, in part transplanted from the English culture, the most obvious policy approach seemed to be the creation of a park-like landscape, a place ordered to provide for specific recreational activities. Working against this was the very different view of the landscape by a growing number of eminent painters and photographers (see Appendix C). Drawing on a romantic instinct which had been represented by poets of the early Nineteenth Century these artists, together with growth of the bushwalking movement, increasingly brought the public’s attention to the beauty of the natural scenery and particularly its natural vegetation. To a considerable extent the people of Sydney had been acclimatised to the attractiveness of local scenery through what was on display around them, not least the bays and headlands of Port Jackson (Sydney Harbour).

So, at the beginning of National Park’s history, there was considerable ambivalence about how it could best serve the diverse needs of the people. This was reflected by an editorial on 2 April 1879 in the *Sydney Morning Herald* which recalled the Government’s early concern for acclimatisation but added that the area might become a place of major sports such as horse racing and cricket; it went on to mention the beauty of the Port Hacking estuary and river, the cliffs and bays and the “splendid specimens of Australian timber”. It offered the opinion that certain tree species should be preserved “to show perpetually what Australian vegetation is capable of” and it looked forward to a time when “the charms of landscape treatment” were added to “the beauties of wild nature”.

Some further insight into contemporary thinking about these matters was provided by a journalist's report in the *Sydney Morning Herald* of 3 November 1879 on the first visit to the new Park by six of the Trustees on the previous weekend. Referring to the open heathland seen from the boat he said that, "to call such a piece of land a park appears to be ridiculous". He was more appreciative of the Upper Hacking River saying:

... to a lover of nature in its wildest form nothing more beautiful can be conceived than the scene which met the gaze of the visitors when they arrived at the bottom of the gully. In all directions were huge cabbage palms, some almost as much as 80 feet in height, with bright green foliage, while groups of immense tree-ferns put one in mind of the Christmas transformation scenes, only far more beautiful. The timber, which consisted of black bark, turpentine, she-oak, banana, and species of eucalypti, was all on a gigantic scale and the undergrowth so luxurious as to be impenetrable in places.

Ewell (1893) in *An Official Guide to the National Park* was confident that nature conservation would prevail, stating:

... the task of prophecy regarding the future of National Park is not difficult ... In the midst of extending population and an attendant development of the adjoining country, National Park will retain its natural characteristics for all time

By the turn of the century there was also evidence of the growing recognition given to the Park's natural scenery and wildlife in the Trust's strong opposition to any defacement of property through advertising and to vandalism such as the collection of wildflowers.

The story of the slow resolution of competing views regarding the role of the Park as a place for present recreation of particular kinds versus its role as a place for conserving nature for future generations, provides a template for the emergence and evolution of the concept of the national park having a primary nature conservation objective which continued into the Twenty First Century.

5. Addition of Garawarra to National

Through their conservation efforts the bushwalkers (as they became known after the formation of the Sydney Bush Walkers Club in 1927) brought about major changes to the aims and extent of the national park system in New South Wales. The main ideas for these innovations

came from Myles Dunphy of the Mountain Trails Club both through proposals in his own name and later through the National Parks and Primitive Areas Council (formed 1933), often with the support of the New South Wales Federation of Bush Walking Clubs (formed 1932).

As the use of motor vehicles increased, the problem, as Dunphy saw it, was that the Department of Lands believed that the public was one entity and that any step taken for the public would serve them all, with the consequence that every reserve for public recreation was likely to be swamped by expensive roads and motor tourists.

In the eyes of the walkers the sectional interests of the motorist were being given preference. The response was a demand by the walking fraternity for the protection of wild unimproved Crown lands and for a declaration that recreational walking and nature study were public purposes that required the reservation of lands for these specific purposes.

As a large natural area closest to Dunphy's home base, National Park came under increasing scrutiny in terms of how well it served the walkers. Access via the Burgh Track from the railway station at Helensburgh made the Garawarra Range and its beaches particularly attractive for both day and overnight walking trips. The Burning Palms Beach and North Era were especially popular venues for bushwalkers.

Dunphy later recalled (1975) that after the 'discovery' by walkers of the Burning Palms and Garie Beaches as result of the making of new roads in National Park, Garawarra became more valuable for the camper-walker, and that it was in these circumstances that the idea of a primitive area reserve at Garawarra (and elsewhere) was born.

On 1 November 1924, two years after the conclusion of the successful campaign against logging in National Park, the Mountain Trails Club made a formal protest to the Under Secretary for Lands, E. P. Fleming, about the "damaging agencies" its members had investigated in the Park over a number of years. One of the abuses complained about was that cattle from the Garawarra area were to be found grazing in National Park on Curra Moors and beyond. The Department sent the protest on to the National Park Trustees, who denied the charges. However, the Minister for Lands, the Hon. W. E. Weare, wrote to the Club on 18 March 1925 promising to give the matter full considera-

tion. As a result the Club wrote again to the Under Secretary suggesting that the Crown lands of Garawarra, including what was described as the last remaining stretch of coastal jungle near Sydney, should be added to the National Park to protect it against alienation and various abuses caused by cattlemen and shooters. The Department promised that the proposed extension of the Park to include this area would be considered, but in a letter of 18 September 1925 the Under Secretary said "the circumstances did not warrant any action with regard to the acquisition of the freehold land or the dedication of the Crown Lands for the addition to the National Park".

At this time there were six portions totalling 142 hectares of freehold land in the Era and Little Garie area. The occupation of these for farming had a long history dating back to well before the establishment of the National Park in this area. In 1880 the southern boundary of the Park was shifted from Garie to Little Garie. To the south of Garie Beach in the coastal section, Andrew Byrne had been granted 61 hectares in 1831 at Era and Burning Palms (Portion 1) and John Dwyer had purchased 81 hectares at Bulgo in 1835. In 1870 the Collaerys gained title to 65 hectares north of the Byrnes land including South Era (Portions 7, 13, 44, 47 and 48). In 1941, Portion 7 was sold to the Zeims family.

Between 1870 and 1928 the Collaery family grazed all six portions of the Era Lands and granted rights to coal miners from Helensburgh to erect shacks on their lands. In 1927 the Collaerys developed a scheme to develop portions, 1, 7, 13, 44, and 47 as a residential subdivision, a golf course and a country club, but the Byrne family declined to participate. A prospectus was issued in 1928 for 'Garie Estate (National Park) Development Company' for portions 7, 13, 44, and 47. Although this came to nothing it did alert both the conservation movement and the shack owners to the threat to the future of the area and caused both to lobby the Government to resume the Era Lands (Stitt, 2010).

As noted earlier, Dunphy included a proposal for a Garawarra Primitive Area in his 1931 set of proposals for new parks and primitive areas in the south-east of the State. However, further action on Garawarra was shelved during the 1931-32 bushwalker-led campaign to protect the Blue Gum Forest in the Blue Mountains, but once this area was reserved in September 1932 action switched back to an urgent

situation at Garawarra where squatters were taking over, including at sites behind the beaches at Burning Palms, Era and Little Garie. Most of the settlers at these places had no legal rights but two obtained special leases on the higher ground of the Garawarra Ridge. In spite of opposition by the New South Wales Federation of Bush Walking Clubs in the Land Board Court, two conditional purchase leases were granted which would permit later conversion to freehold, and Bulli Shire Council directed the conversion of the Cliff Track to a road to suit the landowners.

The response was a February 1933 campaign by the Federation, with Myles Dunphy as organiser, which collected 4,632 signatures on a petition to the Minister for Lands calling for a "Garawarra Primitive-Area Park". Dunphy prepared a map of the proposal which was labelled "for Walkers and other railway-using Recreationists" and "For recreational walkers and all bush lovers" (see Figure 5). The addition of Garawarra to National Park was no longer sought because it was feared that such an addition could result in the loss of the area's primitive appeal through road building.

'Roadless, primitive area' was not a declared public purpose and the outcome of the campaign was that in 1934 'Garawarra Park', a 526 hectare 'reserve for public recreation', was gazetted and placed under the control of a seven member 'Garawarra Primitive Area Trust'. Bulli Shire Council had objected to the use 'Primitive Area' in the name of the Park. Dunphy described the campaign as "a flop". The new park excluded land to the west of the Hacking River which had been in the Federation proposal of February, 1933.

Bulli Shire Council not only opposed land resumptions for the park but also presented its own petition calling for an improved road to Otford. The road to Garawarra Farm was built and 'The Lady Wakehurst Drive' (opened in 1945) was built largely on the section of the Lady Carrington Drive (name had been changed to 'Drive' in 1916) on the right bank of the Hacking River between the Upper Causeway and Stony Batter Hill.

The 'Garawarra Farm' was resumed in 1938 but remained as leasehold until 1971. One section of the coastal area surrounded by Garawarra Park and National Park remained in private hands after

1934. In 1943 the Sydney Bush Walkers began a campaign to purchase land along Stockyard Creek in the Era-Little Garie part of this land to preclude residential development and road-building.

The cabin communities had formed a Protection League and met with the Minister for Lands, Mr Sheehan, lobbying him to resume land in order to preserve it from development. Documents from the Lands Department show that the magnitude of the possible compensation bill for resuming land with approximately 200 legally constructed cabins thereon had long been a major stumbling block to resumption. A deal, brokered by Deputy Premier J.J. Cahill (President of the National Park Trust and closely connected with the Little Garie cabin community), whereby in return for not claiming compensation the cabins could stay, was an important trigger that allowed resumption to proceed.

The Government set aside funds and as a result an extended area could be purchased. With the aim of forestalling any future subdivision the Government in 1950 announced its intention to resume 142 hectares of freehold in the Era district. The land was resumed on 24 February 1950 under the *Public Works Act, 1912* "for the establishment of a public recreation ground and reserved from sale or lease". This resumption brought the cabin communities at the northern headland of Burning Palms, South Era and Little Garie into National Park. When the primitive area supporters suggested the area should be added to Garawarra Park so it could be preserved for pedestrian recreation, this was refused. The Officer in Charge of Parks in the Lands Department explained that he considered:

That the interests of the bush walking fraternity represent but a small section of the community... It is without question that the land was resumed not for the exclusive benefit of bush walkers and/or cabin holders, but in the public interest, in the true sense of the word public.

In 1939 control over Garawarra Park had been handed over to the National Park Trustees.

In 1945 it was proposed to sell Portion 1 at public auction. In response the Era and Burning Palms cabin communities located on this land formed the Era Burning Palms Protection League with a view to purchasing the land. In 1950, one week before the auction, the Government resumed all 142 hectares of land at Era and Garie Beaches

for the purpose of a 'public recreation ground' under the *Public Works Act*, 1912 and vested in the Minister for Lands (Proclamation of 24 February 1950). The land was dedicated for 'public recreation' in 1953 (Government Gazette 6 November 1953) The National Park Trust minutes record that in 1953 an area of 142 hectares at Era and Little Garie had been resumed and placed under the Trust. In 1954 this land was proclaimed as a "public park within the meaning of the *Public Parks Act*, 1912" and incorporated into National Park (Proclamation of 8 January 1954). Garawarra Park was incorporated into Royal National Park on 1 October 1967.

While the decades-long battle by the bushwalkers to secure the Garawarra area took centre stage the walkers failed to have adjacent land on the west side of the Hacking River included in Garawarra Park (and hence in Royal). They were more successful in their efforts further west. In 1936 the Federation of Bush Walking Clubs succeeded in their efforts to have the National Park extended south in the form of a tongue-shaped area stretching from the Gomera Ridge almost to Helensburgh in the south. In the 1960s and 1970s the Department of Environment and Planning acquired the lands between this addition to the Park and the Garawarra section to the east, paving the way for this to eventually become a major part of the Garawarra State Conservation Area.

Concern about the failings of the trusteeship-arrangement for parks in terms of their land-use management had a long history; the Government Botanist J.H. Maiden had suggested transfer of city parks to direct ministerial control as early as 1902 (Goldstein, 1979). The controversy over the trusteeship of National Park resulted in similar views being aired about national park control in the 1930s. As part of its Garawarra Primitive Area campaign the National Parks and Primitive Areas Council in 1933 and the Wildlife Preservation Society in 1937 had both argued for control by a professional parks service similar to the US National Parks Service established in 1916. These were important ideas arising from conflicts over the use of National Park, but they were to prove to be 30 years ahead of their time.

6. Celebration of National's Centenary

In 1979 New South Wales celebrated the centenary of Royal National Park in a number of ways. A new NPWS information centre was built at Audley Heights. One of the chief forms of commemoration was the publication of *Australia's 100 years of National Parks* (Goldstein, 1979), a book that included sections on the history of the Park, conservation movements, functions of parks, and the national parks of Australia. It was introduced by a message from the Minister for Planning and Environment, Paul Landa. Reflecting on the growth of conservation ideology and the national park system in Australia, he noted that:

Royal National Park's dedication did not arise from the desire to preserve a part of Sydney's natural landscape. Rather, being useless for agricultural or pastoral purposes, it had received little attention, and the use of the land as a 'national domain for rest and recreation' therefore presented no conflict. Indeed at the time, the health of the people was a prime concern.

He went on to explain how, while still providing places for public enjoyment and inspiration, the significance of national parks had broadened to include a wider range of conservation objectives.

The history section of the book referred briefly to the dedication in 1872 of what it referred to as "The world's first national park" at Yellowstone and speculated on whether this had provided inspiration for Royal. Referring to the great difference in locations of the two parks, it concluded that it was more likely that the model for our National Park was parks on the outskirts of the London metropolis such as Hampstead Heath (dedicated in 1872). The authors appear to have been unaware of the acknowledgement in the 1972 Yellowstone centennial publication (Sutton, A. et al 1972) that our National Park was the first national park in the world in terms of the use of the designation 'national park' in its dedication (see Appendix C).

Similar points were made by the National Parks and Wildlife Service in a feature article in the Australian Conservation Foundation (ACF) publication *Habitat Australia*, 7(2), April, 1979. The article, 'ROYAL NATIONAL PARK. One hundred years ago a vision splendid took root in the Sydney Sandstone' noted:

Although the concept of national parks has changed considerably since then, and some of the park's former uses would now be regarded as completely unacceptable,

the principal purpose of Royal is still to provide a spacious tract of natural land within easy reach of expanding urban centres... .

In the 1979 centenary year of (Royal) National Park, the Commonwealth and States around Australia recognised the importance of the event. The Commonwealth dedicated Gudgenby Nature Reserve (now Namadgi National Park) in the Australian Capital Territory. The ACF marked the centenary by declaring 1979 to be 'National Parks Year' (*Habitat Australia*, 7(1), February 1979) and organised a national commemorative programme – a time for stepped-up efforts for new national parks. This programme included celebrating the anniversary with some forty gatherings on World Environment Day in every State and the ACT including an ACF Centenary Walk in Royal National Park (*Tjurkulpa, Newsletter of the Australian Conservation Foundation*, 11(4), May 1979 and 11(5), 1979). In 1979 ACF also decided to publish the inventory of 'Natural Areas of National Significance to Australia' which it had been developing with its membership since 1976. The outcome was the book *Australia's Natural Heritage* (Hutton, 1981). As ACF Director, I introduced an article on the topic in the ACF magazine *Habitat Australia* by saying with regard to National Park's establishment that, "As far as I am aware this was the first time in the world that the term 'national park' had been used in the dedication of an area of public land for conservation" (Mosley, 1979). Since then this fact of history, earlier referred to in the Yellowstone centenary publication (see Appendix C), has been widely publicised in Australian conservation literature and the media – see for instance 'Celebrating National Parks – Nineteenth Century Origins' (Mosley, 2003).

During the process of preparing to nominate the Greater Blue Mountains Area for World Heritage listing in the late 1990s, both the New South Wales and Commonwealth Governments accepted Royal's claim for international 'national park' dedication primacy. The nomination document *The Greater Blue Mountains A World Heritage Nomination 1998*, produced jointly by the New South Wales National Parks and Wildlife Service and Environment Australia, in part justified the claim for the area's protection as cultural heritage by referring to the region's importance in conservation history; it stated that: (page 54) "the first official use of the term national park in the statu-

tory authorisation of a reserve was in 1879 for 'The National Park'; and (page 174) "in 1879 some 7,000 hectares of Hawkesbury sandstone country on the coast just east of the Greater Blue Mountains was dedicated as the first national park in the world – 'The National Park' (later the Royal National Park)". The responsible New South Wales Minister also put out a press release at this time making the same point.

At the Linnean Society of New South Wales Symposium, 'The Natural History of the first National Park', held on 29 September-1 October 2011, Dr Libby Robin examined why the Americans claimed primacy for Yellowstone regardless of the claims of Yosemite and Royal and why Australians did not stand in the way by pressing their own claims at this time. Robin put forward the view that Royal National Park's celebration "was sidelined by international idealism and the construction of a particular 'National Parks idea'" (Robin, 2012).

C. Heathcote National Park

WHEREAS THE GARAWARRA Primitive Area campaign was unsuccessful, things were different at the other site favoured by bushwalker campers close to Sydney. This was the Heathcote Creek Gorge. Although difficult walking country, this valley was also readily accessible from the Illawarra Railway and became popular with members of the Mountain Trails Club and the Sydney Bush Walkers from the late 1920s.

Dunphy in a list of proposed parkland schemes gave the initial proposal date for the Heathcote Primitive Area as 1914 (Goldstein, 1979). He had first visited the area in 1908. Following the failure of their primitive area efforts at Garawarra, the bushwalker conservationists tried a different tactic. In an effort to secure the land against alienation and curb vandalism the Mountain Trails Club, the Sydney Bush Walkers and the Boy Scouts Association all took out special leases in the area. The Mountain Trails Club lease taken out in 1935 at Miara (the 'Miara Sanctuary') covered 34 hectares and two other leases were of a similar size, the four leases totalling 159 hectares. But vandalism continued. In spite of the possibility of a repeat of the Garawarra out-

come, the NSW Federation of Bushwalking Clubs and the Parks and Playgrounds Movement proposed reservation of the area for recreation. As a result, on 13 August 1943, Reserve 70945 of 712 hectares covering Crown land on both sides of the Heathcote Creek was gazetted "for public recreation". Six of the seven members of the panel of trustees appointed in July 1944 represented the interests of walking clubs and the Boy Scouts Association. On 6 October 1945 the reserve was regazetted for "public recreation and the preservation of native flora and fauna" as reserve 71576. The name 'Heathcote Primitive Area' was adopted at the first meeting of the Heathcote Primitive Area Trust held in September 1944 (Somerville and Forbes, 1987). Myles Dunphy was appointed the Trust's first Honorary Secretary, a position he held until October 1961. In 1959 the Blue Mountains National Park had been established and Dunphy had become a member of the Blue Mountains National Park Trust. In 1945 the Trust introduced a permit system for campers.

The condition of the reserve was far from primitive. Within it were the pipeline and the service road from the Woronora Dam (commenced in 1933 and completed in 1944) running the full length of the reserve and also two electricity powerlines. The Mirang Road connected the Pacific Highway to the pipeline road with the Old Illawarra Road outside the western boundary of the reserve.

On 21 November 1947 regulations were published for Reserve 71576 which also stated that the reserve "shall be known as Heathcote Primitive Area". The regulations stated that:

The general policy of the Trustees shall be the management and improvement of the reserve... as a primitive area of natural bushland... for the preservation of its natural scenic bushland characteristics...

This was easier said than done. The location of the reserve close to settled areas and transport routes made control of access very difficult. There were on-going problems with motorists, hut building, flower picking, scout camps, and army manoeuvres from the Holsworthy Military area on the opposite side of the Woronora River. In 1960 a 330 kV transmission line too was built by the State Electricity Commission running the full length of the Primitive Area and through the Souters Mountain area – to the distress of the Trustees.

By 1963 the Heathcote Primitive Area had been enlarged to 1,578 hectares. Its north-western boundary ran from the Woronora Dam spillway along the Woronora River and its south-western boundary on a line joining the Woronora and Westmacott Trig. Stations.

In 1967, with a name change to Heathcote State Park, it came under the control of the *National Parks and Wildlife Act*. Control of the Park was vested in the National Parks and Wildlife Service in December 1972 and the Trust became an Advisory Committee for a short period. In 1974 the reserve's name was changed to Heathcote National Park and later management was carried out in conjunction with Royal National Park. By the time of the 2000 *Plan of Management* for the three Royal Reserves, Heathcote National Park had an area of 2,251 hectares. Included was the NSW Government Railways Dam and Pumping Station (Lake Toolooma). The Woronora Dam Road connecting the Princes Highway with the dam now forms the southern boundary of the park.

D. Garawarra State Conservation Area

THE ESTABLISHMENT OF Garawarra Park, its incorporation into Royal National Park, and the extension of Royal southward of the Gomera Ridge had extended protection for the Hacking River Valley, but much of the upper part of the catchment remained outside the Park, exposing the whole River to adverse environmental impacts. The valley was also important for conservation in its own right since it possessed patches of warm temperate and sub-tropical rainforest and helped to link National Park with the Illawarra Escarpment to the south. Of particular concern to environmental groups was the encroachment of urban areas around Helensburgh into this valley, causing downstream impacts such as siltation, water pollution and spread of weeds. Helensburgh had commenced its life as a tent town for railway workers but in 1888 with the coming of mining by the Metropolitan Company it became a mine workers settlement. By the post-World War II period it had the potential to become a large outer-suburb of Wollongong.

In March 1969 the National Parks Advisory Council recommended that immediate steps be taken to acquire or resume for inclusion in Royal National Park all of the land in the upper Hacking River catchment between the Royal's boundary in the north and east, Stanwell Park in the south, and the railway to the west. A subsequent investigation carried out between 1970 and 1973 recommended the inclusion of a broad band of country comprising the main moist-forest corridor east of Helensburgh in the National Park including Herberts Creek, Gardiners Creek, Cedar Creek, Stuarts Gully and lands north of Camp Gully Creek. The process of acquisition of the land was begun but an administrative bungle in 1975 resulted in major action being delayed until the early 1980s. In the meantime much of the land was bought by private interests, including horse riding and agistment establishments and land speculators. Objections from the Department of Mines created an additional hurdle. Threats of urban expansion and the proposed dumping of coalmine waste in Stuarts Gully (important for its sub-tropical rainforest) led to the production of a report, *The Upper Hacking Catchment A Natural Resource Survey* (NSW National Parks and Wildlife Service, 1985), which recommended a number of options aimed at protecting three major corridors for wildlife movement.

In 1986 the Total Environment Centre (TEC, founded 1972) with the backing of local groups including the Friends of the Hacking River and the Helensburgh District Protection Group produced a comprehensive proposal for a further southern extension of Royal National Park (Total Environment Centre, 1986). The Director of TEC was Myles Dunphy's son Milo (1929-96). The TEC strategy involved a 2,000 hectare extension of Royal National Park, control of urban extension in other areas of the Hacking River catchment, noxious weed eradication, rehabilitation of damaged land, and sewerage proposals. Opposition to the major expansion of Helensburgh was a major plank of the strategy.

In December 1987 a 900 hectare area was reserved that would become supplementary to the Royal National Park. It had two main parts: western, between the Southern Freeway and the Illawarra Railway; and eastern, west of the Hacking River, between the Railway and the Garawarra section of Royal that had been proposed as part of Garawarra Primitive Area Park in 1933. The eastern area consisted of

land secured by the Government in the 1960s and 1970s. In 2006 the name of this reserve was changed to Garawarra State Conservation Area to better reflect the area's conservation values. An outlying reserve known as Kelly's Falls in the uppermost section of the Hacking River catchment was added to the Area in 2008 bringing its size to 949 hectares.

The change in the status of the Area had been under consideration for several years. The Minister for the Environment, Tim Moore, advised Parliament on 30 November 1991 that the area was a logical extension of Royal National Park and that the only thing which had stopped that extension was that Metropolitan Colliery's leases existed beneath it. Based on the misconception associated with the name 'Recreation Area' and the lesser degree of protection involved (revocation not requiring Parliamentary approval) the Minister announced the Government's intention to establish a concept of 'State Conservation Parks' whose boundaries only Parliament could alter. He added that he felt it was the intention of the Government in 1987 that when the Metropolitan Colliery's life ran out the Garawarra State Recreation Area would become part of the Royal National Park.

In 1990 the law was changed to make all prospecting and mining in national parks illegal except where there was an existing interest or by the approval of Parliament. Such protection was not afforded to State Conservation Areas. Mining is permitted in the Garrawarra State Conservation Area on pre-existing leases below a certain depth and the Government can, if it wishes, allow further mining and exploration in State Conservation Areas. The current situation is that although Metropolitan Colliery, owned by Peabody Coal, has consents to mine under the Conservation Area it does not intend to do so at present since it is focusing on extending its operations westward.

Proposals for further residential developments in the Upper Hacking River catchment have been a controversial issue for many decades and continue to be seen as a threat (see Chapter 5). In 1948 the Helensburgh district was part of a failed attempt by means of the *County of Cumberland Plan* (Cumberland County Council, 1948) to establish a "green belt" around Sydney. Development pressure in the Helensburgh, Otford and Stanwell Tops area continues and the

matter of broad planning direction for this critical area has been under review since 2008. The issue of land purchase for addition to the State Conservation Area is also discussed in Chapter 5.

Wollongong City Council resolved on 28 November 2011 not to support the urban expansion of Helensburgh and resolved also to rezone large areas to E2 Environmental Conservation. The Draft Planning Proposal to facilitate this change will be exhibited in late 2012.

CHAPTER 3

The Royal Reserves Legacy

A. A System Of National Parks

THE MOST RECENT National Parks and Wildlife Service plan of management for the three Royal Reserves – *Royal National Park, Heathcote National Park and Garawarra State Recreation Area Plan of Management*, 2000 – sets out the current approach to management of these areas. It is one that has been accepted internationally for national parks for several decades. In the latest classification of protected area management categories (Dudley, 2008) produced by the International Union for Conservation of Nature and Natural Resources (IUCN), ‘Category II: National Park’ areas are defined as:

... large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible spiritual, scientific, educational, recreational and visitor opportunities.

The appropriateness of this to the way Royal and Heathcote National Parks are now managed was confirmed in the Foreword to the *Plan* by the New South Wales Minister for the Environment, Bob Debus, who wrote “this plan gives priority to the protection of the natural values of the park [*sic*] from the impacts of overuse”.

Reflecting on the changes which had occurred in management direction over the preceding 123 years, the section of the plan on the ‘management context’ explained how “physical evidence surviving in the park, together with historical documents, demonstrates the evolving philosophy and practices of recreation and conservation in Australia”, and goes on to mention that Heathcote National Park was “a precursor of the current concept of wilderness areas”.

The fact that there was a wide range of possible park uses at National Park when it was established in 1879 and that an attempt was made to cater for these at various periods, meant that these reserves served as a sorting out place of what was and what was not appropriate in an area with important natural qualities, obvious visitor appeal and a location close to a major city.

Although reasonably large for its time, National Park confronted difficulties in trying to meet different park objectives, particularly from the 1920s on. Such difficulties illustrated the need for larger parks to offer greater scope for nature conservation and unconfined nature-based recreation and for the innovation of reserve classification and zoning. Thus the three Reserves were a forging ground for new conservation ideas.

One of the indirect outcomes of these clashes and the concern over the performance of the park trusts was the reform of the national park administration system. Reference has been made in Chapter 2 to the way in which during the 1930s conservation groups including the National Parks and Primitive Areas Council began to include in their proposals a call for a central system of control of national parks by the Minister and a professional Parks and Wildlife Service. With the passage of the *Fauna Protection Act* of 1949, a precedent was set for the formation of a State-level conservation body which would provide for the appointment of a Fauna Conservation Panel. Agitation for a similar body for national parks was stepped up in the 1960s, a move led by the Nature Conservation Council of New South Wales (founded 1955) and the National Parks Association of New South Wales (1957). However, a critical factor, which led in 1967 to the passage of the *National Parks and Wildlife Act* providing for a National Parks and Wildlife Service and a major expansion of the national parks system, was the interest of the Minister for Lands Tom Lewis (1922-) and particularly his personal experience of the working of the US national parks system.

B. Expansion of the National Parks System

BY FAR THE most influential person behind the expansion of the New South Wales park system, particularly from the 1930s on, was Myles Dunphy (1891-1985). Growing up at Annandale, in Sydney's southern suburbs, he could easily reach the National Park by rail. He and his walking friends took full advantage of the proximity (see Chapter 2). A training in architecture and a talent as a draughtsman gave Dunphy additional potential for the role he was to perform as designer and champion of large national and primitive area projects. In 1922 he became a lecturer in architecture.

From the mid-1920s Dunphy began to develop a more systematic approach to this quest and was increasingly assisted by new bushwalking groups then being formed. Of particular value in advancing and helping develop these proposals was the National Parks and Primitive Areas Council formed in 1933 largely at the instigation of Dunphy. In many ways, with regard to the development of new national park proposals, he played a role equivalent to the one John Muir had played several decades earlier in the western United States (Thompson, 1985). As with Muir, the influence of his efforts extended beyond his specific reservation proposals.

In 1910 Dunphy with other members of the Orizaba Club spent a week at a boarding house at Katoomba in the Blue Mountains and explored local tracks. Then, between 1912 and 1914, he and his walking companions branched further out, making three two-to-three-week-long trips which took them into the heart of the southern Blue Mountains (Mosley, 1999). After the third of these trips, in 1914, Dunphy, Bert Gallop and Roy Rudder formed the Mountain Trails Club. Between December 1919 and April 1920 Dunphy and Roy Davies made a ground-breaking four-month walking trip through South Eastern New South Wales to Harrietville in Victoria, a region also to feature in Dunphy's park projects.

Referring to the "eye and mind opening" experience of these trips in 'The New Conservators' (Dunphy, 1975) Dunphy wrote that they realised:

... how very fortunate they were in being able to enjoy the freedom of a whole scenic rugged region for the joy of exploration and in being able to use it as a living environment... . They realised they were involved in something unique. It seemed that the partly explored and nearly roadless areas of the region, so conveniently situated with regard to Sydney, was a kind of miracle which they hoped would endure. They were firm in their desire as Australian citizens of the outdoors – if this expression held any meaning – to hold onto it for the sake of posterity. If anything was a national inheritance of the people this was it: this big potential National Park would not be frittered or gnawed away piecemeal by commercial enterprises if the bushwalking movement and its conservation friends could prevent it.



Myles Dunphy in bushwalking mode with his 'Dungal' Swag

One significant influence on the development of new ideas by Dunphy and his group was their experience at National Park which they continued to use for weekend and day walks. Between 1908 and 1923 Dunphy made 47 trips to National Park (Thompson, 1986). Here

it was becoming increasingly apparent that with the growing number of car-users and the priority being given to them, that the Park was too small to cater for the needs of those preferring unconfined recreation in truly wild conditions. In addition, supervision was lax, there was cattle trespass in the Park, and in the early 1920s the Trustees had allowed commercial timber getting. Their local remedy for this was the campaigns for primitive areas at Garawarra and Heathcote (see Chapter 2) but their expeditions to the Blue Mountains and the South East (including the Deua and Moruya River areas) had opened their minds to wider possibilities. A special urgency for conservation on Crown Lands arose from the cutting of timber at places like the Blue Gum Creek and the Little River area west of the Picton Lakes, a gateway into the Southern Blue Mountains. Dunphy had previously told the Forestry Commission about magnificent stands at this latter place, so its subsequent logging came as a rude shock to him.

Dunphy witnessed similarly destructive logging operations on his 1926 honeymoon canoe trip on the Hastings, Maria and Wilson Rivers west of Port Macquarie. However, it was the discovery by a party led by Alan Rigby (a member of the Mountain Trails Club and the Sydney Bush Walkers) into the Grose Valley over Easter 1931 that acted as the main trigger for the further development of Dunphy's schemes for the Blue Mountains which, with other park schemes, he had been discussing with his colleagues since 1924. Here, in spite of conservation efforts in the previous century (see Appendix C), ring-barking of Blue Gum trees was occurring on a 16 hectare lease where the owner intended to graze cattle and grow Walnuts. A Blue Gum Forest public fundraising effort secured the area and in 1932 the Lands Department reserved it for conservation under the management of bushwalker trustees.

There were other threats in the Blue Mountains region, including the Metropolitan Water Board's plans for a closed catchment for a large urban water supply dam in the Burragorang Valley and a Blue Mountains Shire Council proposal for the building of a road on the scenic Narrowneck Peninsula, the main gateway for bushwalkers entering the southern Blue Mountains from the Katoomba district.

In 'The New Conservators', Dunphy (1975) relates how, with regard to the Blue Mountains proposal, "about 1924 the complete tentative

design for the rather frightening national park scheme" was approved as a proposal at a Mountain Trails Club meeting and then discussed intermittently over the next 8 years. He records that there were 12 major park projects being furthered in the 1920s. Dunphy, who described himself as *architect, conservator, topographer and bushman*, was particularly aware of the value of maps both for assisting walkers and, as he put it, "to establish a legitimate use of scenic country for future park-land purposes".

A Christmas 1930 trip to the New South Wales-Victoria border region of the Australian Alps also opened Dunphy's eyes to the possibility of a twin state Park and on 17 April 1931, in a talk to the Mountain Trails Club, he outlined his idea for a 'Snowy-Indi Primitive Area' including Mt Kosciusko and the Cobberas, with western and eastern boundaries, respectively on the Murray River and the Snowy River.

Precisely what influence the Blue Gum Forest campaign had on the events which followed is not known but in 1932 Surveyor-General B.H. Mathews, aware of the Blue Mountains National Park proposal, invited Dunphy to submit it. On 12 June Dunphy submitted the Scheme to the Blue Mountains Shire Council, which responded quickly and sympathetically, before, five days later, lodging it with the Surveyor-General.

To aid the campaign for the Park, Dunphy moved to set up a Blue Mountains National Park Committee. When it was realised that this name was hardly an appropriate one for the furthering of the other dozen or so park schemes, on 27 October 1933 the National Parks and Primitive Areas Council (NPPAC) was formed (Mosley, 1999). The short published statement concerning the Council's 'Objects and Scope of Work' set out as the first Object:

To locate and plan areas suitable for national parks, state parks, primitive area reserves, camping and water reserves, national monuments, tourist developmental areas and necessary scenic tracks, and to promulgate schemes for the establishment of these national necessities.

A pamphlet explaining the concepts of national parks and primitive areas was published in the following year by the NPPAC and the NSW Federation of Bush Walking Clubs (National Parks and Primitive Areas Council, 1934).

The NPPAC was the first voluntary group in the world with an express major wilderness conservation objective.

Publicity was sought for the Blue Mountains Scheme in a number of ways one of which was the inclusion of a 'Blue Mountains National Park Special Supplement' in the *Katoomba Daily* on 24 August 1934, paid for by the NPPAC (National Parks and Primitive Areas Council, 1934). Two thousand extra copies of the Supplement were produced for campaigning purposes. It included a map of a *Blue Mountains National Park with "Primitive-Areas"* (see Fig. 6) and a time-line for the park project beginning, "1922-32: Blue Mountains NSW". The proposed park was estimated to cover 450,000 hectares, larger than any national park in the United States other than Yellowstone. The text defined four 'primitive areas' in the Southern and Central Divisions of the Scheme.

A revised version of the Scheme, supported by both the NPPAC and the New South Wales Federation of Bush Walking Clubs was publicly exhibited in 1935 and 1936 (Mosley, 1999). Major supporters of this and other park and primitive area schemes in the 1930s in addition to the Federation of Bush Walking Clubs (which established a Conservation Bureau in 1938), included the Wildlife Preservation Society of Australia (founded 1909) and the Parks and Playgrounds Movement (founded 1930). Dunphy continued to use his map production efforts to good effect for five decades, using them both to advance the park schemes and provide help for bushwalkers inserting new place names as they were agreed to (see Dunphy, M.J., Appendix D).

This grand plan took many decades to take shape on the ground and is still evolving. Additional areas were secured as National Park particularly in the north (e.g. Wollemi National Park). Details of the history can be found in *Blue Mountains for World Heritage* (Mosley, 1989), *Battle for The Bush* (Mosley, 1999) and *Blue Mountains World Heritage* (Colley and Gold, 2004). Dunphy and the NPPAC had never expected anything other than a staged approach to the park's establishment but the delays meant that during the waiting time many campaigns had to be fought to prevent destructive activities, including efforts to prevent limestone quarrying and logging in the 'Southern Division' of the proposal, mining in the proposed Nattai National Park section of the proposal, the building of dams in the 'Northern Division' on the Colo

and Wolgan Rivers, and the routing through the area of a natural gas pipeline. All of these proposals were defeated.

By the 1960s there were other strong supporters of national park schemes in the Blue Mountains and elsewhere, including the Nature Conservation Council of New South Wales, the National Parks Association of New South Wales, the Australian Conservation Foundation (formed 1965) and the Colong Committee which was initiated at a meeting convened by Myles Dunphy's son Milo Dunphy (1929-96) in May 1968. Myles Dunphy served as its first Patron.

In 1976 the Colong Committee, supported by the National Parks Association and groups in the Newcastle and Hunter Valley area, sponsored the formation of a joint committee which extended the boundary of the Greater Blue Mountains proposal to include a large area to the north stretching to the Hunter Valley.

The grand scheme of Myles Dunphy and the NPPAC began to take shape with the establishment in 1959 of the 62,000 hectare Blue Mountains National Park in the 'Central Division' of the proposal. In 1961 Dunphy re-presented the main part of the Southern Division in the form of a proposal for a 'Kanangra Boyd National Park' (Dunphy, M. J., 1971). This 39,749 hectare national park was established in December 1969. The Blue Mountains National Park was further extended in 1977, 1985 and 1987. In 1987 the Kanangra Boyd National Park was extended to 63,379 hectares.

From its formation in December 1974 the campaign for the protection of the Colo Gorge was led by the Colo Committee. The establishment of a 502,000 hectare Wollemi National Park was announced on 24 April 1979, two days before the 100th anniversary of the founding of the National Park. Initially this park had been restricted to land above a depth of 400 metres (to allow for deep mining). Compromises over this, led to the declaration of a smaller national park of 453,500 hectares in December 1979 (extended to cover 499,879 hectares by 1998). Mining in national parks at all depths was eliminated by legislation passed in 1990. Other national parks established in the Blue Mountains included the Nattai National Park in December 1991 and the Gardens of Stone National Park in November 1994.

By 1998 the six national parks related to Myles Dunphy's grand Blue Mountains proposal covered 876,744 hectares, nearly double the size of the 1932 proposal. By this stage the progress had taken on an additional significance since in 1986 the Colong Foundation for Wilderness (operating with this name from 1985 – the first Australian wilderness group) had initiated a campaign for World Heritage recognition for the Blue Mountains. This resulted in a ten-year period of assessment. A consultancy undertaken by the Royal Botanic Gardens in 1993 produced the 1994 report *An Assessment of the World Heritage Values of the Blue Mountains and Surrounding Plateaus* (James, 1994).

The report found that the area would most likely meet all four of the natural property selection criteria and four of the six cultural property criteria for the World Heritage List and that the case would be enhanced by the inclusion of the coastal sandstone areas, including possibly Royal and Ku-ring-gai National Parks, which had not been assessed. The criteria identified in this report as being applicable to the Blue Mountains were similar in number to those listed for the Tasmanian World Heritage Area as originally listed in 1982. In June 1998 a property with the name of 'The Greater Blue Mountains Area', comprising eight protected areas with a total area of 1,032,649 hectares, was nominated on the basis of three natural selection criteria and one cultural criterion. This area was included in the World Heritage List on 29 November 2000 on the basis of only two values, both concerning the area's bio-heritage.

As far as Myles Dunphy's proposal for the Snowy-Indi Primitive Area was concerned, things began to move forward in April 1943 when Myles was invited by the Lands Department to lodge a submission for the reserve. This was submitted in June 1943 after which copies were also sent to the Premier and Ministers for a proposal which was now titled the 'Snowy Indi National Park'. Like the 1931 preliminary design and a version shown at the Rangers' League Bushland Exhibitions in 1935 and 1936, this proposal involved land in both New South Wales and Victoria. Its boundaries closely resembled the 1930s proposal, with the snow leases for grazing excluded.

In the course of making his submission, Dunphy learnt that Gordon Young, the National Fitness Council's Director of Physical Education,

inspired by National Parks in the Canadian Rockies, had also developed a proposal for a much larger national park of 810,000 hectares including the snow leases. What was not known to both proponents was that there was another imperative for the Government – the protection of the catchments of a future Snowy Mountains hydro-electric power scheme. The driving force behind this scheme was the Premier, Sir William McKell (1891-1985) who served as New South Wales Premier from 1941 to 1947 (see Mosley, 1988, 1989 a) and 1989 b)). In correspondence with the Premier, Dunphy objected to the continued existence of State Forests within the Park, called for the making of provision for a primitive area in the Park and for the inclusion of land on the east side of the Snowy River, and, if grazing was to be permitted, for the term 'State Park' to be used for the new park.

The compromise outcome, allowing for the continuation of the grazing leases and making specific provision for the establishment of a primitive area, was the decision to legislate for the establishment of the Kosciusko State Park under the control of a State Park Trust. The Park was proclaimed on 5 June 1944. In 1967 it became the 535,000 hectare Kosciusko National Park. Included in the extended boundary was the Black Jack Byadbo area to the east of the Snowy River.

South of the border things were developing much more slowly. Dunphy's June 1943 proposal for a cross-border national park had been rejected by the Victorian Department of Lands and Survey. However, the NPPAC approach had not fallen on deaf ears as far as the conservation movement in Victoria was concerned. On the initiative of the Federation of Victorian Walking Clubs a conference on conservation reserves was held in July, 1938 which established a Classification Committee to zone land into 'primitive areas' and surrounding 'tourist open areas'. The Conference also resolved that Wilson's Promontory National Park be kept as a primitive area and free from grazing. The Conference was primarily held to plan a meeting with the Minister for Lands and Forests and in August 1939 this 'Deputation re Primitive Areas and National Parks' met the Minister. It argued for primitive areas in both the Eastern Highlands areas over 3,000 feet (1,221 metres) and in the west of the State over 2,000 feet (814 metres).

World War II interrupted further progress in Victoria, and, when it was over, work recommenced on a major new park in the north-eastern uplands of the Alps. A Victorian Alpine National Park of about 500,000 hectares was proposed in the Town and Country Planning Association's National Parks Committee's June 1949 report *National Parks in Victoria*, but it did not extend to the border. The case for a National Alpine Park embracing parts of the high country of both States and the Australian Capital Territory was put by the Australian Conservation Foundation in its 1969 Viewpoint publication *The High Country* (Australian Conservation Foundation, 1969), but this also was too visionary to be taken seriously. It was not until 1988 that the Cobberas-Tingaringy National Park, embracing part of Dunphy's Snowy-Indi proposal, came into being. Two years earlier the two State Environment Ministers and the Federal Minister for the Environment announced the signing of a *Memorandum of Understanding concerning the co-operative management of the Australian Alps National Park* covering 1.2 million hectares.

In the August 1934 Special Supplement to *The Katoomba Daily*, the NPPAC wrote approvingly about how as "A Miracle of Foresight" the United States had responded to the extraordinary vehicular-borne tourist invasion by creating more reserves. The Royal centenary publication *Australia's 100 years of National Parks* (Goldstein, 1979) included tables listing the fourteen proposed parkland schemes of the National Parks and Primitive Areas Council which had been 'achieved' by 1962, and those which were unfinished by that date. Several of the latter had become realities by the time of the Centenary, including: the Barrington Tops National Park (1970); the Murramarang National Park (1973); Werrikimbe National Park (1977); the Budawang National Park (1978); and the Deua National Park (1979). The title Dunphy gave to his 1975 reflections on these several decades of conservation effort – 'The New Conservators' – accurately reflects the influence these individuals and groups had on a park system expanding enormously from its Nineteenth Century roots.

C. Establishment of the Wilderness Area System

THE NATIONAL PARKS and Primitive Areas Council, formed in 1933, pioneered the concept and practice of wilderness protection in Australia. In addition to its object (set out in the NPPAC 'Objects and Scope of Work') of locating and planning 'primitive area reserves' its third object was:

To advocate the planned division of national parks into primitive areas and tourist developmental areas (without actual boundaries) for the effective, just and lasting satisfaction of all interests, including minority interests.

The NPPAC's *Katoomba Daily Supplement* of August 1934 was the most important manifesto on recreation-based conservation ever produced in Australia. It set out in detail the value of wilderness and the needs of the walkers, all within the context of their contribution to regional planning and conservation generally. In a personal message in the Supplement the President of the New South Wales Federation of Bush Walking Clubs, W.J. Roots, urged recreational walkers to mount an organised conservation effort.

The Supplement, under a heading 'Just Think', spoke of "the humanising gifts of Nature", and presented the basic argument for action:

We cannot really live for commerce alone, nor will our civilisation be deemed great until we thoroughly recognise the fact that our bushlands and all they naturally contain are gifts of nature far transcending in value all monetary and commercial considerations.

In a bordered piece headed 'Equilibrated Minds and Wilderness', signed 'Barron Thurat', Myles Dunphy wrote that "more significant" than "the great national parks":

... is the demand for really "primitive-areas" – great portions of huge national parks wherein no roads may be constructed, no buildings erected, and no other "improvements" are allowed.

In another bordered piece, headed 'Prescience', Dunphy wrote:

It behoves the acknowledged experts to indicate suitable areas and the Government to set them aside in time, before alienation can take place or the wilderness qualities be leased away for ever;

A primitive area was defined as:

An area of primitive wilderness, compact in shape and extensive, so that one may be able to travel on foot in any direction for at least a full day without meeting a road or highway (American definition). It must preserve its natural characteristics and adjuncts in plant life, wildlife – in every way, and must be roadless but not necessarily trackless ... Those things which are aids to the destruction of true wilderness must be eliminated or prevented, viz. roads, bridges, accommodation houses and settlements, etc.

The Supplement proposed four primitive areas in the Blue Mountains National Park: Kowmung-Kanangra-Wild Dog Mountains; Blue Labyrinth; Nattai Tableland; and Grose Valley. No proposal was made for the Northern Division of the proposed park which was described as “extremely rugged and on the whole very little known”.

Dunphy’s reference in the *Katoomba Daily* to the extensive primitive area system being developed within the United States National Forests, shows that he was well aware of the progress being made there. Before 1929 the term used for these National Forest administrative designations by the US Forest Service was ‘wilderness area’. From 1929 to 1939 this was replaced with ‘primitive area’ before the Service reverted to ‘wilderness area’, the current term. We shall probably never know to what extent Dunphy drew on and was inspired by the ideas of the main US wilderness/primitive area proponents, notably Aldo Leopold (1887-1948), Arthur Carhart (1892-1978) and Robert Marshall (1901-39). Both Leopold and Marshall were foundation members of ‘The Wilderness Society’ formed in the United States in early 1935.

What we do know is that Dunphy, from his experience at National Park, Garawarra and Heathcote, like his US counterparts, recognised the imminent threat of rapidly expanding motor vehicle use to the survival of the wild, and he worked out a similar solution to the problem in the form of primitive area reserves. He also pioneered the idea of primitive area zones in national parks as well as an urgent plan of action for both.

In the IUCN classification (Dudley, 2008) the definition for ‘Category 1b: Wilderness area’ is:

... usually large unmodified or slightly modified areas, retaining their natural character and influence, without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition.

The ideas for more and larger national parks and for primitive areas became more urgent when it was realised that the needs of walkers and nature conservation could not be met by a few parks such as National Park and Ku-ring-gai Chase which were increasingly being affected by motor tourists. The failure of the Garawarra project, the partial success at Heathcote and the possibilities opened up in the Blue Mountains helped to show the way forward. In 'The New Conservators' (1975) Dunphy wrote about how the Garawarra and Blue Mountains park proposals were contemporaneous:

... the genesis of each was gradual, brought about by bushland recreation use of the land by the Mountain Trails Club in Garawarra and in Central and Southern Blue Mountains from 1912 and 1913... By the campfires at Garawarra the young fellows of the MTC... talked about how to protect their bushland recreation environment on the coast and in the Mountains... it could be said that their comprehension of the situation occurred about 1920 when it became obvious that walkers would have to give up use of roads. The increased number and speed of motorists made roads dangerous for pedestrians and pedal cyclists.

The first time 'primitive' was used in the name of a reserve for one of Dunphy's primitive reserve proposals was for the 3,117 hectare 'Tallowa Primitive Reserve', set aside for public recreation and the preservation of native flora and fauna with this name in March 1934 as a result of a local initiative. It was later renamed the 'Shoalhaven River Gorge Primitive Reserve'. In September 1938 it was incorporated into the 18,219 hectare Morton Primitive Reserve following representations by local MP Mark Morton (Mosley, 1999). The reserve which its trustees named 'Heathcote Primitive Area' was gazetted in 1943.

The fear which the NPPAC had about the destructive force of roads was realised with the 1937 proposal for the upgrading to motor car standard of the 34 kilometre track from Jenolan Caves to Kanangra Walls which was within the proposed Kowmung-Kanangra-Wild Dog Mountains Primitive Area. All efforts failed to prevent the road construction, including a proposal for a separate Primitive Area reserve around Kanangra Tops. The road was completed in 1940.

The provision in the 1944 *Kosciusko State Park Act* for the setting aside of a primitive area was probably the first legislative provision of its kind in the world. In the United States before the implementation after

1964 of a 'National Wilderness Protection System', wilderness areas in National Forests were zoned by means of an administrative decision, and in the National Parks no formal wilderness areas were zoned. The Kosciuszko legislation provided that the State Park Trust "may retain as a primitive area such part thereof (not exceeding one tenth) as it may think fit". However, "primitive area" was not defined in the Act. The term has to be seen in the context of the preferred term "State Park", which meant an inferior approach to eliminating conflicting land-uses than was required for national parks.

The State Park designation proved to be a major problem because it brought into the open some major differences among conservationists with regard to the purpose and management of primitive areas. Another organisation with an interest in this matter was the Royal Zoological Society (RZS) which, founded in 1879, had played a role in the establishment of National Park by arguing for 'acclimatisation'. RZS, with a very different idea about the role of protected areas and being concerned about the damage caused by grazing in the Snowy Mountains, favoured a smaller but purer park managed as a nature reserve, with camping by permit only and covering 10% of the proposed park. Its principal concern being nature conservation, the RZS was impressed by the strict nature-conservation model approved by the 1933 Conference for the Protection of Fauna and Flora in Africa (London Conference). Its point of view, conveyed to Premier McKell in December 1943, was another reason why statutory provision was made for a primitive area in the *Kosciuszko State Park Act*, 1944.

The Wildlife Preservation Society also wanted the primitive area to be primarily a wildlife refuge and this view was shared by the Federation of Bush Walking Clubs largely because of its preference for the viewpoint of its vocal Secretary Marie Byles, who expressed the belief that, in a primitive area, nature should be conserved for its own sake and hence should be closed to public access.

There were also differences over the location of the primitive area. The NPPAC and the Parks and Playground Movement favoured a location in the southern part of the Park, south of Dead Horse Gap where there were no grazing licences, while the RZS preferred the Main Range (Kosciuszko Plateau and the Western Fall). The latter location

also appealed to The Linnean Society of New South Wales, another interested scientific group (founded in 1874); it felt it would be a means of controlling ski resort and tourism development which was now beginning to affect the highest parts of this alpine area. The leader of the Linnean Society's involvement, which included the carrying out of a reconnaissance survey to help the Trust decide on a site for the primitive area, was geologist Dr W.R. Browne whose concern was the preservation of the glaciated landforms of the Main Range.

Initially, NPPAC had some success on the location issue. A Conference convened by RZS in November 1944 at Dunphy's suggestion, recommended that the primitive area should comprise four sites in the south covering 16,187 hectares. It also recommended that the whole of the high tops area north to Mt Jagungal be reserved from development pending scientific advice. A meeting of the groups and the Trust took place in March 1945 but was unable to agree on either the purpose or the location; so the matter of establishing the primitive area was deferred by the Trust.

The various viewpoints expressed during the 1945-46 split over the Kosciusko Primitive Area issue are of interest in relation to the future of wilderness conservation. In essence, Dunphy and the NPPAC argued that not only do bushwalkers do no harm to nature in primitive areas but they have a natural disposition to be protective of it. Marie Byles (1945 and 1946) expressed the view that to preserve nature so that mankind might enjoy it was selfish. Even though, as she conceded, the bushwalkers would not ruin it they would have some effect and there would inevitably be demands for tracks and huts even though roads and motorists were excluded.

At the level of fundamental differences in this debate, Myles Dunphy saw humans as a part of nature, returning to it and benefiting in health and education from the experience, whereas Marie Byles viewed nature as a separate living thing with 'rights of its own' and saw leaving primitive areas completely alone as a way of compensating for the damage humans were doing elsewhere. They were, however, at one in believing that primitive areas could contribute to a more general change in human attitude to nature. What they differed on was how they could do this.

These differences, and particularly the withdrawal of support by the Federation of Bush Walking Clubs, upset Dunphy and the NPPAC. The momentum had been lost and the stage was taken over by the Sydney scientific groups which stood by their strict access policy and their preference for locating the primitive area on the Main Range. The NPPAC finally became inactive, about 1962.

Another important player in the second half of the 1940s was the Wildlife Preservation Society which successfully worked for a specialised reserve system for fauna. The *Fauna Protection Act* of 1948, which made provision for fauna reserves “for the protection of fauna and the protection and study of fauna”, provided (section 9) that two of the reserves should be “primitive or natural areas”. Of its Second Reading, explaining this provision, the Acting Premier had said these were “areas where the movement of persons and the carrying out of activity is properly supervised and controlled and emphasis is on conservation for conservation’s sake”.

Things began to look up for wilderness conservation in 1954 when the Federation of Bush Walking Clubs circulated a definition of ‘primitive area’ which indicated a move towards acceptance of the NPPAC concept. With regard to recreational use it concluded:

No permanent settlement, no tourist roads, and no building, except for Rangers or Naturalists, would be permitted. Camping, hiking and bush-walking and trail-riding would be permitted if such did not interfere with the fauna or flora.

There were indications also that the Wildlife Preservation Society was coming round. However, Editor David Stead, wrote in *Australian Wildlife* in March 1954 that he preferred the “old and tried term” ‘wilderness’, because “there can be no misunderstanding of what the word stands for”.

The hiatus in the development of the primitive area proposals for the Snowy Mountains came to an end in early 1963 with the proclamation by the Kosciusko State Park Trust of the Kosciusko Primitive Area and moves thereafter to establish wilderness areas in the Park. Because Kosciusko has proved to be the nursery of wilderness area conservation in Australia, the story of these events is of national and international significance.

Several factors combined to bring about a renewal of action on the primitive area campaign but in the end the crucial factor was the desire of the Kosciusko State Park Trust to protect the Main Range against the proposed high-level engineering works of the Snowy Mountains Hydro-electric Scheme (launched in 1949) and against winter resort development on the highest areas – but the Trust had to be convinced to act. The leading convincers were the scientists including Dr Browne and the Australian Academy of Science but a valuable friend at court was State Park Trustee, Baldur Byles.

In 1961 the arguments of the Canberra scientists for a primitive area to protect the Main Range were published by the Australian Academy of Science in the *Australian Journal of Science*, 23 (12), titled 'The Future of the Kosciusko Summit Area: A report on a Proposed Primitive Area in the Kosciusko State Park'.

In January 1963 the Trust finally grasped the nettle and declared a 25,100 hectare Primitive Area over the summit country and the 1,768 metre Western Fall of the Main Range (the highest land and one of the biggest slopes in Australia). The building of the Snowy Scheme's head works, including the proposed Kosciusko Reservoir, was blocked, but as a compromise the Snowy Mountains Authority was allowed to build the Geehi Aqueduct within the Primitive Area on the western side of the Range. As a concession, the first section of the aqueduct was placed in a tunnel. Grazing had been eliminated from a 9,700 hectare area around Mt Kosciusko in June 1943; but not until 1958 was this extended to cover all grazing above 4,500 feet (1,372 metres).

Although the Kosciusko Primitive Area was blemished by the Geehi Aqueduct it did take the wilderness cause a considerable step forward. The implementation of this legislative provision preceded by a year the passage in the United States of the *Wilderness Act* of 1964 which provided for statutory protection in a federal 'National Wilderness Preservation System' of wilderness tracts in National Forests, National Parks and Wildlife Refuges. That legislation had followed seven years of hearings in Congress and the production of a comprehensive report, *Wilderness and Recreation – A Report on Resources, Values, and Problems*, made to the Outdoor Recreation Resources Review Commission by The Wildland Research Center (1962). The report included informa-

tion on the history of the wilderness idea, the results of an inventory of wilderness tracts over 100,000 acres, and expressed the need for legislation to secure wilderness. The US *Wilderness Act* designated 54 areas as wilderness covering 3.7 million hectares. It provided for the inclusion of wilderness areas (with a minimum size of 5,000 acres) into the System to be by act of Congress.

The leading role in wilderness protection in the Snowy Mountains region from 1963 onwards was played by State Park Trustee Baldur Byles. A bushwalker and professional forester, he was well aware of the wilderness designations in the US National Forests but it was the declaration of the Kosciusko Primitive Area and subsequent contact with Myles Dunphy that led him to undertake an activist role. Byles enlisted the support of the outdoor clubs for his campaign and one of these, the Canberra Walking and Touring Club (renamed Canberra Bush Walking Club in 1965), made a submission in 1964 on behalf of the majority of Canberra outdoor clubs to each member of the Kosciusko State Park Trust, proposing a comprehensive zoning system for the Park, including wilderness areas. There was also by now wider sympathy for the protection of wilderness in the Lands Department. A Parks and Reserves Branch had been established there in 1962 and in that year Howard Stanley, the Administrator of the new Branch, had attended the First World Conference on National Parks in the USA where he had been exposed to the ideas long formulated in the US for wilderness as a separate protected area category. Speaking at a National Parks School at the University of New England in Armidale in February, 1964 Stanley said it "is obvious" that "wilderness is becoming more and more a basic park resource and an essential factor in park use" (Stanley, 1964). By now there was a strong move under way for a National Parks Act for New South Wales and Stanley said that the intention was to provide for wilderness area reserves in national parks and for separate wilderness reserves, and that the first wilderness reserve had already been earmarked.

While work on state legislation for national parks continued under Tom Lewis (Minister for Lands 1965 to 1974 and Premier 1975-76) the State Park Trust was working on a management plan for the Park including a zoning plan as suggested by the Canberra outdoor clubs.

A draft interim plan, *General Plan for Preservation and Development of the Kosciusko State Park*, was completed by the Park Trust (with Lewis as Chair) in July 1965 and placed on public exhibition in November 1965 as a *Proposed Plan* (Kosciusko State Park Trust, 1965) until April 1966. In August 1966 the Trust appointed a Resources Management Committee (RMC) to advise on the proposed park zoning plan. The Committee appointed the Canberra Bush Walking Club to act as a field survey unit and it produced an illustrated report for the RMC. The October 1967 report of this Committee (Kosciusko National Park Trust, 1967) recommended four wilderness zones: Bogong Peaks, Goodradigbee, Jagungal, and Pilot. These covered a total of 242,811 hectares or 45% of what was by then, with the passage of the *National Parks and Wildlife Act*, 1967, the Kosciusko National Park.

In substantive sections on 'Wilderness Areas and Their Management' and 'General Criteria for Management of Large Wilderness Areas and Nature Reserves' the Report laid the foundations for the selection and management of wilderness in Kosciusko and elsewhere in Australia. The RMC recommendations were very much an affirmation of the concepts of Myles Dunphy and the NPPAC. Two reasons were given for wilderness areas: first, the belief that they would be "the keystone of the planned attempt to restore and preserve the naturalness of the national park", and second, the awareness that "large wilderness areas offer particularly favourable conditions for preserving natural country and for unconfined recreation and science". With regard to the distinctive recreation experience offered by wilderness the report said:

Perhaps the most distinctive opportunity a wilderness area can offer is the chance for people to experience solitude, quiet, beauty, a sense of adventure and feelings of remoteness from civilisation in a completely natural place.

The RMC said it had given this designation only for large primitive roadless tracts. The proposed boundaries were set back a mile from roads but it was recommended that the strip between the boundary and the road be managed in sympathy with the wilderness area.

The *Proposed Plan* and the RMC Report had done the spade work on the zoning plan. They served as a national trail blazer for wilderness zoning in national parks. But the decision to establish state-wide leg-

isolation for parks and wildlife and to upgrade Kosciusko to a national park meant that the finalisation of the plan was postponed.

The next crucial target was to have specific provision made for wilderness in new national parks legislation, which was under consideration since 1962. The legislation was redrafted after Tom Lewis became the responsible Minister in April 1965. Efforts were made by conservationists including Myles Dunphy to persuade Lewis to make legislative provision for both wilderness zones and wilderness parks (Mosley, 1966 b). Zoning by way of master plans was attractive to the Government because it made alteration easier. A compromise was to at least make express provision in the Act for a whole national park to be zoned as wilderness.

The new legislation when it was proclaimed in October 1967 became the most progressive piece of nature conservation legislation in Australia and a model for subsequent state and federal laws. It provided for the appointment of a National Parks and Wildlife Service and for parks to be revokable only by Act of Parliament. The inspiration for the chosen administrative arrangement was the US National Parks Service which Tom Lewis was familiar with because he had spent time from 1946 to 1951 on the staff of the Australian Embassy in Washington. The new legislation in fact epitomised the preferred option advocated by Myles Dunphy and the NPPAC since the 1930s.

With regard to wilderness the Act provided (section 29(3) (f)) for the *setting apart of the whole or part of a national park or state park as a wilderness area*. As a result the security of wilderness designations would depend upon the efficacy of the management planning process. In spite of all the work that had been done at Kosciusko National Park the first wilderness area was not established there but at Kinchega National Park in the State's Western Division, where in the 1972 management plan for the 70,820 hectare park three-quarters of it was zoned as wilderness. Much more widely publicised and influential was the provision for four wilderness zones in the management plan for Kosciusko National Park, published in 1974. These – the Pilot, Byadbo, Jagungal (including the Kosciusko Primitive Area), and Goodradigbee (in four parts including Goobarragandra or Fiery Range) – totalled 330,000 hectares or 54% of the Park, an increase of 9% over the proposed wil-

derness areas in the Resources Management Committee proposal of 1967. Wilderness areas were defined as "large tracts where man's disturbance has been minimal and the landscape and vegetation is essentially in a natural condition, supporting a harmonious balance of wildlife". Prohibited, except for management purposes, were: public vehicular roads; mechanised forms of transport; construction and/or use of further pipelines; communication system equipment; and the grazing of domestic and feral livestock.

In 1974 the *National Parks and Wildlife Act* was amended to allow under section 59 for wilderness areas to be declared as well as being set aside in plans of management. The Act was made to apply also to nature reserves, which paved the way for the expansion of the nature reserve system. In spite of this it was still possible under the legislation for a wilderness declaration to be revoked wholly or in part by the Director of the Service.

Later revisions of the Kosciusko Management Plan in 1982 and 1988 saw some see-sawing of the wilderness area boundaries including the removal of the Kosciusko Alpine Area (the former Primitive Area) from the Jagungal Wilderness Area and the two easternmost components of the Goodradigbee Wilderness Area. In October 1982 all four wilderness areas were declared under section 59. Following representations by the Colong Committee the 1988 Plan restored the easternmost section of the former Goodradigbee Wilderness as the Bimberi Wilderness. By this stage the wilderness areas totalled 273,200 hectares or 39% of the Park.

Having led the way in Australia with regard to several aspects of conservation, New South Wales, not surprisingly, was the first state to develop special legislation for wilderness protection. The decision of the environment movement to campaign for this legislation originated from two main sources, the Sydney-based Colong Committee, and the Melbourne-based Australian Conservation Foundation. The latter had initiated a series of national wilderness conferences with an inaugural meeting in 1977. In 1985 the Colong Committee, having adopted the role of "A national wilderness society", changed its name to the Colong Foundation for Wilderness and set up the 'Myles Dunphy Fund for Wilderness' for the purpose of acquiring land for wilderness protec-

tion. The other great fillip to the national wilderness movement was the 1983 blocking of the building of the Gordon below Franklin Dam in the Tasmanian World Heritage Area.

One of the major outcomes of the third National Wilderness Conference, held at Katoomba in the Blue Mountains in September 1983 in the aftermath of the Franklin victory, was the establishment of a National Wilderness Coordinating Committee.

In New South Wales by 1984 the declaration of wilderness areas under section 59 had stalled with no declarations having occurred since 1982-83. There was for instance not a single declared wilderness area in the Blue Mountains, one of the cradles of the wilderness protection idea. In March, 1984 a delegation from the Colong Committee met the Minister for Planning and the Environment, Bob Carr (1947-), and suggested legislation along the lines of the US *Wilderness Act*.

In May 1985 the Minister set up a Wilderness Working Group which reported on May 1986. The Working Group identified 36 areas with wilderness values. The outcome after exhibition for public comment was the passage in December 1987 of the *New South Wales Wilderness Act*, the first of its kind in Australia. It provided for a nomination process (section 7), assessment and Ministerial declaration of wilderness areas identified as suitable by the Director of the National Parks and Wildlife Service (section 8), and revocation only by Act of Parliament.

A 'wilderness area' was defined in the Act as:

- a) *The area is, together with its plant and animal communities, in a state that has not been substantially modified by humans and their work or is capable of being restored to such a state;*
- b) *the area is of sufficient size to make its maintenance in such a state feasible; and*
- c) *to permit opportunities for solitude and appropriate self-reliant recreation.*

Declaration of wilderness areas under the Act was affected by political factors for a number of years but the work of the conservation movement on inventorying and nominating wilderness areas continued, the lead being taken by the Colong Foundation for Wilderness, which in November 1991 instigated a *Wilderness Red Index*.

By March 1994 the Parks Service had identified 27 wilderness areas totalling 2,217,409 hectares; but by March 1995 only 651,895 hectares

had been declared under the *Wilderness Act*, most of it being areas previously protected in national parks under section 59.

The election of the Australian Labor Party to Government under Premier Bob Carr (1995 to 2005) in March 1995 unlocked the wilderness declaration gates. In addition, in March 1996 the 'Dunphy Wilderness Fund' was reactivated with a \$5 million grant commemorating both the pioneering work of Myles and the leadership provided by his son Milo.

In the Blue Mountains in 1991 the Nattai National Park and Wilderness Area were declared simultaneously. This was followed in February 1997 with the declaration of a 100,983 hectare Kanangra Wilderness. However, the largest wilderness area in this region, and the largest in the south-east of the Australian mainland, was the wilderness in the Wollemi National Park. In March 1999, following a two year campaign, a 361,000 hectare Wollemi wilderness area was declared.

In the late 1990s the 'Comprehensive Regional Assessments' of the Commonwealth State Regional Forest Agreements also helped with wilderness identification in forested areas across Australia.

In May 2001, Environment Minister Bob Debus announced the proclamation of the 37,901 hectare Grose Wilderness together with a \$5 million boost to the Dunphy Wilderness Fund. By March 2003 declared wilderness totalled 1,836,400 hectares, a third of the NPWS estate and 2.2% of the State. The Wilderness Fund had by that date resulted in the acquisition of 32,000 hectares. By August 2011 declared wilderness covered 2,084,640 hectares and the Dunphy Fund had been responsible for the acquisition of about 67,792 hectares.

Other Australian states were influenced by the NSW reforms (since 1967) to change their arrangements for administration of national parks and wilderness areas. Tasmania set up a National Parks and Wildlife Service to replace the Scenery Preservation Board in the *National Parks and Wildlife Act, 1970*, proclaimed in July 1971. Victoria, similarly, passed the *National Parks and Wildlife Act, 1970* which replaced the National Parks Authority with a National Parks Service. At the official level wilderness conservation in Victoria began to receive consideration in the reports of the Land Conservation Council (LCC) but

the environment movement was left to do most of the identification and wilderness proposal work. In addition to the NSW innovations there was some stimulus from the adoption in 1986 of principles for the management of wilderness areas by the Australian Council of Nature Conservation Ministers which itself had been influenced by the adoption by IUCN of 'wilderness' as a category in its protected area classification. Amendments to the Victorian *National Parks Act* in 1975 provided for the Director to zone parks including "wilderness areas". The first wilderness areas in Victoria – the Big Desert and Avon Wilderness Areas – were set aside under the *Lands Act* and proclaimed under the *National Parks Act* in 1986. A further amendment to the *National Parks Act* in 1989 made provision for proclaiming and managing wilderness parks, and also for wilderness zones within parks to be managed as if they were wilderness parks.

In 1987 the Victorian *State Conservation Strategy* promised identification and protection of the State's last remaining wilderness areas and this task was undertaken by the Land Conservation Council's 'Special Wilderness Investigation' between 1988 and 1991. The subsequent *National Parks (Wilderness) Act*, 1992, amending the *National Parks Act*, 1975, was proclaimed on 30 June 1992. Implementation of the LCC recommendations in the alpine zone of Myles Dunphy's Snowy-Indi Primitive Area proposal of the 1930s proved disappointing. Whereas close to 100% of the identified wilderness in the Pilot/Byadbo area of NSW was zoned as wilderness (the exception being a narrow corridor along the Barry Way), the figure for the land on the Victorian side of the border, where grazing and similar interests still had influence, was only 37%.

CHAPTER 4

World Heritage Values of The Royal Reserves

A. Introduction to Outstanding Universal Values

THE WORLD HERITAGE Convention aims to conserve the most outstanding parts of the world's heritage, both cultural and natural. Article 1 of the Convention identifies "cultural heritage" as covering: "monuments"; "groups of buildings"; and "sites". Sites are defined as:

works of man or the combined works of nature and man, and areas including archaeological sites which are of outstanding universal value from the historical, aesthetic, ethnological or anthropological points of view.

In addition, "cultural landscapes" are identified in Paragraph 47 of *The Operational Guidelines for the Implementation of the World Heritage Convention* (revised as at November 2011) as cultural properties which "represent the combined works of nature and man" designated in Article 1. This category was added in 1992. Cultural landscapes are described as being:

... illustrative of the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both external and internal.

The Convention (Article 2) identifies the following as "natural heritage":

... natural features consisting of physical and biological formations or groups of such formations, which are of outstanding universal value from the aesthetic or scientific point of view; geological and physiographical formations and precisely delineated areas which constitute the habitat of threatened species of animals and plants of outstanding universal value from the point of view of science

or conservation; natural sites or precisely delineated natural areas of outstanding universal value from the point of view of science, conservation or natural beauty.

Properties can be considered as “mixed cultural and natural heritage” if they satisfy a part or the whole of these definitions.

‘Outstanding Universal Value’ is defined (Paragraph 49 of the *Operational Guidelines*) as having:

... cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity.

The three ‘Royal Reserves’ are held here to be of Outstanding Universal Value for both their cultural and natural values and as cultural landscape. They are outstanding as cultural landscape for the role they played in the development of the internationally significant national parks movement and for the way they are representative and illustrative of the social, economic and cultural forces which were operative at the crucial time when these exceptionally important ideas were developed. The Royal Reserves also have outstanding universal geological, biological and natural beauty values and hence are considered here as mixed cultural and natural heritage.

B. Cultural Values – Selection Criteria

ANNEX 3 to the *Operational Guidelines* – “Guidelines on the Inscription of Specific Types of Properties on the World Heritage List” – provides information on specific types of properties to guide State Parties in making World Heritage nominations. These say (Paragraph 7) that “Cultural Landscapes” should be selected on the basis of:

... their Outstanding Universal Value and of their representativity in terms of a clearly defined geo-cultural region and also for their capacity to illustrate the essential and distinct cultural elements of such regions.

The term “Cultural Landscapes” is stated (Paragraph 8) to embrace “a diversity of manifestations of the interaction between humankind and its natural environment”.

Of the three accepted categories of “cultural landscape” defined in these inscription guidelines, the third category – “associative cultural landscape” – is referred to as:

... being justifiable by virtue of the powerful religious, artistic or cultural associations of the natural element rather than the material cultural evidence, which may be insignificant or even absent.

The Royal Reserves deserve World Heritage recognition for their mixed natural and cultural values, including their geological, biological and aesthetic values, and for being an outstanding associative cultural landscape. Since they are located in the same geo and bio region (the Sydney Basin) as the Greater Blue Mountains Area which was inscribed on the World Heritage List in 2000, and since there are many links between them, it is relevant to mention that the Blue Mountains Area was nominated for: cultural values (selection criterion vi); natural beauty (vii); plant evolution (ix); and biodiversity (x), and to mention that a future nomination for geological values (viii) was foreshadowed in the nomination document. The site was included in the World Heritage List for selection criteria (ix) and (x). A renomination for criteria (vi), (vii) and (viii) is proposed.

1a. *Selection Criterion (vi) and Associative Cultural Landscape.* Selection criterion (vi) is defined in the *Operational Guidelines* (Paragraph 77) as:

...directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance.

The Royal Reserves are closely associated with two of the three most important phases in the history of the global national parks movement. These were (1) the Nineteenth Century transformation of the urban parks movement to a nature based movement; and (2) the development in the 1930s of significant ideas about the expansion of the national parks system in terms of extent and purpose. A third phase involved putting into practice from the 1960s onwards the ideas of the second phase. In the first two of the phases, Royal National Park was an active role player in the stimulation of new ideas. In both the historical record of the events and today’s living landscape it is representative of these significant changes in thinking about the environment.

The national parks movement which developed in the second half of the Nineteenth Century had become a worldwide movement by the 1960s. It had its roots in the pathology of close urban living and was fostered by the growth of the cities. Initially compensation for these alien and unhealthy conditions was sought through the development of public open space in the urban areas. The development of national parks at a distance from the cities added an important additional recreational facility made possible by improved transportation. In the parks, visitors could reconnect with nature. In Australia's case, as with other Nineteenth Century parks, the national parks not only contributed to a healthy environment and provided the means to reconnect with nature but they also provided the opportunity for European colonists to increase their connection with what was for those born overseas an unfamiliar environment. Our National Park was the first place where, as a result of a number of favourable circumstances, this important step from urban to natural area parks was made.

The second half of the Nineteenth Century was witness to the greatest expansion of the railroad system in history. The way in which rail facilitated the establishment of the National Park (see Chapter 2) makes it an excellent example of a much wider process (see Appendix C). In Australia railroad development played a part in the establishment of reserves in the Blue Mountains and at Bundanoon, Wilson's Promontory, Mt Buffalo, Belair, Greenmount and Mt Field. Overseas railroad developers, keen to have destinations for their customers, played a role in the development of several parks including America's Yellowstone, Canada's Rocky Mountains and New Zealand's Tongariro.

The internationally significant values of the Royal Reserves are to be found in both the written record and in the landscapes themselves. Both have much to tell about their contribution to what became a worldwide movement. The story of Royal National Park has attracted particular attention because it was the place where the designation "national park" was first used (1879) in the dedication document of any reserve anywhere, and of equal importance was the nature of the area involved, for it marked the beginning of a major change in public land-use policy. ('Royal' was added to 'National Park' in 1955.)

Being one of the world's first national parks and because of its location and relatively large size at the time, National Park was for several decades an important place for the development of national park management priorities. There were many potential land-uses including several types of recreation (some unrelated to the natural environment) as well as exotic species acclimatisation, mining, military use, science and education. All beginnings are by their nature experimental and the sorting-out process at Royal National Park involved what was in effect experimentation with different land-uses. What was learned there had ramifications for the wider expanding national park estate.

Eventually though, in the 1920s, as ideas continued to develop about the role and purpose of national parks, the size of the Park was seen as a limiting factor and this helped to spawn a movement for larger national parks and wilderness areas.

As a result, the history of the Royal Reserves is important for the examples it provides of symptomatic land-use changes and for their wider influence.

A full understanding of the events at the Royal Reserves is not possible without knowledge of the early reserves in New South Wales. A major factor in the creation of National Park was the rapid growth of Sydney during the second half of the Nineteenth Century. Its establishment and development prompted a switch from Government protection of foreshores and urban parks during the first 70 years of the Australian colonies to the national parks movement. An account of the history of relevant developments in the genesis of the national parks movement in Australia and of important events in the establishment national parks in the United States, Canada and New Zealand is provided in Appendix C. What this broader history shows is how an idea evolved and went on to become one of the most powerful movements in human history.

The other significant facet of the cultural heritage of the Royal Reserves is to be found in the historical records and particularly in the following: *An Official Guide to the National Park of New South Wales* (Elwell, 1893, with enlarged editions in 1902, 1914, and 1915); *Blue Mountains National Park Special Supplement, The Katoomba Daily* (1934); *Royal National Park Plan of Management 1975*; *Australia's 100 Years of*

National Parks (Goldstein, 1979 centenary publication); and *Royal National Park, Heathcote National Park and Garawarra State Recreation Area Plan of Management* (2000). In this 107 year span of publications can be found snapshots of the parks at different stages of their history and of evolving ideas about the role and management of the Royal Reserves as well as of their wider influence.

In relation to the influence Royal and Heathcote National Parks have had on the development of the wilderness conservation movement, the major published documents and histories are: *Blue Mountains National Park Special Supplement, The Katoomba Daily* (1934); *Australia's 100 Years of National Parks* (Goldstein, 1979, especially 'The New Conservators' chapter based on Dunphy's memos); *Myles Dunphy Selected Writings* (Thompson, 1986); and *Myles and Milo* (Meredith, 1999).

In 1982 the International Union for Conservation of Nature and Natural Resources presented Myles Dunphy with the Fred. M. Packard Award for 'Long Service with Merit in Advocacy of National Parks'. The citation read:

Myles Dunphy is recognised for championing the cause of national parks in Australia for most of his life. From 1916 until a few years ago, Mr Dunphy waged a campaign for a state wide system of national parks containing wilderness areas and complete wilderness parks. His voluntary efforts inspired others and gave impetus for the establishment of a comprehensive system of national parks in New South Wales, Australia.

1b. *Justification.* The three contiguous and closely related Royal Reserves are of Outstanding Universal Value through their significant association with the development of the national parks movement. National Park in particular was both a birthing place of the movement and a cradle for its further development. In many ways it was representative of the nineteenth century movement to conserve nature in other parts of Australia and the world.

Indigenous societies with a hunter-gatherer culture had a holistic and spiritual relationship with the environment. The evidence which exists in the Royal Reserves of the closeness of the Dharawal people to the environment is a testimony to this and is therefore an essential part of the area's history. These people used a wide variety of food

sources and enjoyed a sustainable lifestyle for thousands of years until they were killed or removed by European colonists. In strong contrast, the people of western agricultural and industrial societies had lost this close relationship with the land, tending to treat the land only as a source of food and other materials and as a living space. Until relatively recently they treated as useless such places as they could not use for these material purposes – as a wasteland, or ‘a howling wilderness’. The land is something which they saw (and often still see) as belonging to them whereas the Aborigines believed they belonged to the land. In the Nineteenth Century a major change of attitude towards wild areas began to take place and these areas became invested with positive values for recreation, inspiration, education and science. This change coincided with the Industrial Revolution of the Eighteenth and Nineteenth Centuries developing large manufacturing centres and cities and transforming large areas for the production of cultivated food and raw materials, threatening the survival of places where natural forces and processes had been dominant. This industrialisation and urbanisation furthered the process of cutting people off from the environment and brought about a reaction – a need to have contact with nature and the earth, even if only occasionally – a need to *re-create*. This could be seen as escapism but it was in fact a natural response to the alien and unhealthy conditions of urban life and a small but significant move in the direction of the close relationship the Dharawal had with their land – the start of a reaching-back process to a healthier relationship with the environment.

The Aboriginal occupation of the region for thousands of years is to be found both in the environment and in the living legends and traditions of the Dharawal-language people. There are hundreds of sites bearing the marks of Aboriginal life in the Royal Reserves but only three have been given the status of ‘Declared Aboriginal Places’ under section 86 of the *National Parks and Wildlife Act*, 1974. While referred to as ‘resting places’ they are in fact burial sites. They are:

- 1) Dharawal Resting Place –Costens Point (30.9.2005);
- 2) Dharawal Resting Place – North Era Beach (30.9.2005); and
- 3) Dharawal Resting Place – Middle Rill Aboriginal Place (16.7.2010).

The most important contemporary publication on the Dharawal heritage, including their connection to country and language, is *Dharawal, the story of the Dharawal-speaking People of Southern Sydney* (Bursill et al, 2001).

The initial attempt at a kind of compensation to meet the biological and mental needs of the humans denatured by the Industrial Revolution was the development of parks within the cities and towns. In colonial Australia these were modelled on English city parks known to colonial governors. Later the increased mobility provided by the railways and then by motor vehicle transport made it possible to establish parks and reserves in scenically attractive public lands at a distance from the cities.

In the history of these momentous changes in environmental perception and values, certain areas are significant for the way their existence and history represent the changes and for the role they played in their orchestration.

The bush-covered sandstone plateaus of the Sydney Basin played a particularly important role at this development stage. Here a strongly emerging demand for recreation in Sydney coincided with the relatively low value of the land for agriculture and industry and the growing appreciation of the beauty of the natural scenery. In the second half of the Nineteenth Century, assisted by the development of the railways, a symbiotic relationship developed between the citizens of Sydney and the sandstone landscapes which surrounded them. The place where this movement began to have the most important consequences was to Sydney's south on the northern part of the Woronora Plateau framed by Port Hacking and the sea – the first “National Park”. These feelings of citizen attachment and concern have continued to the present day and have been manifest in relatively high levels of volunteering and community protest against damaging developments such as urban development in the Upper Hacking River Catchment (see Chapter 5).

1c. *Origins.* The history of the National Park has been detailed in Chapter 2. While the availability of the land which had been temporarily reserved for a possible route for the Illawarra Railway Line was

a major factor in its establishment, the scenic attractions of the Port Hacking coastline and the Hacking River also played an important part in the decision to create the national park. In terms of the motive of scenery protection, there were precedents in the earlier reserves in New South Wales at the Bundanoon Gullies, Bungonia Gorge and the Grose Valley and in Victoria at Tower Hill. As with the early cave reserves, such as that at Fish River in 1866 (Jenolan Caves Reserve), these reserves were each concerned with the protection of special natural features. The Jenolan Caves Karst Conservation Reserve, by year 2000 had been extended to 2,422 hectares, and it was one of the eight areas gaining World Heritage status as part of the Greater Blue Mountains World Heritage Area in that year.

The establishment of National Park involved a whole new conservation phase and concept – the protection of a large natural area with diverse characteristics. Thus was established a living cultural landscape extending beyond features of particular interest; it was placed under a special Trust, and increasingly cherished by the inhabitants of Sydney as its attractions became more accessible and hence better known.

It is clear from the events described in Chapter 2 that the main motivation for the establishment of National Park was to provide for the health and recreation needs of a rapidly growing city and that the immediate model for the move was the type of public purpose provided by such inner urban parks as Sydney's Hyde and Moore Parks which had been modelled on the parks of London. It could well have been that the windfall of the availability of this large reserve for dedication as a national park was seen as a convenient way of resolving a difficult land-supply problem although this was not stated by its architects. Its establishment was contemporary with the struggle to acquire and establish the much smaller Ashfield Park close to the city. A similar public health and recreation rhetoric was used in putting the case for both parks.

As described in Appendix C, attempts to establish parks on the fringes of a city or in areas served by the new facility of rail transport were made in the other Australian colonies, not all of them successful. They included the Nineteenth Century campaigns for national parks

in Victoria at Mt Buffalo and Wilson's Promontory, both occasioned by the coming of rail access. The closest parallels in terms of a relatively close location to a major city were: the moves for parks along Melbourne's Yarra River (Yarra Bend and Studley Parks) and in the Dandenong Ranges east of Melbourne; Greenmount National Park, near Perth in Western Australia; Belair National Park near Adelaide in South Australia; and Mt Wellington National Park, near Hobart in Tasmania.

Contemporaneous too with the establishment of the first National Park, and indicative of the health and recreation motivations for that action, were the systems of reserves, tourist accommodations and walking tracks which were established in connection with the building of the Western Main Railway through the Central Blue Mountains. The railway had reached Mt Victoria in 1868. In the 1880s cheaper rail travel brought more re-creationists to the area and both the track systems and the reserves along the cliff lines were extended and connected, one forming the 'Blue Mountains Sights Reserves'. In spite of these similarities it was at National Park where the full force of the movement for public recreation reserves for health reasons led – to the birth of the modern national park movement. It was not achieved without a struggle between competing priorities, and how these were resolved either within National Park or out of it, was what makes its history so significant.

1d. *Management.* When a Trust Board was appointed to manage the newly created National Park in 1879, a wide range of land-uses were under consideration for the area and these were formalised in the 1887 Deed of Grant. They included military activities, acclimatisation of exotic species, and exploitation of mineral resources as well as a variety of recreation uses, some including clearance of the land for sporting activities. Although it received a considerable grant from the Government there was a question of how, if at all, the Trust was to augment its income for the development of facilities including roads and accommodation. The Park had available a number of material resources capable of exploitation for revenue, including coal, timber and grazing lands.

The history of how the Trust dealt with this wide range of potential competing land-uses is given in Chapter 2. Essentially, over the 88 years of the Trust's existence there was a move towards nature-based recreation and nature conservation; also, resistance to the temptation to derive income from the letting of coal leases, and, with one notable exception in the early 1920s, the letting of timber leases.

The way in which the Trust and from 1967 the National Parks and Wildlife Service resisted the temptation to obtain funds from mineral exploitation was a case of giving highest priority to the conservation objectives of the Park. It is relevant to note that the law excluding mining from all New South Wales national parks was not passed until 1990. The status of the Garawarra State Conservation Area, in which mining is possible, is an indication of how the existence of coal measures in this area was a factor in the setting of the southern boundary of the National Park in a way which excluded an important part of the Hacking River Catchment from the Park and created a major problem for its future. In the case of the timber licence which was granted to a colliery in 1920 it was the intervention of conservationists and the media which was crucial in the overturning of the arrangement. These events can be compared to those in Tasmania's scenic reserves where some areas were revoked to allow mining in the 1930s and where timber leases were granted in some reserves up to the 1960s (Mosley, 1963). Grazing was permitted in Royal National Park until 1965.

The military use of National Park was greatly reduced with the establishment of a firing range at the nearby Holsworthy Military Reserve in 1914, but such use was resumed temporarily during World War II. Interest in using the Park for acclimatisation purposes began to wane in the early Twentieth Century but a large number of deer remain today as a legacy of an earlier phase.

Problems as to what recreational uses were appropriate were not readily resolved. The National Park settlement at Audley retains important visitor facilities and most parts of the network of roads developed during the first thirty years have been retained, but there are some exceptions such as the closure of the Lady Carrington Drive to vehicular use in 1987. The Forest Path developed as a walking and horse riding track in 1887 remains as one of the earliest examples of

a facility of this kind. Gradually over the last thirty years the 26 kilometre long 'Coastal Track' has developed as one of Australia's major walking tracks. Decision-making on private cabins in the National Park was another example of the dilemmas facing the managers. In March 1978 the historical value of the cabins was given national recognition when the settlements/communities at Bonnie Vale, Burning Palms, Era Beach and Little Garie were placed on the Register of the National Estate. The number of cabins has been reduced and brought under stricter control. The ones that remain in the Garawarra area were built legally on freehold land prior to the 1950 resumption.

1e. *Legacy.* Compared with its urban counterparts, National Park (from 1955 Royal NP) was a relatively large park and performed an important role for conservation and certain types of recreation. Its size made it the cradle or spawning ground for wider developments in protected area expansion and management in New South Wales. In particular the size of the Park helped trigger the goals and campaigns of the bushwalker conservation movement which had used it as one of its earliest tramping grounds. It was this movement in particular which wanted parks to be of sufficient size, so that large parts could be set aside as primitive or wilderness areas.

The realisation of the limitations of the first National Park came at the same time as the bushwalkers, the group who most appreciated the wilder areas, were discovering the distinctive recreation and protection potentials of the Blue Mountains to the west. Thus a close historical link arose between these two areas.

Chapter 2 provides an account of how some of the early walking club members endeavoured to seek primitive area protection in the Garawarra area and in what became the Heathcote Creek area; but they also developed proposals for a wider system of national parks and primitive areas in South Eastern New South Wales and the Blue Mountains. Although the Garawarra outcome confirmed that the area was too small for the purposes sought, the actual conduct of the campaign delivered a boost to confidence which was played out in efforts in the more expansive Crown lands of the Blue Mountains and the Snowy Mountains. Chapter 3 has pinpointed the crucial role played by

Myles Dunphy and the groups he helped to set up. This area was the birthplace in Australia of the wilderness concept.

What the bushwalkers were looking for was to be able to experience the joy and the test of their skills which came with travelling through natural country, free of man-made artefacts such as roads, bridges and tracks and in conditions diametrically opposite to those in which they spent most of their lives. It was also a process of re-discovering some of the spiritual qualities of the land, largely lost by urban dwellers. From their initial visits to National Park and other areas near their homes, Dunphy and his companions branched out into longer trips in the Blue Mountains and came through necessity to realise the value of lighter-weight bushwalking equipment, leading to the development of tents made of japara and the replacement of the swag by the rucksack. Bush walking and bush camping expanded considerably during the 1920s. In 1930 Paddy Pallin, a bushwalker, canoeist and conservationist, began to meet this increased demand of the bushwalkers by making, selling and hiring out improved equipment (Wills-Johnson, 1979). He also sold Myles Dunphy's maps, thereby helping the further development of the bushwalker conservation movement.

Initially, the clubs were concerned largely with developing the 'craft' of walking in such places but by the mid-1920s they had added preservation to their objectives. Significantly, they applied this interest to the large remote areas, through their grand plans and proposals creating a second wave of conservation effort. The development which was most symptomatic of this new stage was the formation of the National Parks and Primitive Areas Council on the 27 October 1933. This was the first group in the world with a stated major wilderness conservation objective.

The 1930s national park and primitive area proposals for the 'Greater Blue Mountains National Park' and for the 'Snowy-Indi National Park or Primitive Area' were on an unprecedented scale in Australia. That for the Blue Mountains covered 450,000 hectares and measured almost 160 kilometres in length. This was over 26 times the size of the largest New South Wales national park at this time, the 17,000 hectares New England National Park declared in 1931.

The promotion of the Blue Mountains park project in a four-page supplement to the *Katoomba Daily* of 24 August 1934 provides us with an insight into the philosophy and ideas of its proponents. The supplement – a veritable manifesto of the conservation movement of the time – was remarkable for two things. First it showed how far the aspirations of the conservation movement had developed in the half century since the development of the first national park; second, and even more important, it set out the main objectives of this part of the protected area movement – objectives that would be pursued over the following half century and beyond.

Among the foremost achievements in New South Wales were the establishment of several national parks in the Blue Mountains. By 1998 the area in the six parks relating to the 1932 proposal and publicised in 1934 covered 870,904 hectares (almost double the size of the original proposal). By the time these parks and two other areas were inscribed in the World Heritage List in 2000 they covered 1,032,649 hectares. When Kosciuszko National Park was established in 1967 it covered 535,000 hectares. Altogether the national park estate in the Sydney Basin today covers over 1.25 million hectares, a vast national park estate, much of it in a pristine condition, on the threshold of Australia's largest city.

The development of the wilderness system had a longer gestation period. The Tallowa Primitive Reserve of 1934, covering only 3,117 hectares, and the 712 hectare Heathcote Primitive Area of 1943 were far too small for their purpose, but the provision made for wilderness areas in the *New South Wales National Parks and Wildlife Act* of 1967 provided some reasonable hope that with effort they would have a future and it was this, and the subsequent passage of the *New South Wales Wilderness Act* of 1987, that laid the groundwork for the system and acted as a model for other States. By 2003 the declared wilderness in New South Wales covered 1,836,400 hectares, and by February 2011 it had expanded to 2,084,640 hectares. By this date gazetted wilderness areas in the Blue Mountains and in Kosciuszko National Park covered 641,538 hectares and 355,616 hectares respectively.

C. Natural Beauty and Aesthetic Values – Selection Criteria

PARAGRAPH 77 of the *Operational Guidelines* states that properties accepted as having Outstanding Universal Values in relation to this selection criterion must:

Contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance.

There are no objective measures of natural beauty but in the case of the Royal Reserves the spectacular and contrasted natural scenery of the coastlines and the forested valleys is clearly an important aspect of the attractiveness of the area to the over three million annual visitors. This is the highest number of visitors of any national park in Australia.

The combination of these values in the case of the Royal Reserves includes for visitors: the sense of wonder and awe in the presence of the natural scenery; awareness of the natural geological and biological forces which have contributed to the making of the scenery; and the sense of being in a living museum – that of the very first national park. In other words, in today's Royal National Park, for many visitors there is a strong sensation of being in the presence of both natural forces and cultural history.

A recent survey of 100 users of the Coastal Track (Bajpai and Dragovitch, 2011) showed that 77% were attracted to the area by the beauty of nature. Other Coastal Track user-surveys by Monahan (2006) and Meyers (2010) have demonstrated how the experience of the walk generates understanding of the environment and helps foster an ecological conscience and an interest in sustainable living.

A dimension additional to the intrinsic aesthetic values of the Royal Reserves is the way they complement those of the Greater Blue Mountains World Heritage Area. Here, in the same sandstone landscapes of the Sydney Basin geo-region, there are additional features of natural beauty revealed by the action of the sea and the more temperate climate.

D. Geo-Heritage Values – Selection Criteria

PARAGRAPH 77 of the *Operational Guidelines* states that properties having Outstanding Universal Values with regard to this criterion must:

be outstanding examples representing major stages of earth history, including the record of life, significant on-going geological processes in the development of land-forms, or significant geomorphic or physiographic features.

The main thematic study relevant to the assessment of world heritage values of this type is the 2005 report by Dingwall et al. – *Geological World Heritage: a Global Framework*. Among the themes relevant to the Royal Reserves in this study are: tectonic and structural features, and stratigraphic sites and landforms which are the product of active processes. The important question is whether the site is universally outstanding in terms of the contribution it can make to the understanding of Earth history and on-going processes. However, it needs to be kept in mind that these geo-heritage values also have the potential to make important contributions to education and aesthetic appreciation as well as science.

The Royal Reserves, as with the reserves in the Greater Blue Mountains World Heritage Area, represent in their physical environments an outstanding example of a major stage of Earth history and the forces that were at work during the formative period. The plateaus of the Sydney Basin are the world's most outstanding example, involving both tectonism and stratigraphy, of sedimentary deposition in a major trough during the Permo-Triassic period, followed by uplift.

In the case of the Royal Reserves section of this geo-region, the Triassic stratigraphic sequences have been revealed by erosion in both the deep valley of the Hacking River and on the coast. The northerly downward dip of the Woronora Plateau created the circumstances for the entrenchment into the softer Triassic rocks of the upper Hacking River and the creation of the relatively broad valley in this section.

Of particular interest is the exposure of the area's Triassic lithology to coastal and sub-areal erosion. The coastal section contains a wide range of rock and landform features including the differential erosion of the Narrabeen Series, Hawkesbury Sandstone and igneous rocks.

Features include prominent headlands, rock platforms, sea caves, clifftop dunes, estuaries, inlets and lagoons. The rise in the height of the cliffs from sea-level in the north to over 100 metres in the south is closely related to the rise in the Hawkesbury Sandstone.

Robert and Ann Young (2006) have explained how the spectacular coastal scenery of Royal National Park is the product of “a complex interplay of geological structures and marine and sub areal erosion”. In some places within the Park there is evidence of weathering, in probably the Tertiary age, consistent with the great antiquity of weathering of Blue Mountains surfaces.

E. Bio-Heritage Values – Selection Criteria

PARAGRAPH 77 of the *Operational Guidelines* requires the properties with Outstanding Universal Values in the bio-heritage category to meet the following criteria:

- (ix) ...be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals.
- (x) ...contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of Outstanding Universal Value from the point of view of science or conservation.

The Royal Reserves are situated in the ‘Eucalypt open-forest to woodland (with grassy understorey)’ vegetation-formation of Specht et al (1995). This has a wide distribution across South Eastern Australia and includes the Greater Blue Mountains Area. In Udvardy’s *A Classification of Biogeographical Provinces of the World* (1975 and 1984) the Reserves are part of region ‘6.6.6 Eastern Sclerophyll’. In Version 6.1 of the Interim Biogeographic Regionalisation of Australia (IBRA regions) which divides Australia into 85 Bio Regions on the basis of a landscape-based approach to land classification, the Royal Reserves are located in the ‘Sydney Basin’ IBRA region. They also fall into sub-region ‘SB10 – Sydney Cataract’. The vegetation part of the description for this sub-region is:

Red bloodwood and black ash woodland with abundant shrubs on sandstone with extensive gahnia, banksia in hanging swamps. Coastal dune sequence of tea-tree, coast wattle, smooth-barked apple, blackbutt and swamp mahogany on barrier system. Mangroves on Towra Point and up the Georges River estuary.

The diverse vegetation communities in the Royal Reserves, ranging from heaths and dry sclerophyll woodlands to wet sclerophyll forests and rainforests and including a number of coastal communities, are described in Chapter 1. They include 13 (10 major and 3 minor) of the 921 communities listed in *The Conservation Atlas of Plant Communities in Australia* (Specht et al, 1995) – see Appendix A1. They also include 25 of the 191 floristic communities in the classification used in the report and maps, ‘Native Vegetation of southeast NSW: a revised classification and map for the coast and eastern tablelands’ by Tozer et al (2010) (see Appendix A2). And they contain a considerable number of threatened plant species and ecological communities (see Appendix B).

The regions which have the closest similarity in vegetation characteristics with the Sydney Cataract sub-region are the other sub-regions of the Sydney Basin IBRA region, and the New South Wales North Coast and South East Corner IBRA regions. The dominant vegetation in all of these is ‘Eucalypt open-forest to woodland’. The important question from the point of view of significance is the extent to which the Royal Reserves contain vegetation communities which are distinctive to them. It is apparent that, as more detailed surveying, classification and mapping is carried out, the Royal Reserves will reveal a greater and a unique diversity of vegetation.

F. Comparison of The Royal Reserves with Other Areas

PARAGRAPH 132.3 of the *Operational Guidelines* refers to the need to include in the “justification for inscription” a “comparative analysis of the property in relation to similar properties, whether or not on the World Heritage List, both at the national and international levels”.

1. Cultural Heritage Comparisons

Reference has been made to a number of outstanding features of the region's cultural heritage including its pioneering role in the national parks movement and the way Royal National Park visitor experience has contributed to the movement's expansion and specialisation through the development of the wilderness system. There were two features of the National Park which were distinctive at the time of its inception. The first was its location on the fringe of a rapidly growing city and the second its relatively large size. Combined with the arguments for reserving the area for health and recreation and the area's mainly natural condition, these factors made the National Park intermediate in its function between the small city parks and the future more remote national parks. The considerable size of this Park meant that there was scope for a number of park uses to be provided, including nature conservation. In this almost experimental situation over time, management priorities were reassessed as circumstances and community values changed. These changes are recorded in the various key documents which have been referred to.

In the Nineteenth Century there was not a great deal of interchange of ideas in the national park movement. In Australia each colony developed its own parks and reserves independently of the others. The same can be said about the absence of exchange of ideas about parks between countries, although Canada was inspired to some extent by developments in neighbouring United States. As a result, the main question to be answered is whether this site is an outstanding representative example of its kind. It is to be hoped a major part of the answer to this question can be found in the Nineteenth and early Twentieth Century history of the national parks movement in Australia, New Zealand, Canada and the United States provided in Appendix C. However, it needs to be understood that these histories help establish the significance of National Park by showing how it is not only representative of its kind but is also special.

The only Nineteenth Century national parks in other Australian colonies which were comparable with the first National Park in terms of location near cities were Belair National Park (1891) near Adelaide and The National Park/Greenmount National Park (1895) near Perth.

Both were considerably smaller: Belair had an area of 796 hectares and Greenmount 1,466 hectares in 1900. This compares with National Park's 14,698 hectares in 1883. Proposals for national parks in similar situations, including Mt Wellington near Hobart and in Victoria's Dandenong Ranges, were largely unsuccessful.

The closest parallel with our National Park is Ku-ring-gai Chase (reserved 1894) located to the north of the expanding city of Sydney and covering 12,903 hectares. The main proponent of this reserve was Eccleston du Faur who had been involved in the 1870s with efforts to reserve the Grose Valley in the Blue Mountains (see Appendix C). His concern at Ku-ring-gai was mainly with the protection of the area's flora (Mosley, 1965). When du Faur proposed the reserve in 1891 the Minister for Lands rejected the proposal on the grounds that National Park and Crown Lands were adequate to cater for the needs of Sydney. When in 1892 du Faur obtained the support of the Governor, the Minister changed his mind, deciding that the reserve would enhance the value of the nearby Crown lands, then considered suitable for residential development. The Chase was placed under the control of a trust. While Ku-ring-gai had major similarities in its location and size with National Park, it was set aside 15 years later and did not provide for the wide range of land-uses included in the National Park Deed of Gift.

In terms of the way it spawned the wilderness movement, National Park has no equal. The wilderness seeds it sowed in the Blue Mountains and the Snowy Mountains through the work of Myles Dunphy and the National Parks and Primitive Areas Council went on to become the main disseminators of the concept in the 1960s and 1970s and involved innovatory legislative provision for wilderness conservation in 1967, 1974 and 1987. The other major source of inspiration for protection of wilderness was the United States, but although the first wilderness areas were reserved there before much action was seen in Australia, these moves were not related to the experience in a particular area as occurred in the case of National Park and the wilderness movement in Australia. In other words no other national park has been so closely related to the development of the wilderness area protection movement as has the first National Park.

2. Natural Heritage Comparisons

Australia is one of a number of Biogeographic Provinces around the world with extensive areas dominated by sclerophyll vegetation communities and identified by the use of that term 'sclerophyll' (Udvardy, 1975 and 1984). 'Evergreen sclerophyllous forests, scrub or woodlands' into which these communities fall is one of the world's 14 biome types (related groups of ecosystem). The Biogeographic Provinces in this biome include the 'Mediterranean Sclerophyll', the 'Chilean Sclerophyll', and the 'Cape Sclerophyll Desert'. In Australia there are three Sclerophyll Provinces – 'Eastern', 'Southern' and 'Western'. The Royal Reserves fall within the 'Eastern Sclerophyll Biogeographic Province'. The Australian Biogeographic Provinces are distinctive in terms of nearly all the *Eucalyptus* species and many of the *Acacia* species that are endemic to Australia. They also contain relatively undisturbed areas where the climatic climax vegetation is still in existence. In contrast, the majority of the Mediterranean sclerophyll areas are degraded and now dominated by scrub. The scleromorphic features of the Royal National Park vegetation are listed in Appendix A3.

Both the 'Western' (in Western Australia) and the 'Cape' (in South Africa) Provinces have relatively high levels of biodiversity. The Western Australian Government promised in 2001 to progress a World Heritage nomination of an extensive area in its South West identified as a "biodiversity hotspot" under the application of a concept introduced in 1988 (Myers, 1988). There has been a similar Government-backed proposal for a nomination of the Alps and South Eastern Forests in South East Australia since the late 1980s. The Greater Blue Mountains Area in the Eastern Sclerophyll Province was nominated for the World Heritage List in 1998 and a 1,032,649 hectare area was listed on the basis of its *Eucalyptus*-dominated vegetation communities and its biodiversity (selection criteria (ix) and (x)) in 2000. Areas in the East and West Cape were nominated for the World Heritage List in 1999, and in 2004 a serial property of 8 separate areas covering 553,000 hectares was listed as the 'Cape Floral Region Protected Areas', also under selection criteria (ix) and (x). A recent publication *Biodiversity Hotspots* (Zachos and Habel, 2011) has made a case for the rich biodiversity of the forests

of eastern Australia which extend south to the Illawarra Region, to be seen as a 35th global and a 2nd Australian "biodiversity hotspot".

In the Eastern Sclerophyll Province other areas with World Heritage potential are Wilsons Promontory National Park (see Mosley, 2002) and the Australian Alps and the South East Forests Region (see Mosley, 1988 and Mosley and Costin, 1992).

The new mapping and classification of vegetation in the south-east of New South Wales by Tozer et al, covering parts of the 'South East Corner' and 'South Eastern Highlands' Regions, the 'Burratorang', 'Cumberland' Sub-regions of the Sydney Basin Region, and a part of the 'Wollemi' Sub-region of the Sydney Basin Region, enables some useful comparisons to be made within the southern New South Wales part of the Eastern Sclerophyll Biogeographic Province.

What this mapping shows is that from the vantage point of south-eastern New South Wales the Royal Reserves have 11 communities which do not occur in either the Blue Mountains or the South East Corner IBRA Bioregions. There are also a further 9 coastal communities in the Royal Reserves shared with areas of the "South East Corner" Region. Hence the World Heritage listing of the Royal Reserves would provide this level of international protection to an additional 20 communities. As more detailed mapping and classification is done it is likely that this number will increase.

The broader perspective of the Specht Atlas provides similar results. Nine out of the 13 communities present in Royal National Park (7 of them major communities) are not listed as occurring in the parks and reserves of the Greater Blue Mountains World Heritage Area. Interestingly, 5 of these communities are also not listed as occurring in the coastal Ku-ring-gai Chase National Park in the northern part of the Sydney Basin region.

When the communities of the Specht Atlas occurring in Royal National Park are compared with the list for Wilson's Promontory National Park, the result is that all but one of the communities occurring in Royal National Park are absent from Wilson's Promontory National Park.

The results of these comparisons demonstrate that the Royal Reserves have a considerable potential to extend the protection of plant commu-

nities of Outstanding Universal Values, thereby satisfying selection criteria (ix) and (x). While the vegetation is predominantly scleromorphic and therefore representative of this most important feature of Australian vegetation, its range is extended by the sub-tropical, warm temperate and littoral rainforests growing in the sheltered coastal gullies and the Hacking River Valley and the wide variety of freshwater and coastal communities present. The variety at the community level is matched at the species level (see Appendix B) and is complemented by a diverse fauna. According to Connolly et al (2012) the extraordinary diversity of vegetation makes this “one of the most diverse areas of its size in the world”.

CHAPTER 5

Integrity, Authenticity and Management

A. Introduction to Integrity Requirements

IN ADDITION TO the selection criteria applying to applicants for World Heritage Listing of properties of Outstanding Universal Values (which have been addressed in Chapter 4) there are a number of selection requirements in relation to the integrity, authenticity and management of a property which need to be satisfied for it to gain recognition. The integrity and authenticity criteria are set out in paragraphs 79 to 95 of the *Operational Guidelines*, while those relating to protection and management (including boundaries and buffer zones) and to sustainable use are to be found in paragraphs 96 to 119.

The main requirements for authenticity are:

1. Credible and truthful information sources (physical, written, oral, and figurative) for the understanding of the values;
2. The degree to which authenticity is present in, or expressed by, each of the significant attributes;
3. Expression of the values in attributes which include: traditions, techniques, and management systems; location and setting; language and other forms of intangible heritage; spirit and feeling (indicators of character and sense of place in communities maintaining tradition and cultural continuity); and other internal and external factors.

With regard to the conditions of integrity (a measure of the wholeness and intactness of the natural and/or cultural heritage and its attributes) this requires assessment of the extent to which the property:

1. Includes all elements necessary to express its Outstanding Universal Value;

2. Is of adequate size to ensure complete representation of the features and processes which convey the property's significance; and
3. Suffers from adverse effects of development and/or neglect.

With regard to management/protection the main requirements can be summarised as follows:

1. Adequate longterm legislative, regulatory, institutional and/or traditional protection and management to ensure their safeguarding and survival against negative development and change;
2. Wherever necessary for proper conservation, an adequate buffer zone;
3. An appropriate management plan or management system, or if not in place at the time of nomination an indication of when it will be put in place;
4. A thorough shared understanding of the property by all stakeholders;
5. Involvement of partners and stakeholders;
6. An action plan outlining corrective measures for any threats; and
7. Inclusion of risk preparedness in management plans and training strategies.

Protection and management arrangements

The *Operational Guidelines* in Paragraphs 108-18 set out the requirements for nominated properties to have an appropriate management plan or other documented management system to specify how the Outstanding Universal Values of a property should be preserved for present and future generations. It is recognised that effective management involves a cycle of longterm and day-to-day actions and a diversity of elements including: "a thorough shared understanding of the property by all stakeholders; "a cycle of planning implementation, monitoring and feedback", and "the involvement of partners and stakeholders". State Parties (in this case the Commonwealth of Australia) are responsible for implementing effective management activities for a World Heritage property.

Royal and Heathcote National Parks and Garawarra State Conservation Area are protected areas gazetted under the New South Wales *National Parks and Wildlife Act*, 1974 and are controlled and man-

aged by the New South Wales National Parks and Wildlife Service. In 2000 these three reserves comprised approximately 18,219 hectares. Included within the boundary of Royal National Park is land above mean high water mark and the greater part of the Hacking River and many creeks as well as the tidal South West Arm of Port Hacking, Cabbage Tree Basin and the Hacking River Estuary (upstream from Grays Point where the National Park begins) as well as the freshwater lagoons at Wattamolla, Marley and Jibbon. Although the beds of all these water features are part of the Reserves the water bodies themselves are not. In the case of the three tidal areas the responsibility for the management and control is divided as follows: the Parks Service is responsible for management of the beds and any structures attached to them and for management of any marine mammals; the Department of Roads and Maritime Services has responsibility for the management of all watercraft including discharges which cause pollution; and the Department of Primary Industry Fisheries has responsibility for the management of fish and other marine and aquatic life. In the Hacking River Estuary these arrangements also essentially apply to the former tidal waters in the Hacking River Arm and Kangaroo Creek Arm above the dam at Audley, which are now fresh water. Management of the rivers and creeks and their catchments is governed by the *Catchment Management Act* which came into effect in 1989. Under the *Clean Waters Act* of 1970 (which no longer exists) the Hacking River had a "P-Protected Waters" classification which required water discharge to be of a potable quality. This Act was repealed in 1999 and replaced with the *Protection of Environmental Operations Act*, 1999. The new Act does not classify waterways.

The situation with regard to roads in the Park is similarly complicated. The following roads and their reserves of variable width are not part of Royal National Park: Highway 68 (comprising Farnell Avenue, Audley Road, Sir Bertram Stevens Drive, and Lady Wakehurst Drive); McKell Avenue; Bundeena Drive; and Maianbar Road. Highway 68 and McKell Avenue are owned and maintained by the Roads and Traffic Authority. Bundeena Drive and Maianbar Road are owned and maintained by the Sutherland Shire Council. All other roads in Royal National Park, including Warumbul, Wattamolla and Garie and ser-

vice roads and fire trails, are part of the Park and are maintained by the Parks Service, with the exception of Wattamolla Road and Garie Beach Road which are maintained by the Roads and Traffic Authority. Cawley's Road in Garawarra State Conservation Area was closed over 5 years ago, as consistent with the 2000 *Plan*. In Heathcote National Park there are two roads, both on Park land: a road maintained by Sydney Water to service a pipeline passing through the Park from the Woronora Dam to Heathcote, and an access road to a Civil Aviation Authority air navigation facility at Sarah's Knob. These many roads and the divided ownership and control arrangements have created many problems for the Reserves (see below).

The Parks Service has no control over its airspace. The Park, being close to Sydney Airport, is affected by the noise of planes flying low as they make their southerly approach on a designated flight path. The Parks Service does however control the landing of helicopters in the Reserves as well as the use of gliders, para gliders and hang gliders, for which it issues consents.

The main instrument for the management of the Royal Reserves is the *Royal National Park, Heathcote National Park and Garawarra State Recreation Area Plan of Management* adopted in February, 2000. A draft of a revised plan is scheduled to be released in 2012. Responsibility for the implementation of the plan, which establishes the scheme of operation for all three Reserves and for daily operations management, rests with the Royal Area of the Metro South West Region, National Parks and Wildlife Service, Office of Environment and Heritage, and the Department of Premier and Cabinet (New South Wales). There are also a number of strategies set out in specific separate management plans for Royal National Park including: a cabins conservation management plan; a draft fire management plan; a trial cycling management plan; a deer management plan; and the *Audley Masterplan*.

Following a nomination as a part of the Wara-n'hayara Plateau Area by the Northern Illawarra Aboriginal Collective Inc., Royal National Park and Garawarra State Conservation Area were placed on the National Heritage List in December 2006 – under National Heritage criterion (a) “the place has outstanding heritage value to the nation because of the place's importance in the course, or pattern, of natu-

ral or cultural history". As a consequence, the cultural and bioheritage values acknowledged in the listing have the additional level of protection afforded by the federal *Environment Protection Biodiversity Conservation Act*, 1999. An extended 10-page account of the national heritage values of this place is available on the National Heritage Council website.

B. Cultural Heritage Values Including 'Associative Cultural Landscape'

THERE ARE SPECIFIC integrity, authenticity and management requirements for each of the outstanding universal values of a World Heritage site and some of the management problems impact on all values. For cultural values (vi) involving association with events or living traditions ideas or beliefs of Outstanding Universal Value and as an 'associative cultural landscape' the main requirement is specified in Paragraph 89 of the *Operational Guidelines* as follows:

... the physical fabric of the property and/or its significant features should be in good condition, and the impact of deterioration processes controlled. A significant proportion of the elements necessary to convey the totality of the value conveyed by the property should be included. Relationships and dynamic functions present in cultural landscapes, historic towns or other living properties essential to their distinctive character should also be maintained.

The Aboriginal heritage of the Royal Reserves has both intrinsic and perspective values. According to the 2000 *Plan of Management*, no systematic survey or research into Aboriginal sites in Royal National Park has been undertaken. As detailed in Chapter 4 there are a number of specially protected middens. Management of Aboriginal sites in the three Reserves is guided by the Provisions of the Australia ICOMS Charter for the Conservation of Places of Cultural Significance (the *Burra Charter*). There is considerable scope for including greater reference to and interpretation of the Aboriginal land relationship in the educational programmes of the Royal Reserves, something which needs to be explored and developed through dialogue with the traditional owners.

There is no doubt that Royal and Heathcote National Parks conserve most of the main elements representing their role in protected area history and yet the Park land-uses and their management are still evolving, thereby constituting a living landscape. Gone are ongoing military and acclimatisation functions. The *Audley Masterplan* provides for the replacement of avenue plantings with indigenous trees at this site. There are still four sports fields on the western boundary of Royal National Park. The one at Waterfall is no longer used for sport and is to be revegetated. The sports fields at Loftus, Grays Point and Heathcote are licensed to the Sutherland Shire Council. The 2000 *Plan* took the view that their use for sporting purposes is not consistent with the purposes for which the Park is reserved. Significant elements remain of the various stages of the development of Royal National Park including a variety of visitor facilities at Audley, several of the early roads, and other works including the Lower and Upper Causeways, along the former Lady Carrington Drive, and at the Audley Approaches Precinct and Loftus where there are various relics of the original visitor facilities, including a tram shed, railway station, railway crossing of the Princes Highway, Bedford Cottage, an army dam, old clay pits, and the tree-lined Rawson Avenue (the original road access to Audley running from the Sutherland Station to Audley but rerouted in the form of Farnell Avenue, which turns off the Pacific Highway further south). The park section of Rawson Avenue is currently densely overgrown and impassable.

There have been specific plans for the management of the historic features of the Audley Precinct since 1987 and today they are guided by the *Audley Masterplan* (National Parks and Wildlife Service, 2006) which presents a vision for the Audley Precinct and Audley approaches. A \$2.7 million revitalisation programme was completed in 2011. Recent actions to retain the historic role of this area as a major hub for visitors have included the refurbishment and restoration of the (1948) Dance Hall to include a visitor centre, café and function centre and new visitor facilities on the nearby riverflats.

The Audley Approaches is regarded as an integral part of the historic character of Royal National Park because it contains the infrastructure used for public rail, road and tram access to the main Audley

Precinct and National Park as a whole. Weekend tram rides into the Park are operated from the Sydney Tram Museum at Loftus. Actions in the *Audley Masterplan* for this area involve interpretation of Rawson Avenue (replaced by Farnell Avenue) as the earliest access road to Audley, conservation of the alignment, its adaptation as a walking track, and conservation and interpretation of the non-invasive ornamental roadside plantings (which include Brush Box, a highly invasive plant). At the Terminus Precinct of the former 'National Park Station' there are now a significant number of buildings including the Sydney South Regional Office and Royal Area Office for the National Parks and Wildlife Service, the Royal National Park Visitors Centre and the Environmental Education Centre of the Department of Education and Training. The *Audley Masterplan* provides a complex set of actions to conserve, restore, interpret and adapt these historic features including the reinstatement of a shuttle bus from the tram service to Audley and the improvement of existing walking track links. The *Masterplan* also recommended a review of the documentation and removal of Bedford Cottage (referred to by Park staff as 'Gardiner's Cottage'), Gardiner's Garage and Shed which were associated with the provision of horse-drawn and motorised bus services between National Park Station and Audley. Only the cottage remains and continues to deteriorate in spite of local efforts to save it (Emerson, 2009).

The main relics of the historic plantings of exotics are in the Audley Precinct and along the former Lady Carrington Drive, now converted to a walking and cycling track (the Lady Carrington Way). The general policy is to retain exotic plantings identified as having historical significance, provided they are not having an unacceptable impact on natural values. Another well maintained historic feature from the Nineteenth Century period is the Forest Path, one of the first of its kind, which links up with both the Couranga Track and the Lady Carrington Way.

Not everyone agrees with the current policy of retaining remnants of the earlier recreational-use facilities in the Audley area and the historic plantings, and it is noticeable that policies on retention versus a 'return to nature' have see-sawed since the 1970s.

Nearly all of the 205 remaining cabins are in the Burning Palms, South Era, Little Garie and Bulgo areas on the south-eastern coastline of Royal National Park. They are reminders of the period before the area was added to the National Park estate and their cultural significance has been recognised by the National Trust, Wollongong City Council and the New South Wales State Heritage List. The cabins and their communities are a living cultural landscape, with some cabins people having links to the original builders, and some owners tracing back four or five generations. A Coastal Cabins Protection League formed in 1945 represents the interests of all five of the National Park cabin communities and conducts educational 'Heritage Walks' for visitors. Bulgo has its own league. The present Government policy is to govern the cabins by means of 20-year licence agreements. No new cabins are allowed except by rebuilding. The cultural heritage significance of the cabins is recognised and guidelines for their use and conservation were established in the July 2005 *Royal National Park Coastal Cabins Areas Conservation Management* (Parks and Wildlife Division, 2005). The cabin settlements have cultural significance not only for the way they represent an enduring legacy of a particular aspect of recreational land-use but also because of the role they played in the bushwalker conservation movement's push for primitive areas that ended up as a nation-wide movement (see Chapters 3 and 4).

C. Natural Beauty and Aesthetic Values

PARAGRAPH 92 of the *Operational Guidelines* states that properties proposed under criterion vii relating to superlative natural phenomena or aesthetic importance should:

... include areas that are essential for maintaining the beauty of the property
... that are integrally linked to the maintenance of the aesthetic qualities of the property.

The chief aesthetic attributes of Royal National Park are its spectacular cliff-lined coast and wildflower-rich moors, its contrasting woodlands and densely forested inland valleys. There are no objective measures of natural beauty and the large number of visitors attracted is

in part a result of the proximity of the Park, with its beautiful and easily accessed picnic places at Audley, Bonnie Vale, Wattamolla and Garie, to Australia's largest metropolis. In its *Supplementary Documentation* of January 2000 for the Greater Blue Mountains World Heritage nomination, the Australian Government stated that "natural beauty is best assessed as a total combination of the aesthetic values of the place and that assessment needs to have regard to the total appreciation of these qualities".

The combination can include public awareness of the history of the Park, the role it played in the development of protected area concepts, and the way in which its scenery can contribute to an understanding of geology, geomorphology and biology. In the case of the Royal Reserves there is an additional value through their geographical connections with the other sandstone plateaus of the Sydney Basin and particularly with the uplands and deep cliffed valleys of the Greater Blue Mountains World Heritage Area.

Factors working against the enjoyment of the aesthetic values of Royal National Park include the considerable extent of the road system in the Park and the fact that several of these roads are used for through-traffic. The through-roads are those which connect the suburban enclaves of Bundeena and Maianbar to other urban areas; and there is the more recent incorporation in 2008 of the Park's Sir Bertram Stevens Drive and the Lady Wakehurst Drive into the much publicised Grand Pacific Drive from Loftus to Wollongong. These functions and the control by the Roads and Traffic Authority involve road user behaviour (such as speeding) and road maintenance levels and practices (relating to such matters as road widths and operations on the road reserves) which are inconsistent with the protection and enjoyment of a natural environment. The main approach currently being used to limit adverse impacts from vehicle access is by closing large sections of the Park to vehicle access at night by means of locked gates on five road entrances. The closure of the 10 kilometre Lady Carrington Drive to vehicle access in 1987 greatly increased the aesthetic appeal of this central area; its name is being changed to Lady Carrington Way to reflect its new role. The 2000 *Plan of Management* provided for a policy of no

additional road construction in the three Reserves and the promotion of public transport.

There are over 150 kilometres of walking track in Royal National Park. In recent years short walks have been added, similar to the ancient Forest Path, walks to places of interest for visitors. Bush camping is limited to designated sites at North Era and Uloom Falls and is by permit only. The 26-kilometre-long Coast Track, recommended for a two-day walk, is the best known of these, providing a magnificent opportunity to experience the natural beauty of the coastline from Bundeena to the Otford Lookout. The location of the only designated site for public camping at North Era, at approximately three-quarters of the distance along the Track from the northern start point at Bundeena, means that one of the days on the two-day walk is considerably longer than the other. The banning of bush camping at other than designated sites is resented by some bushwalkers.

Intrusive elements which have the effect for some people of reducing the experience of the natural environment include the noise from low flying aircraft approaching Sydney Airport over Royal National Park and the presence of the cabin settlements on some of the most scenic sections of the southern coastline. Flights of both domestic and international origin are now directed to use this southern approach. The cabins, to many, not only spoil the naturalness of the scenery but also, despite their cultural significance, conflict with the closely associated concept of the National Park being a public domain devoid of private interests. Many fire tracks also used as walking tracks have been widened and cleared and refuge areas have been constructed every couple of hundred metres along their entire length as safety measures – which has caused considerable damage and reduced the quality of the aesthetic experience. Changes to insurance regulations have resulted in the inspection of all park roads, tracks, trails, picnic areas and parking areas, and the removal of all hazardous trees. Further urban development in the Helensburgh area, some of which would be visible from high points in the southern part of Royal National Park, is another threat to the enjoyment of the Park's scenery as is the lighting along the highway on the western side of Royal.

Visitor pressures on the Royal Reserves have been gradually reduced over the last few decades, particularly since 1968, as the *Sydney Region Outline Plan* developed the Western Sydney Parklands. These parklands cover 5,500 hectares and stretch from Quakers Hill in the west to Leppington in south-western Sydney and they are still expanding. The *Western Sydney Parklands Act 2006* set out the boundaries and established a Trust.

D. Geo-Heritage Values

THE REQUIREMENTS FOR properties seeking to meet the selection criterion viii with regard to geo-heritage values are set down in Paragraph 93 of the *Operational Guidelines*. They require that the properties, representing major stages in Earth history and on-going geological processes, “contain all or most of the interrelated elements in their natural relationships”. The northern end of the Woronora Ramp contains all parts of the late Permian-Triassic stratigraphy and in addition displays in the cliff-sequences and in the shape of the coastal and inland valleys how the Triassic rocks with their different structural and mechanical properties have responded differentially to erosion.

The main threat to the integrity of the geological and landform features of the coastline has come from past human interference with the clifftop dunes. This has resulted from mining of the sand, war-time activities, road and track work, deer grazing, and walking track erosion.

An on-going concern is erosion caused by walkers and cabin users along the coast in combination with wind and water erosion. This is a problem which is being tackled by improvements to the track including reconstruction of tracks, the use of metal trackwork and improved track signage.

The 2000 *Plan of Management* identifies wild grazing by deer on the coast and the estuarine foreshore as a worrying cause of soil erosion. It is being tackled mainly through culling (see below).

A major deficiency in integrity terms results from the fact that the upper part of the Hacking River Catchment is not included in either of

the three Royal Reserves and that the Garawarra State Conservation Area could be subject to coal mining. The Metropolitan Colliery coal waste dump in Camp Gully Creek has often collapsed and contributed large quantities of black sediments to the Hacking River. Residential development in this upper catchment area has also created a major increase in sediment levels and associated siltation problems. The increased run-off, compared with the situation in the National Park part of the Catchment, causes bank erosion as well as pollution and weed invasion (see below). The siltation problem is reflected in the build-up of a delta on the Lower Hacking River Estuary at Grays Point. The main approach adopted for control and management of these problems is in the use of water run-off and erosion control measures at their source outside the Reserves under the aegis of the Catchment Management Act (see below).

For areas within the Royal Reserves the *Plan of Management* gives priority to the control of soil erosion at a number of key sites: the Jibbon clifftop dunes, the Cabbage Tree Basin beach ridges, the Garawarra Escarpment, walking tracks subject to heavy use in erosion-prone areas, camping areas, heavily used areas on estuarine foreshores, redevelopment sites, disused former quarries or gravel pits in need of revegetation, and fire trails and vehicular management trails.

Because the bed and foreshores of the South West Arm, Cabbage Tree Basin and Hacking River estuary are part of Royal National Park, the National Parks Service has control of them and its policy is not to allow dredging of these areas for navigation or any other purpose.

E. Bio-Heritage Values

THE SELECTION REQUIREMENTS for properties with bio-heritage values are set out in Paragraphs 93 and 94 of the *Operational Guidelines*. They require that such properties, representing significant on-going ecological and biological processes in the development of ecosystems and plant and animal communities, should be subject to selection criterion (ix), i.e. they should:

... have sufficient size and contain the necessary elements to demonstrate the key aspects of processes that are essential for the long term conservation of the ecosystems and the biological diversity they contain.

Areas with the most important habitats for the conservation of biological diversity and threatened species should be subject to selection criterion (x), i.e. they should:

... be the most important properties for the conservation of biological diversity. ... Only those properties which are the most biologically diverse and/or representative are likely to meet this criterion. The properties should contain habitats for maintaining the most diverse fauna and flora characteristic of the bio-geographic province and ecosystem under consideration.

The managers of the Royal Reserves face a wide range of problems in meeting these requirements. The three reserves are relatively small (compared with more recently established national parks), creating ecological problems for wildlife related to the shape and area of the reserves. The urban areas surrounding them are expanding and traffic is increasing, along with the many other problems such as urban run-off into rivers and creeks. The continuing urban and rural development is reducing the size and efficacy of the important wildlife corridors that service these reserves. And some of the best examples of subtropical rainforests in the Hacking River Catchment are outside the reserves, in Stuarts Gully and Cedar Gully.

The effects of isolation on mammal species in Royal National Park has long been of concern to conservationists and has been a major factor behind the campaigns to create wildlife corridors extending from the Royal Reserves to the Illawarra Escarpment (Robinson, 1977).

The on-the-ground problems resulting from these factors can be categorised as follows: (1) Fire as a factor outside of natural processes; (2) Impact of introduced species including weeds; and (3) Visitor pressures, including road kill.

1. Fire management

Fire has been an important natural process for most parts of the plant communities and ecosystems present in the Royal Reserves; however the Reserves in recent times are surrounded by urban settlement and they receive large numbers of visitors, so protection of human life and

property from fire has to be a major concern of fire management – the result is interference with what has been the natural fire regimes. With the dual purpose of protecting the biota from fires originating within or outside the Reserves and protecting surrounding residential areas from wildfires, the managers seek to reduce possible adverse impacts through controlled burning and the maintenance of fire trails. In addition, the 2000 *Plan of Management* indicates that arson is a not uncommon cause of fire within the Reserves, and that arson outside the Reserves can lead to wind-blown fire entering the Reserves.

Over the last four decades major fires affecting one or more of the Royal Reserves have occurred in 1976, 1977, 1979, 1983, 1988, 1991, 1994, and 2001. The fire of October 1988 affected over 50% of Royal National Park, that of December 1991 over 80% and that of January 1994 over 90%. Some of these fires had their origin in major fires spreading to the coast from distant areas to the west. The 1994 fire burnt most of the tall forests, affecting the habitat of the Greater Glider. A Fauna Survey after this fire found no Greater Gliders, but one was sighted in 2012 in Royal National Park and another at Stanwell Tops. Fires also appear to assist the spread of grazing by the introduced deer, thereby retarding plant recovery.

Madden and Connolly (2012) have shown from a study of the December 2001 fire on fauna that high-intensity fires have longlasting effects, with the sandstone woodland communities being most affected; and, while some species increased, most species decreased, resulting in overall decreased faunal richness (a key indicator of ecosystem health). They also noted how these impacts were compounded by the 2002-04 drought. Their study pointed to the importance of “Retaining unburnt refugia at a time when there is great pressure to reduce fuel loads”. A survey of the impact of fire on vertebrate fauna by Andrew (2012) appeared also to indicate a considerable reduction in the number of species.

One spectacular plant found in the sandstone flora of the Royal Reserves, the Gynea Lily (*Doryanthes excelsa*), has been shown to require a long fire-free period. Bowen and Burchett (2012) have hypothesised that it may be a relict species in a now fire-prone region which has become confined to areas which are relatively less frequently affected

by fire. Another study (Tozer and Mark, 2012) of the populations of the Grass Tree (*Xanthorrhoea resinosa*), which is ubiquitous within Royal National Park, has demonstrated that its very slow-growing habit and its adult mortality cannot be offset by recruitment when fire intervals are too short. Fire sensitive plants such as Acacias, Banksias, Casuarinas and Hakeas which regenerate from seed released after fire, are removed when the fire frequency period is shorter than that required to produce mature seeds.

The adverse influence of fire on the biota can be summarised as follows:

- (1) Fires resulting from extreme weather conditions which burn fiercely and affect all or much of the Reserves area have the potential to be particularly damaging;

- (2) The impact of overly frequent fires is particularly severe on fire sensitive species especially where the extent of the fires or their incidence next to developed areas prevents colonisation from surrounding areas; and

- (3) The overall effect is the threat of reduction in the diversity of habitats and species.

In response to this situation, policies have been developed in the *Plan of Management* and in the *Draft Fire Management Plan* which combine the aims of:

- (1) Protecting human life and property both within the Reserves and in areas adjacent to them;

- (2) Maintaining species habitat and diversity, avoiding local extinctions, and enhancing the conservation of rare and endangered native plant and animal species;

- (3) Protecting structures, objects and places that are of cultural heritage significance; and

- (4) Undertaking public education on fire management.

The Scientific Committee established under the *Threatened Species Conservation Act 1995* has listed high frequency fire as a key threatening process under Schedule 3 of the Act, and fire management plans and practices include threat abatement and species recovery plans.

Fire management is coordinated by the Sutherland Shire Council and the Joint Sutherland and Wollongong Bush Fire Management

Committees under the *Rural Fires Act*, 1997. Wollongong and Sutherland Councils are responsible for the zoning of land adjacent to the Reserves. Fire management plans are reviewed before the start of each bushfire season.

The general approach to fire management is to: (1) carry out hazard reduction in the adjoining urban areas (designated as 'hazard reduction zones') to minimise their vulnerability to fires from the Reserves and to protect the Reserves from fires from outside their boundaries; and (2) develop fire intervention regimes for ecosystems and communities based on a full understanding of their fire requirements. Included is research into the reproduction of species for incorporation into fire management plans. Fire thresholds have been set in the 2000 *Plan* for each major community as follows: for 'rainforests', 'tall moist eucalypt forests', 'open forests or woodlands', 'wet and dry heath', 'tall shrubland', 'swamp forest', and 'sedgeland'. They include the exclusion of fire from rainforest communities and protection of tall moist eucalypt forest (wet sclerophyll) from too frequent fires. This approach has involved the development and maintenance of a network of fire trails, additional to the access provided by the considerable Reserves road network.

2. Management of introduced species and weeds

Another problem for the conservation of the natural processes and the diversity of the Royal Reserves biota is the presence of exotic species of both flora and fauna. Details concerning the deliberate introduction of a wide range of exotic species during the acclimatisation phase have been provided in Chapter 2.

The most widespread management problem is that of weed infestation from urban areas and degraded bushland west of Royal National Park and from the 10% of the Hacking River Catchment which lies outside the Royal Reserves. These impacts are also related to the pollution problems associated with land-uses in this Upper Catchment which are incompatible with National Park objectives. Several of the weeds successfully compete with the native species. The 2000 *Plan of Management* reported that urban run-off is a major contribution to the invasion and spread of weeds by increasing the nutrient and moisture

content of the soils and by transporting sediments rich in weed seeds and plant propagules. The higher nutrient supply in urban run-off can assist weeds to supplant low-nutrient-dependent native species. This process is assisted by the roads and trails of the reserves which act as avenues for weed invasion, via walking, driving, and track maintenance. By creating attractive ash-bed conditions, fires can also assist weed spread. Hence, further urbanisation in areas close to the Reserves would facilitate continued weed spread. Inappropriate land-use development in the Upper Hacking River Catchment already involves the build up of sediments and eutrophication from increased organic and phosphorus levels which cause unnatural levels of aquatic growth in the Hacking River.

In the face of these on-going threats, the physical environments of the Royal Reserves do have some natural defences against weed spread. Fortunately, over half of Royal National Park has a maritime boundary. Its predominantly sandy soils are low in available phosphate and nitrogen. And not much light reaches the ground in the rainforest areas of the Hacking River, thus inhibiting weed growth there. Important considerations are to restore the Hacking River to free flow by removing the dams and weirs, and to restore the tidal flow of the Hacking River and Kangaroo Creek Arms of the Hacking River Estuary by removing the Causeway at Audley. This must be balanced with the important contributions the dam and weirs make to traffic flow and access, to weed and polluted sediment control, and to amenity and recreation.

The processes of weed invasion and water pollution associated with the impact of urban development and other land-uses including waste dumping, intensive agriculture and roadworks in the Upper Hacking River Catchment, were the subject of intensive study mainly during the mid-1980s at a time when major urban expansion in the Helensburgh area was under consideration (see below). The resulting reports of considerable on-going relevance to developing measures to mitigate the problems include: *Impact of Proposed Urban Development of Helensburgh and its Surrounds upon Nature Conservation Values in the Area* (Crombie, 1984); *Impact of the Proposed Urban Development of Helensburgh, Otford and Stanwell Tops on Their Surrounding Natural Environments* (Crombie,

1984); *The Likely Impact of Urban Development on the Hacking River System* (Woodward, 1985); *The Upper Hacking Catchment, A Natural Resource Survey*, in 2 volumes (NSW National Parks and Wildlife Service, 1985); *Investigation into the Impact of Urban Development at Helensburgh on Water Quality of the Hacking River*, including a report on *Weed Invasion of the Hacking River Catchment via Riparian Systems* by Crombie, (December 1985) (State Pollution Control Commission, March 1986); and *Hacking River Total Catchment Management* (State Pollution Control Commission, 1989).

The National Parks and Wildlife Service report discussed 5 options for the environmental protection of the land in the Upper Hacking River Catchment, including land purchase of identified areas, covenants and planning control through zoning. The Total Environment Centre's 1986 report, *Royal National Park Southern Extension and Environment Protection*, gave further substance to these reports by making definitive proposals for action. In 1985 the National Trust of Australia, included the 'Garawarra Landscape Conservation Area' on the 'Register of the National Trust'. In December 1987 the Garawarra State Recreation Area was set aside (see Chapter 2). A further outcome of all these studies was the identification in the 1984 report by Crombie of four corridors connecting Royal National Park with the Illawarra Escarpment, the water catchment lands, and Heathcote National Park: (1) a 'Littoral/Coastal Corridor' along the coast from Otford/Bulgo to Stanwell Tops; (2) a north-south 'Moist Forest Corridor' from east of Helensburgh to Stanwell Park on the Escarpment; (3) a 'Dry Forest Corridor' from Royal National Park and the Garawarra State Conservation Area to the water catchment reserves; and (4) an east-west 'Heathland and Woodland Corridor' between Heathcote and Waterfall linking Royal and Heathcote National Parks.

In 1985 Bob Crombie, who had made a major input into these reports, helped to initiate the formation of a new voluntary group - 'Friends of the Hacking River'. Beginning in October 1985, with Crombie as Chair and the Total Environment Centre's Keith Muir as Honorary Secretary, this group, together with the Helensburgh District Protection Society (formed eight months later) helped to consolidate all efforts to protect the Upper Hacking River Catchment against urban expansion propos-

als (see below). The Helensburgh District Protection Society organised monthly public meetings, its efforts resulting in thousands of submissions to the Wollongong City Council in favour of conservation.

Attempts at management of the weed threat involved education programmes, on the ground action, and broad-scale planning. The 2000 *Plan of Management* gave high priority to the development of a weed control plan and the undertaking of a public education programme on weed control. Weed eradication and native plant regeneration programmes were focused on the most heavily affected areas. Run-off and erosion control works would be used to limit sediment level from unnatural flows. The main planning instrument to tackle the problem of undesirable interactions within the catchment including weed dispersal is the *Catchment Management Act*, 1989. The Hacking River Catchment Management Committee (on which the National Parks and Wildlife Service was represented) was formed in 1993 but was disbanded in April 2000, thereby reducing input from local land care and conservation groups. One initiative of this Committee was the June 1998 Community Forum which it hosted and at which a 'Community Contract' was launched. This cooperative endeavour encouraged voluntary involvement in weed eradication, bush regeneration and rubbish removal. For example, the Strategic Weed Eradication Program ran for a period with volunteer input. Responsibility for the Hacking Catchment was in 2000 transferred to the Southern Catchment Management Board, but in 2004 the Sydney Metropolitan Catchment Authority took over responsibility for the Hacking River Catchment, and for the Georges River Catchment within which the Woronora River and Heathcote Creek, draining Heathcote National Park, are located.

The 2000 *Plan of Management* reported that there were at least 9 introduced mammal species in Royal National Park, including the Fallow and Javan Rusa Deer which were introduced during the acclimatisation phase over 100 years earlier. The determination of a policy of removal of the deer has been difficult because of some public support for their retention. Dogs, cats and semi-domesticated pigs enter the Reserves from the urban areas to roam and hunt, and some are feral. The dogs and cats prey not only on birds but also on the Feathertail and Sugar Gliders. There are a number of exotic bird species including

Mallard and Muscovy Ducks as well as European Honey Bees. The ducks have interbred with native species. The European Bees damage native plants and compete with and displace native fauna species including native bees, nectar-feeding birds and small mammals.

Javan Rusa Deer have a preference for certain plants and through their trampling cause soil erosion. They are believed to impact adversely on the regeneration of rainforest plant species, grazing for instance on the seedlings of Cabbage Tree Palms and tree ferns and preventing recruitment after fires. Research into the impact of this deer species on vegetation and small mammals by McArthur et al (2012) has shown that certain native animals – the Brown Antechinus, Bush Rat and New Holland Mouse – have been affected by their severe browsing.

The results of native mammal surveys suggest that several other mammal species, including the Tiger Quoll (*Dasyurus maculatus*) and the Red-necked Pademelon (*Thylogale thetis*), have declined in numbers.

The management approach to these problems includes a *Royal National Park – Deer Management Plan* which provides for their eventual eradication and includes research into fertility control as an alternative to culling. Deer control was given a high priority in the 2000 *Plan of Management*. Other plan-implementation priorities include the undertaking of faunal surveys and public awareness programmes for feral animal control, particularly concerning deer. A moderate priority is being given to the monitoring of bee control research.

Foxes and Cats are particularly serious introduced predators and attempts are regularly made with poison baits and traps to control their numbers. Fox and Cat eradication is highly desirable but is unlikely to be successful with present methods. Very serious consideration needs to be given to devising more effective forms of control.

3. Management of visitor pressures

Reference has already been made in this chapter to the problems created by the extensive road system in the Reserves. The main impact of the roads on the natural environment is through the destruction of natural conditions by the road surfaces and, to a lesser extent, on the road verges. And road kill plays a part. There is a long history of

problems arising from the fact that several of the major roads servicing Royal National Park are in their separate Road Reserves that are not part of the Park, and these are not controlled by the National Parks and Wildlife Service. The average road and Park users do not know this and do not differentiate between the Road Reserves and the Park. Over the years there have been many problems on the roadsides such as: littering; dumping and burning cars; disposal of garden waste and other materials (some of it dangerous such as creosote and some containing plant pathogens such as *Phytophthora*, weeds and Argentine Ants); cutting of trees; carrying out of drainage works which in some cases extend outside the Road Reserve; and clearance of roadside vegetation to improve lines of sight and remove bushfire hazards. The roads also provide easy access for the dumping of rubbish and the stealing of wildlife. Road kill is particularly associated with night-time driving by the residents of the suburban enclaves of Bundeena and Maianbar. This random killing is believed to be having a substantial impact on the populations of a wide range of species.

As noted, the policy of the Parks Service is to have no additional roads constructed. The Cawleys Road in Garawarra State Conservation Area has been closed. A moderate priority is given in the 2000 *Plan of Management* to the definition of the road reserves for Main Road 68, Bundeena Drive, and Maianbar Road.

There are no zoning plans for any of the Royal Reserves. Instead management focuses on providing for visitor activity in ways which endeavour to reduce impacts on the natural environment. Bush camping away from the two designated sites of Uloola Falls and North Era is prohibited in Royal National Park and Garawarra State Conservation Area. There are three designated camping sites in Heathcote National Park. (An exception is in relation to a concession granted to a private company to operate guided walks along the Coast Track.)

Many disagree with this policy as being far too limiting and an unacceptable restriction, particularly on the iconic coast walk which runs the length of the Park. There are serious issues with respect to managing bush camping, including low-funding, low-monitoring and enforcement by staff, the high to extreme erosion potential of the soils, frequent fires, droughts and flooding rains, and the poor facilities,

hygiene and litter problems. Hopefully these issues can be sorted out and a better bush camping policy can be developed, with more sites.

Cycling is considered an appropriate activity but is not allowed off-track or on most walking tracks (mountain bike use of these areas is a problem). A *Royal National Park Trial Cycling Management Plan* was adopted in 2002. Other policies include the development of the Audley Precinct as a high day-use area, the redevelopment of other major picnic areas at Wattamolla and Garie, rehabilitation of former bush camping areas, and reviewing and developing the walking track system. Horse riding is banned in Royal National Park. At times of particularly high visitor pressure the Police close the roads. Similarly, when the car parks at beaches such as Garie are full, the Parks Service closes the gates on the roads it controls. Visitor use of the Reserves has had another consequence as a result of the removal of trees considered unsafe along roads and tracks and at parking and picnic areas – safeguards often requested by insurance companies. A result has been the loss of some large beautiful trees, some providing habitat for bats, birds, possums and other creatures. Many large trees have been removed along Lady Carrington Way because they were hollow.

Public education is regarded by the Parks Service as a major tool in protecting the natural environment of the Royal Reserves and it takes many forms, including active engagement in field surveys and management. Community engagement through volunteering is high in the Royal Reserves, an example being the way Royal National Park was inundated with offers of assistance after the major 1994 fire. A number of non-government groups have focused their efforts on Royal. In addition to a Royal National Park Advisory Group and a Friends of Royal National Park group (formed 2009) there is a Royal National Park Volunteers Programme. Recent volunteer activities include the Royal National Parks and Environs Biodiversity Survey and a Royal National Park Bush Regeneration Programme and Team. Volunteers have provided life-saving services for 74 years at the beaches of Garie, South Era and Burning Palms. Other volunteer groups in the region include those of the Sutherland Shire Bushcare Group, Cabin Communities Landcare Group, Helensburgh and District Landcare Group, Sutherland Shire Environment Centre, Australian Native

Plants Society (Sutherland) Group, Port Hacking Wildflower Society, Port Hacking Protection Society, Otford Protection Society (formed in 1895 as the Otford Progress Association, name changed in 2002), and local branches of the National Parks Association. In March 2010 the 'First National Park' group was formed to help progress its World Heritage Listing quest for the Royal Reserves.

F. Boundaries and Buffers

THE WORLD HERITAGE listing requirements concerning adequate boundaries are set out in Paragraphs 99-102 of the *Operational Guidelines*. They ask for full expression of a property's Outstanding Universal Values and the protection of these from the direct effect of human encroachments, including impacts of resource-use outside the nominated area. In addition, Paragraphs 103-07 concern the use of buffer zones as an additional protective measure and require details of such zones to be provided, or, if they are not, a statement of why a buffer zone is not required.

The three Royal Reserves are located in the northern section of the Woronora Ramp with the Garawarra Ridge and coastal cliffs forming the northernmost part of the Illawarra Escarpment (see Fig. 7). The Escarpment is the most prominent landform of the Illawarra region. North-west of the Escarpment the Woronora Ramp with its predominantly Hawkesbury Sandstone rocks is drained by tributaries of the Nepean and Georges Rivers. Hence the Royal Reserves have a close geographical connection with these other areas in terms of geology, landforms, landscapes, bio-heritage and geo-heritage values, and wildlife movement. The creation of corridors is a major conservation priority from the point of view of both wildlife security and recreation. For wildlife such linkages provide escape routes in times of fire and an aid to recolonisation afterwards. Examples of species benefiting from these corridors include the Greater Glider, the Red-Necked Wallaby, and the Powerful Owl.

Most of the land situated to the north-west of the Illawarra Escarpment is used for part of Sydney's and Wollongong's water

supply. There are five major reservoirs (Cataract, Cordeaux, Avon, Nepean and Woronora), built between 1907 and 1941, located on Sydney Water Catchment Authority Lands, and they are closed to public entry. There are also a number of protected areas, including the Illawarra Escarpment State Conservation Area of 2,635 hectares, the 6,500 hectare Dharawal National Park (gazetted in March 2012) in the catchment of O'Hare's Creek in the headwaters of the Upper Georges River, the Upper Nepean State Conservation Area (25,237 hectares), and the Bargo State Conservation Area (4,800 hectares). The Illawarra State Conservation Area had begun its life in 1980 as the Illawarra State Recreation Area (NSW National Parks and Wildlife Service, 2011). The Macarthur Branch of the National Parks Association made a proposal for a Dharawal Nature Reserve in 1988 (Sheppard, 2012) but because of existing mining leases this became the Dharawal State Conservation Area in 1996. Following an unfavourable Planning Assessment Commission report on the environmental impacts of BHP's 2008 Bulli Seam Project, BHP withdrew most of the Dharawal area from its proposal, clearing the way for the Dharawal State Conservation Area to be upgraded to National Park in 2012. Provision was made to allow two areas covering 1.3% of the SCA to retain State Conservation Area status to allow longwall coal mining to continue for a period, after which it may be added to the National Park. The south-western boundary of Heathcote National Park adjoins the boundary of the catchment of the Woronora Dam, and its north-western boundary on the Woronora River adjoins the Holsworthy Military Reserve controlled by the Defence Department. The southernmost part of Royal National Park near the Lawrence Hargrave Lookout is linked with the Illawarra State Conservation Area situated along the Illawarra Escarpment to the south.

In spite of its steepness and high scenic and ecological values the Illawarra Escarpment has attracted a wide range of land-uses including deforestation, mines, villages, walking tracks and lookouts. A long-distance walking track along the Escarpment was first proposed by a Combined Committee of the Illawarra Natural History Society and the South Coast Conservation Committee in 1971. There are some 34

kilometres of north/south walking track along the Escarpment from Stanwell Tops south to Mount Kembla (Brown and Delaney, 2005).

In their entirety the closed water catchments, Dharawal National Park, the Illawarra Escarpment and the Upper Nepean and Bargo River State Conservation Areas, form a major public land estate and a very important wildlife corridor which adds considerably to the conservation integrity and values of the Royal Reserves and the Greater Blue Mountains World Heritage Area. They stretch almost continuously from the Royal Reserves to the Nattai National Park in the Greater Blue Mountains World Heritage Area. The Royal Botanic Gardens report, *An Assessment of the World Heritage Values of the Blue Mountains and Surrounding Plateaus* (James, 1994), found that this part of the Woronora Plateau has outstanding biodiversity values and noted that, "Some of the highest species-richness values in the world have been recorded from the upland swamp communities of the Woronora Plateau". Longwall coal mining, from mines in the Illawarra, extends under the Ramp and has caused cracking in stream beds, sandstone cliffs and caves.

This land-use situation on the southern part of the Woronora Ramp provides a major southern buffer for the Royal Reserves as well as a very important wildlife corridor. Maintaining and restoring the wildlife corridors between the Royal Reserves and this extensive natural area to the south is of considerable importance to the security and integrity of the Royal Reserves. Obstacles elsewhere are the non-inclusion of the Upper Hacking River Catchment in the Royal Reserves, which makes for adverse impacts from land-uses in the Helensburgh and Otford areas. And the presence of major traffic routes – the Princes Highway, the F6 Freeway and the Illawarra Railway line, together with the suburbs of Engadine, Heathcote and Waterfall – create major barriers to east–west wildlife movement.

The F6 Freeway south from Waterfall to Wollongong (opened 1975) was built with little attempt to mitigate its barrier effect, in spite of recommendations from the National Parks and Wildlife Service. Similarly, the fencing of the railway took place in spite of opposition. A community campaign in the late 1970s was successful in opposing the northward extension of the F6 freeway from Waterfall to Kirrawee

along an easement running along the western boundary of Royal National Park. One of the longstanding proposals put by Bob Crombie, which would provide some counter to the barrier effect of both the F6 Freeway and the Pacific Highway, is the use of Cawleys Bridge to provide scope for cross-highway wildlife movement.

Road accidents on the surrounding roads within the catchment of The Royal Reserves have caused considerable damage to the Reserves. In the mid-1970s a spill of sulphuric acid on the Princes Highway on the upper reach of Wilsons Creek which was cleaned up with lime, caused the death of wildlife all the way to Audley and has been blamed for the extinction of Platypi and Water Rats from Royal National Park. A later spill of phenyl at Engadine/Heathcote resulted in the death of Eels and other fish at Audley.

In the part of Royal National Park bounded by Port Hacking a major problem stems from the presence of the suburban enclaves of Bundeena and Maianbar and even moreso from the considerable extra volume of through motor traffic (commuting and recreational) in the National Park

The major buffering task is to limit adverse impacts from development in the Upper Hacking River Catchment which lies outside the Royal Reserves. Efforts by conservationists to have Crown land reserved and have other areas protected by means of planning controls stretch back over four decades. Throughout, a major plank of the opposition to development in the area has been concern over the adverse impacts on Royal National Park.

Coal mining is not a threat in the Garawarra State Conservation Area at present but could be in the future. Helensburgh, originally subdivided in 1884, had a population of nearly 4,000 in 1986 and nearly 5,500 at the 2006 census. There has been persistent pressure from landowners for its further expansion. The main currently available protection measures are the planning controls of the Wollongong City Council. Much of this Upper Catchment was zoned 'rural' in the *County of Cumberland Planning Scheme* (Cumberland County Council, 1948). This scheme (gazetted 1951) identified an area for residential development and set a minimum lot-size for a 'country dwelling' in the rural areas of two hectares. In January 1968 the *County of Cumberland Planning*

Scheme was replaced by the *Illawarra Planning Scheme Ordinance* (IPSO). Under IPSO the land in the Helensburgh/Otford Area was generally zoned 'Non Urban A' and the minimum area of two hectares for a country dwelling was retained. In April 1971 the Minister varied the minimum area for the erection of a country dwelling by increasing it to 20 hectares, thus further limiting subdivision. Helensburgh was unsewered at this time and a major aim of the environmental controls was limiting water pollution. The cost of water and sewerage amplification, estimated at \$80 million in 1981, was one factor inhibiting urban expansion in the area. Construction of the sewerage scheme for Helensburgh was commenced in 1982 and was completed in April 1989.

In September 1971 a private development company announced a plan for a town of 30,000 people to be called 'New Otford' in the Otford, Lilyvale and Helensburgh area (*Sydney Morning Herald*, 11 September 1971). Both the National Trust and the Colong Committee condemned the proposal, with Colong Committee's Secretary Milo Dunphy, saying " ... it would pollute the River and the National Park".

Twelve years later the possibility of major urban expansion in the Helensburgh area was revived following the upgrading and electrification of the Illawarra Railway Line when the Government hired consultants Mitchell, McCotter and Associates to compare West Menai and Helensburgh as sites for further residential development. The resulting 1984 report to the State Government, *West Menai and Helensburgh: Evaluation for Urban Development*, recommended release of lots at Helensburgh (possibly up to 3,000 lots) before a major release at West Menai. This led to the Department of Environment and Planning, on the recommendation of the Urban Development Committee, adding Helensburgh to the 'Illawarra Urban Development Program', to a flurry of impact assessment reports, and to the formation of conservation groups referred to above.

In March 1984 the IPSO was replaced by the *Wollongong Environmental Plan No 38* (LEP No 38). The land zoned Non Urban A was now zoned '7 (e) Environmental Protection Escarpment'. The minimum area for the erection of a dwelling was 40 hectares unless there was an 'existing holding', in which case the minimum area was

10 hectares, or 20 hectares where the land was created by subdivision between 30 April 1971 and the coming into force of *LEP No 38*.

Reference has been made (see Chapter 2) to the administrative slip-up in 1975 which led to failure of plans for the purchase of critical areas of land in the Upper Hacking River Catchment by the National Parks and Wildlife Service (a slip-up not discovered until 1982). In 1980 some of these lands were bought by Ensile Limited, many being 1000m² 'paper allotments'. Although below the minimum lot-size for building, they could nevertheless be bought and sold. In October 1985 Ensile advertised them for sale with statements concerning future rezoning which would allow their use.

Between 1980 and 1985 the Wollongong City Council lobbied for State Government authorisation to undertake a local environmental study to investigate urban expansion at Helensburgh. In April 1985, following the inclusion of Helensburgh in the Illawarra Development Programme, the State Government agreed, and in 1986 the Wollongong City Council commenced a study of urban expansion and produced the 'Helensburgh Local Environmental Study' (*Illawarra Mercury*, 14 May 1986). In November 1985 the Council had provided a grant to the State Pollution Control Commission to carry out a survey of the Hacking River catchment. The Commission presented a report in March 1986, *Investigation into the Impact of Urban Development at Helensburgh on Water Quality of the Hacking River*. It included the report *Weed Invasion of the Hacking River via Riparian Systems* (Crombie, 1985), which had been used as part of the investigation. In November 1989 the State Government instructed the Council to exhibit a draft plan for urban expansion at Helensburgh.

At the metropolitan planning level, Helensburgh was identified as a potential area for urban development in the *Sydney Metropolitan Strategy* of 1988. But this was not upheld in the early 1990s version of the plan, *Sydney's Future*. Since then, the Greater Sydney Metropolitan Region including Wollongong and Newcastle, is taken to include the Royal Reserves as being squarely within an urban frame.

In May 1988 under *Wollongong LEP 126* the subject lands around Helensburgh/Otford were rezoned '7 (h) Environmental Protection Hacking River'. In December 1990 *LEP 126* was replaced by *The City of*

Wollongong Local Environmental Plan 1990, providing for private lands in the vicinity of Helensburgh, Otford and Stanwell Tops not zoned residential to be zoned "7 (d) Environmental Protection Hacking River" with the same provisions as the 7 (h) zone in *LEP No 38*.

In July 1990, with the sewerage scheme in place, the 'Draft Helensburgh Plan', supportive of residential expansion, was placed on public exhibition. The Plan was conscious of the importance of protecting water quality in the Hacking River catchment and acknowledged the protected 'P' status of the Hacking River and its tributaries under the Clean Waters Act. It noted though, that if applied rigorously this would rule out any development whatsoever. The *Clean Waters Act*, 1960 was repealed in 1999 and replaced with the *Protection of Environment Operations Act*, 1999. The new Act does not classify waterways. Wollongong City Council proposed the rezoning of 110 hectares, which could have provided for 1,300 new lots. However, in April 1991 after strong opposition to this proposal the Council voted 9 to 6 to reject it. Notwithstanding this, more proposals for residential development on an expanded basis were made in March-April 1992. At this stage citizen campaigning against residential development was adversely affected by legal action taken against some Helensburgh District Protection Society campaigners by developers (Beder, 1995).

In March 1994 the Helensburgh Land Use Commission of Inquiry was appointed to further examine the issue of the expansion of Helensburgh. The Commission reported in December 1994 on 'Appropriate Landuse Zonings in the Vicinity of Helensburgh, Wollongong Local Government Area' (Carleton, 1994). The inquiry brought into focus the views of those seeking protection of the Upper Catchment and those favouring urban expansion in this area which is so critical for Royal National Park. The Sutherland Shire Environment Centre, the National Parks and Wildlife Service, the National Parks Association and other groups brought the Commissioner's attention to the unique features of the area and the importance of its relationship with Royal National Park. The submissions of the Save the Hacking Coalition, formed in May 1994 on the initiative of Bob Walshe, put the case for a whole-of-catchment approach and pointed to Royal National Park's World Heritage potential. The Sutherland Shire Council, within

whose local government area Royal National Park is situated, strongly opposed the urban expansion and in July 1994 circulated 65,000 'Don't Spoil the Royal' brochures to its ratepayers.

The Commission examined in detail the potential environmental impacts from alternative land-uses on Royal National Park and on wildlife corridors; the north-south corridor was shown to be at risk from further urban development. While noting that water quality was the most important issue and that existing impacts from rural and urban land-use were not acceptable, the Commission in its report to the Minister for Planning and Housing recommended no change in the current LEP or current zonings – at least until further studies were undertaken to identify impacts from various land-uses, until appropriate environmental objectives/standards were set, and until these were followed by the development of a strategic catchment management plan to control pollution and determine appropriate land-use controls.

In 1995 and 1997 further areas were rezoned 7 (d) by amendments to *Wollongong LEP 1990*. In late 2007 a draft review of the 7 (d) zone, comprising some 784 lots (most in private ownership, 676 lots currently not having a dwelling or dwelling entitlement), was commenced for a new Local Environment Plan. This review is not finalised to date. The zone is no longer referred to as 7 (d) because in the late 2000s the State Government required all Councils to adjust their LEP zonings to fit a standard State-wide template. During the exhibition period of the draft *Wollongong Local Environmental Plan 2009* (December 2008 to April 2009), utilising the new template, Wollongong City Council was directed by the State Government to create an "interim" zone for the 7 (d) lands in the Upper Hacking River Catchment. Council initially proposed a more restrictive 'E2 Environment Conservation' zone, but in late July 2009 the Council voted unanimously to change this draft zone to 'E3 Environment Management', saying that it better reflected the existing 7 (d) zone. This interim zone applies, pending the completion of the LEP review. Council also decided to put a final draft proposal on public display in 2012. The Planning Proposal commenced exhibition in August 2012.

The areas involved are a mixture of bushland and lands cleared for hobby farming, tourism, coal mining, industrial uses and housing.

Minimum lot sizes required for development of a dwelling house in the proposed E3 zone vary from 10 to 20 and 40 hectares, depending upon the date of subdivision (10 hectares if lot created prior to 1971, 20 hectares if created between 1971 and 1984, and 40 hectares if created after 1984).

The Wollongong City Council has divided the land into 27 precincts with 10 separate zonings proposed to replace the long-standing 7 (d) 'Environmental Protection Hacking River' zone. Wollongong City Council intends to base its recommendations on a number of principles including: "retention of significant bushland; retention of water quality of the Hacking River; improving bushfire mitigation for existing residential areas; considering future development options; and reviewing the dwelling entitlement issue". Council also plans to exhibit a draft Planning Agreement involving a lands swap proposal for urban development of approximately 40 hectares in exchange for the dedication of 321 hectares for inclusion in the National Park estate.

The efforts of the National Parks and Wildlife Service have been focused on the acquisition of lands for addition to Garawarra State Conservation Area on a priority basis. In 2010 the NPWS purchased a parcel of private land to provide continuity for the historic Burgh Track and to be added to the Garawarra State Conservation Area. However, there has been a nine-year delay in adding Crown Lands adjacent to the Garrawarra Hospital (Garrawarra Centre for Aged Care) to the Garawarra State Conservation Area even though these are important for the corridor linking the Royal Reserves with the water catchment lands (Schoer, 2011 (a)). The National Parks Association has helped facilitate these efforts and has also supported the Wollongong City Council's bid to persuade the State Government to buy high conservation value land at Madden's Plains for addition to the national park estate.

The most serious attempt to not only research the adverse impacts of residential and other intensive land-uses in the Upper Hacking River Catchment but also to come up with a plan for extending Royal National Park was made in the mid-1980s in the series of reports referred to above and in a report produced by the Total Environment Centre (founded 1972). The 1986 TEC report, *Royal National Park*

Southern Extension and Environment Protection (Total Environment Centre, 1986), written by Keith Muir (a TEC volunteer from 1985 to 1989) under Director Milo Dunphy, recommended a comprehensive suite of measures including national park extension, development control, and a wide range of catchment management measures. The terms of reference for the 1989 State Pollution Control Commission report were drafted by the Total Environment Centre. While many of the problems remain, including the threat of rezoning to provide for further urban expansion, the issue has not been examined in such a comprehensive way since that time. The Parliamentary Commission of Inquiry did revisit these issues in 1994 but the main problems remained. The 2000 *Plan of Management* described the environmental problems resulting from mixed land-use in the Upper Hacking River catchment as including "point sources of pollution from a municipal tip, an active colliery, a hospital, horse riding establishments and a number of small farming enterprises".

What is clear from the history of two and a half decades of efforts by conservationists to protect this vital buffer area and its wildlife corridors from damaging developments, is that they have succeeded in limiting them to the point where the area has the potential to be an effective buffer for a World Heritage Area. Equally true is the fact that the pressures for urban development remain and will continue to do so unless an appropriate protective planning regime is provided. The National Parks Association has supported a policy of all areas with natural vegetation being added to the national park estate and the 7 (d) planning measure as a means of conserving the water quality of the Hacking River prior to any acquisitions of land. It has strong doubts as to whether, in the face of continuing development applications, the Wollongong City Council can rise to the challenge of making the necessary strong planning decisions (Schoer, 2011 (b)).

Conservation of the Illawarra Escarpment to the south of the Royal Reserves also has a long history, dating back to the late 1940s effort of the National Trust (NSW) to have this area afforded a protected landscape status. One of the main problems for nature conservation is the existence and further development of breaks in the natural systems running along the Illawarra Escarpment. In 1977 Robinson set out

the case for linking the natural areas along the Escarpment to overcome the effects of isolation on native mammal species (Robinson, 1977). The mid-1980s studies referred to above identified the need for measures to establish and protect four major corridors: a 'Dry Forest Corridor'; a 'Moist Forest Corridor' (north-south corridor) from east of Helensburgh to Stanwell Park on the Escarpment; a 'Littoral/Coastal Corridor' along the coast from Otford/Bulgo to Stanwell Tops; and a western Heathland, Dry Sclerophyll Woodland Corridor between Heathcote and Waterfall.

Community concern has grown over the continuing degradation of scenic and bio-heritage values of the Illawarra Escarpment. Land-clearing, fragmentation by residential development, and increased road construction, have prompted calls for an integrated approach to the area's conservation. This resulted in the appointment of an Illawarra Escarpment Working Party in October 1990. It served until 1997 when the Minister for Urban Development and Planning appointed a 'Commission of Inquiry (COI) into the Long Term Planning and Management of the Escarpment' (1998). Included in the subsequent Commissioner's report of May 1999, were recommendations concerning the treatment of the region as a single entity, the adoption of a strategic approach to land-use planning and management and, as a priority, the creation of a regional park under the *National Parks and Wildlife Act, 1974* – all endorsed by the NSW Government. The regional park proposal has not been advanced for lack of funding. In pursuance of the COI recommendations, Wollongong City Council, with input from State Government Departments, the Illawarra Escarpment Community Reference Group and the local Aboriginal community, developed and adopted in 2005 the *Illawarra Escarpment Strategic Management Plan* (Wollongong City Council, 2006) which provides a longterm vision for the protection of the Escarpment. The main innovation of the *Plan* was the recommendation of a new zoning system including an 'Environmental; Protection Zone – Conservation' to conserve the core conservation values of the Escarpment and foothills, and an 'Environmental Protection Zone Management' to act as a buffer to the conservation zone. The recommendations are to be implemented by means of the

Illawarra Regional Strategy of the Department of Planning (2007) and the *Wollongong Local Environment Plan 2009*.

Today efforts from the Royal Reserves end of the Plateau and Escarpment are also focused on forging and retaining the north to south links against the continuing threat of fragmentation by residential and other intrusive developments. Non-government bodies involved with these and other conservation efforts include the National Parks Association (NSW), the Otford Protection Society, the Northern Illawarra Aboriginal Collective Inc., the La Pouse Aboriginal Land Council, the Georges River Environmental Alliance, the Oatley Flora and Fauna Association, and the Illawarra Escarpment Coalition (formed 1990). This last named has for its main goal a wildlife corridor stretching from Royal to Morton National Park but is also working for east-west corridors connecting the Escarpment and the coast (Sandon Point and Calderwood corridors). The National Parks Association has been working for several decades to define and work for needed corridors connecting Royal National Park and Garawarra State Conservation Area with the Illawarra Escarpment and the water catchment lands and for the closure of gaps in protected lands including those in the Illawarra State Conservation Area, along the escarpment (Schoer, 2011). Much of this work has been done by the Southern Sydney and Illawarra branches of the National Parks Association and has included the production of a 3-part YouTube presentation – ‘The Green Corridors of Southern Sydney’ – which is also available in DVD format (National Parks Association, 2011) and the running of regular guided walks on the Coast Track. The National Parks Association believes that working for these corridors has the potential to connect communities and give them a greater sense of purpose. A major potential linkage in the region is the connection of the Coast Track in Royal National Park with the Illawarra Escarpment Track, thereby extending the former to a length of some sixty kilometres.

It is important that all of these questions of future land management in the Upper Hacking River Catchment, the Illawarra Escarpment and the Woronora Plateau of the Sydney Basin be seen from the perspective of their connectedness and that decisions taken have the potential to either enhance or detract from the whole.

Another potential problem area in the northern section of Royal National Park is the divided control of the three tidal areas situated within the Park – South West Arm , Cabbage Tree Basin and the Hacking River Estuary (upstream of Grays Point). The 2000 *Plan of Management* reported that recreational watercraft, over which the Parks Service had no control, were causing damage to the habitat. For some years, there has been local support for a Marine National Park offshore from Royal National Park; indeed the the National Parks Association of New South Wales has recently proposed a Sydney Marine Park stretching from Newcastle to the southern boundary of Royal National Park under the New South Wales *Marine Park Act*, 1997. Its proposal includes the zoning of Cabbage Tree Basin as a ‘sanctuary zone’ within the Marine Park providing the highest level of control over fishing, watercraft and habitats.

Conclusion: Summary and Recommendations

IT IS EVIDENT from the accounts in Chapters 4 and 5 that The Royal Reserves have a strong claim for inclusion in the World Heritage List. This does not mean of course that there are not considerable improvements that can be made to increase the integrity of these values and particularly those relating to bio-heritage.

A. Summary of Justification for Listing

The pre-eminent Outstanding Universal Values of the Reserves are cultural. They result from the way in which events at Royal National Park present a mirror to important social changes concerning public recreation and to perceptions of the natural environment in the period from the 1860s through to the 1930s; perception too of the role the Park played in the development of the wider national parks movement.

First in significance was the establishment of National Park as the world's first "national park", an event that deserves scrutiny of what led to that decision. Second, the changes in the approach to the Park's management demonstrate an increasing priority given to nature conservation over a range of other options. Third, there was the way in which a realisation of the Park's limitations contributed to the push for a state-wide national park system and for the reservation of wilderness areas. In all three cases the developments at National Park have been representative of worldwide changes in attitude towards the natural environment. The story is by no means over. Future changes in management and in interpretation will reflect society's changing values and in particular those concerning our relationship with the environment.

There has been no previous recognition through World Heritage Listing of the important role played by the pioneer national parks, including America's Yosemite and Yellowstone, in what was to become

a powerful new movement. Therefore, inclusion of the Royal Reserves on that List would be seen as another first.

The Royal Reserves also deserve serious consideration for the outstanding universal values of their natural environment – their geo-heritage, bio-heritage and aesthetic values.

The stratigraphy and structure of the Woronora Plateau region display evidence of significant events in the Earth's history including the deposition of the rocks in the Sydney Basin during Permian and Triassic periods, the uplift to form the Plateau, and the subsequent erosion to form the valleys and cliffs, with the landforms providing ongoing insights into geomorphology.

The Royal Reserves are also remarkable for the high degree of biodiversity that occurs in a relatively small area. From coastal heaths to sub-tropical rainforests a complex distribution pattern illustrates the processes at work in the evolution of the predominant sclerophyllous vegetation, which responds to differences in soils and shelter. The complexity is reflected too in high levels of plant taxa and threatened species.

The strong aesthetic appeal of Royal National Park is evidenced by the more than three million visitors it attracts each year. Although the number results largely from the Park's location as part of a large metropolis, it offers a host of distinctive attractions: the green ambience, the beautiful picnic areas, the great variety of scenery from spectacular coastal cliffs, beaches and lagoons, the wildflower displays of the heaths and woodlands, and the tall forests and dense lush rainforests of the inland valleys.

Although The Royal Reserves have merit in their own right for World Heritage Listing, a further important consideration is to keep in mind how each of its separate values (cultural, natural beauty, geo-heritage and bio-heritage) add to the those of the Greater Blue Mountains World Heritage Area, the links being very strong in physical, geographic, ecologic and historic terms.

These internally significant values need to be reflected in the vision of the revised plan of management currently being developed for The Royal Reserves and in the resources made available by the federal and

State Governments to develop the area's potential as an environmental education resource for the world.

An assessment of the Royal Reserves against the integrity and management requirements for World Heritage Listing has been made in Chapter 5. The improvements to integrity can be made within the Reserves, in the buffer areas adjoining the Reserve boundaries, and in the natural area links to the south. The following measures are recommended.

B. Recommendations to Improve Integrity

a. Consider Internal Improvements

1. Legislate to make all roads and road reserves and all water bodies (including South West Arm, Cabbage Tree Basin and the Hacking River Estuary) part of the three Reserves. Roads have a major impact on management of the Reserves. Their use should be determined primarily by the National Parks and Wildlife Service through the Plan of Management for the Reserves.
2. Call on State Government to ameliorate the noise of low-flying aircraft arriving and departing day and night from Sydney airports – noise that can be intrusive on the enjoyment of the natural attributes of the reserves, particularly of Royal National Park.
3. A major upgrade of the iconic Coast Track is needed, with attention to track stability, surface, routing, signage, and camping facilities. There is growing pressure on the few existing camping sites; so, early decisions need to be made as to how much expansion, length of stay, where, and with what safeguards against damage to Park integrity.
4. A number of man-made structures on the Hacking River and its Estuary need to be removed to allow free flow of river and tidal waters.

5. A target needs to be set for elimination of the deer population which is severely damaging the natural biota.
6. Stringent fox and cat control programmes are urgently needed.
7. The Garawarra State Conservation Area should be added to Royal National Park as soon as possible, in order to avert possible coal mining.
8. A start should be made on acquiring all suitable land in the upper catchment of the Hacking River and in the four major corridors identified for addition to the Royal Reserves.
9. To improve Park administration, transfer the NSW NPWS and Department of Education administrative offices and buildings from Audley to Loftus or Sutherland. And the NPWS workshop on Farnell Avenue could be relocated to Loftus.
10. Improve the walking track connections between train stations and the Coastal Walking Track, thus improving public transport access.
11. Establish research and cooperation centres with universities and branches of TAFE, e.g. Outdoor Guiding Certificate at Loftus TAFE.
12. Provide well-signposted Visitor Information facilities close to Cronulla Station and Wharf and the Bundeena Ferry Wharf.

b. Improving Buffers (measures for adjacent areas)

Since appropriate planning and management of the Upper Hacking River Catchment is vital to the integrity of Royal National Park and Garawarra State Conservation Area, this area should be given a planning status which recognises that identity (including use of the term "National Park Buffer") and this be applied by means of a strategy which limits further residential development, includes measures to limit weed and pollution spread, and provides for accelerated buy-back of land for addition to Royal National Park.

C. Improvement of Links and Corridors

1. Since the Princes Freeway and the F6 Freeway constitute serious barriers to the movement of wildlife between the Royal Reserves and natural areas to the south, it is recommended that a review be carried out of measures to overcome the barrier effect consistent with lessons learnt elsewhere.
2. Since the lands of the southern and western parts of the Woronora Plateau, including the Illawarra Escarpment and Holsworthy Army Lands, are closely related to The Royal Reserves both geographically and in terms of the opportunities for maximising conservation objectives, it is recommended that a review be carried out for this whole public estate, a review that focuses on ways of improving the opportunities for the movement of wildlife and minimises any present or future barrier effects.
3. Acquire all suitable lands surrounding Royal National Park, Garawarra State Conservation Area and Heathcote National Park for addition to these reserves.

APPENDIX A

The Plant Communities of The Royal Reserves

A1: Vegetation Communities in Royal National Park according to the Conservation Atlas of Plant Communities of Australia (Specht et al, 1995).

Legend

The community code is followed by the name of the community and the total number of the 41 Australian Atlas Biogeographic Regions in which the community occurs. M = major plant community. * Indicates that the community does not occur in the Greater Blue Mountains World Heritage Area. + Indicates that the community does not occur in Ku-ring gai Chase National Park.

Rf41(165) Notophyll Vine Forest (4) M* +.

T346b Tall Open-Forest Types 45, 46, and 47 (3) M * +.

T706 Open-Forest Type 41 M (1) * +.

T350 Open-Forest M (3), also in Heathcote National Park.

H82 Wet Heathland M (4) *.

H166 Heathland M (5) * +.

H84 Heathland M (3).

GGym Hummock Sedgeland (3).

Eucobtus Mallee Open-Scrub (1) *.

Phragmites Closed Reedland (7) also Heathcote National Park * +.

CD22 Coastal Scrub M (1).

CW19a Mangrove Vegetation M (1) *.

SCLER369 Sclerophyll Understorey M (5) * also Heathcote National Park.

A2: Vegetation Communities in the Royal Reserves according to *'Native vegetation of southeast NSW: a revised classification and map for the coast and eastern tablelands'* (Tozer, et al, 2010).

- Communities occurring in the Royal Reserves which do not occur in either the Blue Mountains (Katoomba and Burragorang Map Sheets) or the South East Bioregion:
 - RFp113 Coastal Warm Temperate Rainforest
 - HLp117 Coastal Sandstone Plateau Heath
 - HLp139 Coastal Sandplain Heath
 - DSFp140 Coastal Sandstone Gully Forest
 - HLp126 Coastal Rock Plate Heath
 - HLp127 Sandstone Headland Scrub
 - FrWp129 Coastal Upland Swamp
 - WSFp99 Illawarra Gully Wet Forest
 - DSF p143 Sydney Shale Ironstone Cap Forest
 - WSFp110 Warm Temperate Layered Forest
 - GLp434 Headland Grassland
- Communities in Royal Reserves and also occurring in the Blue Mountains (Katoomba and Burragorang Map Sheets):
 - FOWp58 Sandstone Riparian Scrub
 - WSFp87 Sydney Turpentine Ironbark Forest
 - DSFp142 Hinterland Sandstone Gully Forest
 - GWp2 Cumberland Shale Sandstone Transition Forest
 - DSFp131 Coastal Sandstone Ridgetop Woodland
- Communities in Royal Reserves and also occurring in the South East Bioregion.
 - FOWp105 Floodplain Swamp Forest
 - FOWp106 Estuarine Fringe Forest
 - FOWp107 Estuarine Creekflat Scrub
 - FOWp109 Estuarine Mangrove Forest
 - DSFp64 Coastal Sand Forest
 - SLe65 River Mangrove
 - SLp509 Estuarine Saltmarsh

RFp210 Temperate Littoral Rainforest
FrWp313 Coastal Freshwater Lagoon

- Other Communities which may possibly also occur in the Royal Reserves
HLp50 Sandstone Cliff Soak
HLp63 Littoral Thicket.

A3: List of scleromorphic and associated features found in the vegetation of The Royal Reserves (compiled 2007 by Bob Crombie):

- sclerophylly – hard leaves often stiff, leathery, spiky, toothed and thick
- microphylly, small, rigid leaves with small distance between the leaves (short internodes), reduced surface area from which water is lost due to evapotranspiration
- leaves often cylindrical to reduce the surface area from which water is lost due to evapotranspiration
- leaves with thick waxy cuticles and coatings, and hairy coatings
- leaves may be recurved to protect their stomata, or have their stomata in sunken grooves covered by hairs
- stomata may be predominantly on the underside of the leaf
- sunken stomata
- various modified leaves such as phyllodes (The blade is lost and the petiole becomes modified to serve its function), and scale leaves
- succulence
- leaf arrangement – leaves are arranged so that they shade and crowd each other creating a more humid microclimate around the stomata
- leaf orientation – e.g. some plants have the capacity to orient their leaves side-on to the sun to reduce the heat and consequent evapotranspiration
- leaves often containing resins, waxes and volatile oils
- aphyllly – species without leaves or leaves reduced to scales

- dimorphic root systems in many species with shallow surface roots and deep sinker and tap roots
- various modified stems such as cladodes where the stem is modified to carry out photosynthesis
- geophytes – many, often seasonally active, plants which store reserves in below ground organs such as tubers, bulbs, corms, rhizomes and lignotubers. These adaptations also give protection against fires. Great abundance of terrestrial orchids
- small plant size – herbs and shrubs dominate
- nutrient resorption from leaves and twigs before dropping them leading to relatively nutrient poor litter, which affects its ability to be decomposed and recycled, and influences the fire regime
- development of allelochemicals and defense chemicals. High proportion of phenolics and tannins in foliage probably as a deterrent to leaf browsing animals. This carries through to the litter again adding to difficulties for decomposer organisms to break it down and recycle
- nutrient cycling system is slower than the mesophyll system and tied to the fire regime. Termites can be very important in decomposing and recycling litter. Fungi and bacteria are of little to lesser importance compared with mesophyll communities. Fire frequency is not so important in mesophyll systems in recycling nutrients, this being taken over by fungi and bacteria
- carnivory – some plants turned to carnivory to meet their nutrient needs, for they obtain their nitrogen and phosphate by eating insects, e.g. bladderworts, sundews
- parasitism – gaining nutrients by parasitizing the roots, stems or leaves of other plants, e.g. native currant, mistletoe, dodder
- spectacular orchestrated flowering and abundant nectar flows along with strong perfumes, and extensive use of insect, bird and mammal pollinators and development of special relationships with them. Deterrents in nectar to maintain integrity of pollinator relationships
- extensive use of birds, fruit bats and ants as seed dispersers
- special nutrient rich appendages (elaiosomes) on diaspores of some species attracting ants for dispersal

- problem with phosphorus blocking the uptake of iron leading to susceptibility to higher levels of phosphate
- formation of associations between plant roots and fungi called mycorrhizal associations (mycos \equiv fungus, rhyzos \equiv root) ostensibly to facilitate the uptake of nutrients from the substrate
- strong seasonal influences on growth, flowering and seed maturation
- aerial seed storage (serotiny) coupled with strong seasonally influenced seed maturation
- extensive range of adaptations to fire in the environment
- high α (point or species/m²), β (turnover of species across the landscape), and γ (the size of the flora, or the number of species) species diversity across the landscape.

APPENDIX B

Rare and Threatened Plant Species

B1: LISTS for ROYAL NATIONAL PARK and HEATHCOTE NATIONAL PARK, compiled by Alan Fairley 2009-April 2010

1. Royal National Park

TSC: (listed on Schedule of *New South Wales Threatened Species Conservation Act*); End = endangered; Vul = vulnerable

SCIENTIFIC NAME	FAMILY	STATUS	COMMENTS
<i>Acacia baueri</i> ssp. <i>aspera</i>	Fabaceae (Mimosoideae)	Vul	Flowers: Dec-Mar
<i>Acacia bynoeana</i>	Fabaceae (Mimosoideae)	Vul	Flowers: Sept-Mar
<i>Astrotricha crassifolia</i>	Araliaceae	Vul	Flowers: Sept-Dec
<i>Caladenia tessellata</i>	Orchidaceae	Vul	Possibly extinct. Flowers: Sept-Nov
<i>Chorizima parviflorum</i>	Fabaceae (Faboideae)	Endangered population (Wollongong)	Rare and endangered species usually found on clay/shales of Western Sydney. Rarely recorded from Illawarra - this is the only record from Royal NP. Flowers: Aug-Sept
<i>Cryptostylis hunteriana</i>	Orchidaceae	Vul	Flowers: December
<i>Epacris purpurascens</i> var. <i>purpurascens</i>	Ericaceae	Vul	Flowers: July-Sept
<i>Eucalyptus camfieldii</i>	Myrtaceae	Vul	Flowers: Apr-Dec
<i>Melaleuca deanei</i>	Myrtaceae	Vul *	Flowers: rarely (after fire)
<i>Persoonia hirsuta</i>	Proteaceae	Vul	Flowers: Nov-Jan

<i>Prostanthera densa</i>	Lamiaceae	Vul	Flowers: May-Dec
<i>Syzygium paniculatum</i>	Myrtaceae	Vul	Not located during current survey. Flowers: Dec-Jan
<i>Typhonium eliosorum</i>	Araceae	End	Flowers: Nov-Dec

* Also listed as Vulnerable on the Threatened Species List, *Environment Protection and Biodiversity Conservation Act*

ROTAP: (listed in *Rare or Threatened Australian Plants*, J.D.Briggs & J.H. Leigh)

<i>Acacia baueri</i> ssp. <i>aspera</i>	Fabaceae (Mimosoideae)	Flowers: Dec-Jan
<i>Acacia bynoeana</i>	Fabaceae (Mimosoideae)	Flowers: Dec-Mar
<i>Astrotricha crassifolia</i>	Araliaceae	Flowers: Oct-Dec
<i>Boronia serrulata</i>	Rutaceae	Scattered throughout the Park. Flowers: Aug-Nov
<i>Burnettia cuneata</i>	Orchidaceae	Swamp with <i>Banksia robur</i> . Flowers: Sept (after fire)
<i>Caladenia tessellata</i>	Orchidaceae	<i>See above</i>
<i>Corybas undulatus</i>	Orchidaceae	Flowers : May-July
<i>Cryptostylis hunteriana</i>	Orchidaceae	<i>See above</i>
<i>Darwinia diminuta</i>	Myrtaceae	Flowers: Aug-Dec
<i>Darwinia grandiflora</i>	Myrtaceae	Not located during current survey. Flowers: June-Mar
<i>Epacris coriacea</i>	Ericaceae	Not located during current survey. Occurs in Illawarra. Flowers: Aug-Nov
<i>Epacris purpurascens</i> var. <i>purpurascens</i>	Ericaceae	Flowers: Sept-Oct
<i>Eucalyptus camfieldii</i>	Myrtaceae	Flowers: irregular
<i>Eucalyptus luehmanniana</i>	Myrtaceae	A number of stands scattered through the Park. Flowers: Aug-Nov
<i>Genoplesium baueri</i>	Orchidaceae	Flowers: Feb-May
<i>Gonocarpus salsoloides</i>	Haloragaceae	Flowers: around August
<i>Grevillea longifolia</i>	Proteaceae	Flowers: Aug-Oct
<i>Hibbertia nitida</i>	Dilleniaceae	Flowers: Oct
<i>Lomandra brevis</i>	Lomandraceae	Flowers: Sept-Dec
<i>Lomandra fluviatilis</i>	Lomandraceae	Found in sandy or rocky creek beds. Flowers: Sept-Nov

<i>Melaleuca deanei</i>	Myrtaceae	Flowers: Sept-Nov
<i>Monotoca ledifolia</i>	Ericaceae	Occurs on edges of rocky outcrops. Flowers: Mar-Apr
<i>Ozothamnus adnatus</i>	Asteraceae	Not located during current survey. Flowers: Oct-Dec
<i>Persoonia hirsuta</i>	Proteaceae	Flowers: Nov-Jan
<i>Platysace stephensonii</i>	Apiaceae	Flowers: mid Dec
<i>Prostanthera densa</i>	Lamiaceae	Flowers: May-Dec
<i>Pseudanthus divaricatissimus</i>	Euphorbiaceae	Flowers: Aug-Oct
<i>Rulingia hermanniifolia</i>	Sterculiaceae	Flowers: Aug-Sept
<i>Syzygium paniculatum</i>	Myrtaceae	Flowers: Dec-Mar
<i>Tetradlea neglecta</i>	Tremandraceae	Flowers: Sept-Nov
<i>Tetradlea shiressii</i>	Tremandraceae	Relatively common throughout the Park. Flowers: Aug-Oct
<i>Thysanotus virgatus</i>	Anthericaceae	Flowers: Dec-Jan
<i>Typhonium eliosurum</i>	Araceae	Flowers: Dec-Jan

Other species of interest

<i>Adraستاea salicifolia</i>	Dilleniaceae	Only recent Sydney record. Probable southern limit. Flowers: Oct-Mar
<i>Pterostylis uliginosa</i>	Orchidaceae	Scattered distribution; restricted habitat preference; uncommon. Flowers: Dec-Jan
<i>Callistemon linearifolius</i>	Myrtaceae	Recorded on early park plant lists but no Herbarium collection for Royal or south of Georges River. Unlikely to occur in Royal. Possibly confused with <i>C. citrinus</i> . Flowers: Oct-Nov
<i>Gmelina leichhardtii</i>	Verbenaceae	Regionally rare. Flowers: Nov-Jan
<i>Nicotiana forsteri</i>	Solanaceae	Appears to be rare. Seldom recorded. Only 6 plants recorded. Flowers: Dec-Feb
<i>Hibbertia</i> sp. nov.	Dilleniaceae	Recorded at a number of sites in Park. Appears to be related to a newly described species from Menai-Woronora. Flowers: May-Sept; December
<i>Hibbertia</i> sp. nov.	Dilleniaceae	Probably a new species (H. Toelken, botanist, Adelaide Herbarium)
<i>Philotheca reichenbachii</i>	Rutaceae	A species similar to <i>P. salsolifolia</i> . An old genus name recently re-established. Flowers: Sept-Oct
<i>Leucopogon amplexicalis</i>	Ericaceae	Previously a ROTAP species, now regarded as adequately conserved, but with limited distribution. Flowers: Aug-Oct

<i>Cephalalaria cephalobotrys</i>	Araliaceae	Rare; status unknown. Located in Feb 1984 by A. Fairley. Flowers: March
<i>Grevillea diffusa</i> ssp. <i>diffusa</i>	Proteaceae	A restricted and local endemic. Flowers: July-Nov
<i>Acacia stricta</i>	Fabaceae (Mimosoideae)	Uncommon to rare population. Regionally significant. Flowers: Aug-Sept
<i>Thelymitra fragrans</i>	Orchidaceae	Previously recorded only from Watagan Mts and north from Werrikimbee NP to Qld. Flowers : Sept
<i>Santalum obtusifolium</i>	Santalaceae	Widely distributed but seldom seen. Flowers : Sept-Dec. Fruits: Jan-Feb

2. Heathcote National Park (compiled 2009 by Alan Fairley)

TSC: (listed on schedule of New South Wales Threatened Species Conservation Act

End = endangered. Vul = vulnerable

ROTAP: (Rare or Threatened Australian Plants), Briggs and Leigh, CSIRO.

SCIENTIFIC NAME	FAMILY	STATUS	COMMENTS
<i>Grevillea longifolia</i>	Proteaceae	ROTAP	Flowers : July-Jan Creek banks
<i>Hibbertia nitida</i>	Dilleniaceae	ROTAP	Flowers : Oct
<i>Genoplesium baueri</i>	Orchidaceae	ROTAP	Flowers: Feb-May (after fire).
<i>Boronia serrulata</i>	Rutaceae	ROTAP	Local endemic. Flowers: Aug-Nov
<i>Callistemon subulatus</i>	Myrtaceae	Rare distribution	Heathcote NP appears to be northern limit. Not known elsewhere on Central Coast. Flowers: Oct-Feb
<i>Darwinia diminuta</i>	Myrtaceae	ROTAP	Flowers: Aug-Dec
<i>Eucalyptus luehmanniana</i>	Myrtaceae	ROTAP	Flowers: Aug-Nov
<i>Melaleuca deanei</i>	Myrtaceae	TSC (Vul) ROTAP	Flowers: rarely (after fire)
<i>Acacia bynoeana</i>	Fabaceae (Mimosoideae)	TSC (Vul) ROTAP	Collected in past from Heathcote Ck. Flowers: Sept-Mar
<i>Monotoca ledifolia</i>	Ericaceae	ROTAP	Flowers: Mar-April
<i>Tetratheca neglecta</i>	Tremandraceae	ROTAP	Flowers: Sept-Nov
<i>Hibbertia</i> sp. nov.	Dilleniaceae	Rare localized endemic; un-named	Flowers: May-Sept; Dec Probably the same or related to a similar plant found in Royal NP and Menai-Lucas Hts.
<i>Lomandra fluviatilis</i>	Lomandraceae	ROTAP	Flowers: Sept-Nov. Occurs in rocky creek beds.
<i>Grevillea patulifolia</i>	Proteaceae	Uncommon	Flowers: Aug-Jan. Heathcote NP is the northern limit of its distribution.

B2: Endangered Ecological Communities in The Royal Reserves listed under the *NSW Threatened Species Conservation Act* (Part 3, Schedule 1) as at March 2012

Level of Threat: End = Endangered ecological community

Scientific Name (followed by level of threat)

1. Bangalay Sand Forest of the Sydney Basin and South-east Corner Bioregions (End)
2. Coastal Saltmarsh in the NSW North Coast, Sydney Basin and South-east Corner Bioregions (End)
3. Eastern suburbs *Banksia* Scrub in the Sydney Basin Bioregion (End)
4. Kurnell Dune Forest in the Sutherland Shire and City of Rockdale (End)
5. Littoral Rainforest in the NSW North Coast, Sydney Basin and South-east Corner Bioregions (End)*
6. Southern Sydney sheltered forest on transitional sandstone soils in the Sydney Basin Bioregion (End)
7. Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South-east Corner Bioregions (End)
8. Sydney Freshwater Wetlands in the Sydney Basin Bioregion (End)
9. Sydney Turpentine-Ironbark Forest (End)#
10. *Themeda* Grassland on seacliffs and coastal headlands in the NSW North Coast, Sydney Basin and South-east Corner Bioregions (End)
11. Coastal Upland Swamps in the Sydney Basin Bioregion (Eng)

* "Littoral Rainforest and Coastal Vine Thickets of Eastern Australia" is listed as critically endangered on the Threatened Communities List of the Federal *Environment Protection and Biodiversity Conservation (EPBC) Act*.

"Turpentine-Ironbark Forest in the Sydney Basin Bioregion" is listed as critically endangered on the Threatened Communities List of the Federal *Environment Protection and Biodiversity Conservation (EPBC) Act*.

APPENDIX C

History of National Parks – Context for the History of Royal National Park

1. Developments in Australia 1788 to 1879

THE NATIONAL PARKS movement which developed in the Nineteenth Century in Australia took place in the context of some major changes in the global relationship between humans and their environment in relation to both a greatly increased level of exploitation of natural resources and adjustments in social organisation. It was above all a period dominated by the Industrial Revolution, by the growth of cities and towns, by the settlement and expansion of European communities in the Americas, Africa and Australasia, and by the growth of international trade in commodities of nearly every kind. With an increasing proportion of the population cut off from daily contact with rural and natural environments, and living in high density urban conditions and working in factories, attention increasingly turned to finding remedies for the growing health problems of the communities.

In the middle of these changes governance systems also evolved, a major thrust being the increasing application of democratic principles through representative forms of government. In England, Parliamentary enclosure acts during the period 1750 to 1830 led to a major shift from communal to individual land ownership. In the Australian colonies private ownership of land and property remained a constant, but part of these changes in newly occupied lands also involved increasing attention to applying the concept of the common weal to land and resources, with large areas of newly discovered land being vested in the Crown.

The idea of the wider public having an interest in the future of scenically attractive areas had been raised in the writings of the poet William Wordsworth (1770-1850). Writing in 1809 (Wilkinson, 1810) in the context of making suggestions about how to deal with the threats to the scenery of the Lake District, Wordsworth made the case for the public having an interest in the way such areas were treated, regardless of their ownership. In an anonymous introduction to a book of engravings by the Rev. Joseph Wilkinson (published separately in several editions in Wordsworth's name from 1822) he wrote that he hoped that in this wish he would be:

... joined by persons of pure taste throughout the Island, who by their visits, often repeated, to the Lakes to the North of England, testify that they deem the district a sort of national property in which every man has a right and interest who has an eye to perceive and a heart to enjoy.

In the new lands of Australia the task of protecting such values was made easier by the fact that areas could be retained as Crown lands. Increasingly areas of Crown land were set aside as parks and reserves for a variety of public purposes, paving the way for the later development of national parks and more extensive (legislated) natural area reserves after 1879.

Another major development in Australia was the growth of appreciation of the distinctive qualities of their new environment by those arriving from Europe. The colonists found many features of the environment to be unfamiliar and foreign and there was an initial tendency to try to recreate the features of their homeland through the introduction of European species and the alteration of the landscape by methods such as tree clearance. Existing open grassy areas tended to be appreciated for both their scenic and grazing values. The text of an explanatory document used to support the formation of a new acclimatisation society in New South Wales in 1879 (reported in *The Sydney Morning Herald* on 25 March 1879) set out the case in terms of how well adapted the country was for the acclimatisation of song birds and game and how 'the animals and birds most sought after' would either 'as game to give sport or as songsters, enliven our bush homes'. In Van Diemen's Land attempts were made to reproduce the life and landscape of the homeland by creating large mansions set in land-

scaped parks in which deer browsed, hawthorn hedges were planted, and foxes were imported for hunting.

By the second half of the Nineteenth Century things had changed. A majority of Australians were now native-born and there were several generations to whom the natural features of the Australian environment were no longer unfamiliar and 'strange'. The potential for finding something attractive about the distinctive features of the new environment was there, and this was particularly evident in remarks on the forests which French explorer Bruni D'Entrecasteaux encountered in the 1790s when he had made two five-week visits to a harbour in Van Diemen's Land which he named Recherche Bay. In 1792 (Duyker, E. and M., 2001) he described them as:

Trees of an immense height and proportionate diameter, the branchless trunks covered with evergreen foliage, some looking as old as the world; closely interlacing in an almost impenetrable forest, they served to support others which crumbling with age, fertilised the soil with their debris.

What he recognised in these forests – 'the beauties of unspoilt nature' – was something very different from the forests back in France, writing that:

Nature in all her vigour, and yet in a state of decay, seems to offer to the imagination something more picturesque and more imposing than the sight of this same nature bedecked by the hand of civilised man; wishing to only preserve her beauties we destroy her charm, we rob her of that power which is hers alone, the secret of preserving in eternal age eternal youth.

The appreciation of the difference evolved slowly. Some 30 years later, summarising the character of the scenery of Van Diemen's Land, Jeffreys (1820) said the country presented:

The same diversified appearance of gentle hills, extensive plains and smiling valleys, affording for the most part, but little of what some would call sublime, or highly picturesque; but in no place deficient in these objects which merit the character of the richly beautiful.

1A. History of Coastal And Urban Parks

1A1. Coastal and Riverbank Reserves

New South Wales. The first colony in Australia was established in New South Wales in 1788, beginning with settlements at Port Jackson on Sydney Harbour and at Norfolk Island. Early attention was paid by the administrators to protecting features regarded as important to the new communities including, notably, strips of land along coastal shores and rivers. Undoubtedly there was a strong utilitarian motive behind these moves.

Similarly, food shortages on Norfolk Island led to the first efforts to protect native wildlife. In May 1790, to protect the habitat of the Providence Petrel (*Pterodroma solandri*), Commandant Major Robert Ross forbade the felling of trees in the breeding area and then extended this to a ban on ringbarking (Bonyhady, 2000). These measures, later reissued by the Superintendent Lieutenant Governor Philip Gidley King, had no impact on the fate of the bird which has been absent from Norfolk Island ever since.

More successful was King's decision to create a reserve around the Island coastline when allocating settlers' lots. An entry in King's diary in April, 1794 (Nobbs, 1988) explains his motives:

In fixing the different settlers, those who were placed near the coast of the island had considerable space left between them and the sea in order to shelter them from the blighting effects of the Sea Winds. As several individuals had unknown to me, cleared a quantity of ground in different places between the sidelines of those settlers and the sea, I found it necessary not only to forbid any more ground being cleared in these situations, but also to prevent those who had cleared ground in such places from planting; by which means the original intention will not be destroyed as trees and Brush Wood will soon fill those vacancies up.

The spaces which King had left around the Island are shown in the map "Settlers' Lots on Norfolk Island 1796". When the settlement of the Island by people from Pitcairn Island took place in 1856 large areas around the coast were withheld by the Crown from occupation, as reserves for such public purposes as landing places, commons, recreation areas and afforestation. It was an indication of the importance

attached to such reserves and particularly to the reserves on the coast that on 24 June 1856 Captain Stephen Fremantle in a proclamation read out to the new arrivals included the statement that: "the whole of the coastline, including the jetties and roads made throughout the Island are to be reserved as public property".

In the following 150 years a total of 20 public reserves were established on Norfolk Island, the majority on the coast (Mosley, 2001).

On the New South Wales mainland, conservation measures were of a similar kind. New South Wales Governor John Hunter (Governor from 1795 to 1800) prohibited the felling of Red Cedar along the Hunter River. King, his successor as Governor (1800 to 1806), in 1802 issued an order forbidding the cutting of Red Cedar without his permission, and in the following year he prohibited the felling of timber on private land on the banks of the Hawkesbury River (Bonyhady, 2000) and the clearing of the banks of streams. But the effort to protect the Red Cedar would eventually fail.

Similar reserves were created on the Derwent River soon after the establishment of the Van Diemen's Land colony as an offshoot of New South Wales, in 1803. At the same time Lieutenant Governor David Collins (1804-1810) expressed concern about the future of the Black Swans

As the colonies expanded their occupation of the land into new areas, government surveyors, usually ahead of the settlers, recommended the reservation from sale of esplanades, river banks, lookouts, caves and waterfalls; of these, it was the coastline which attracted the most interest as a public asset deserving of conservation. An 1828 instruction from the Colonial Office in London called for foreshore reserves on land 100 feet above high water mark.

Victoria. In Victoria (which gained independence from New South Wales in 1851), from the 1860s it became the normal practice under the Land Act to create a 100 foot reserve along the sea coast where the land was not already alienated, the law stipulating that specified water frontages were not to be sold. In 1873 this approach began to be applied to Victoria's major rivers including the Murray and the Goulburn. In the early 1880s this policy was broadened to apply to most river and

stream banks in Victoria, the regulations of 23 May 1881 reserving to the Crown all frontages along 280 water courses abutting existing public land, meaning that no such riparian land could be acquired by private interests (Powell, 1989 and Cabana, 1983). One hundred years later some 30,000 kilometres of the 1881 reserves were publicly owned (Scott, 1988), facilitating the 1990s establishment of a heritage rivers system.

1A2. Parks in Urban Areas

New South Wales. Recreation and public health benefits were also important motivators for the establishment of parks and reserves from the early years of the Australian colonies and there were clear templates for these in London and other British cities. The British Government's instructions for the new settlement included the making of provision for town pasture lots, or village commons. The concept of public farms, or 'Government farms', an early innovation in the New South Wales colony, helped to pave the way for parks for public recreation. One of these was at Rose Hill (later known as Parramatta). In a similar move the early colonial Governors endeavoured to protect the public interest in Sydney through a leasehold system (Bonyhady, 2000). Hyde Park and Moore Park were both established by Governor Lachlan Macquarie (1810 to 1821) as commons, in 1810 and 1811 respectively. Moore Park was initially set aside as a water reserve with the name of Lachlan Swamp. Hyde Park was named after the Park of that name in London. There this Park and other London Parks, including St James Park, Kensington Gardens, Green Park, Regent's Park and Victoria Park, began their lives as Royal Parks. Over the centuries public use of these Parks increased until in the Nineteenth Century control was handed over to state agencies (Williams, 1978). One of these parks, on the north-east fringe of London, was the 2,476 hectare Epping Forest, a former royal hunting forest, which was protected against enclosure by the *Epping Forest Act* of 1878. After words used in a speech delivered by Queen Victoria on a visit to the area in May 1882 it became known as 'The People's Forest'.

'Governor's Domains' were established both at Port Jackson in Central Sydney and to the west at Parramatta and in both cases their history followed a transformation similar to that of the Royal Parks of London. In Sydney, Governor Philip (1788-92) developed Government House, set in 'The Domain' and patterned on the lines of a gentleman's estate (Karskens, 2009). This open grassy park-like appearance set a standard for the landscaping of future urban parks. In 1816 an area which was part of the Domain became Australia's first botanical garden. The 'Outer Domain' became public park land in the 1830s. Parramatta Park also had its beginnings in a Domain established around a second Government House, near the Parramatta River, a site chosen in a bid to find more fertile land than that around the barren shores of Sydney Cove and Port Jackson. The Domain there was designated as a public park in March 1857 and in August of the following year was placed under the control of the Parramatta Park Trust. In July 2010 Old Government House and Government Domain at Parramatta were included in the World Heritage List as one of the 11 places in the Australian Convict Sites World Heritage Area.

On 1 December 1854 a *Public Parks Act* was enacted by the Governor of New South Wales with the advice and consent of the Legislative Council. Described in the preamble as 'An Act for the Regulation and Protection of Parks and other places of Public Recreation Convenience Health and Enjoyment', it provided for the creation of Trustees with the powers of absolute owners (except for alienation) and perpetual succession including powers to make rules and regulations and apply fines and penalties, thereby making the public reserves more secure. The passage of the legislation followed the presentation to the Legislative Council on 21 November of a report by a Select Committee on Land Reserves (*Sydney Morning Herald*, 22 November, and 30 November 1854). Originally appointed in May 1854 as a result of concern over the appropriation of certain public lands, the Committee listed existing reserves in or near Sydney and recommended reservation of a number of other areas of vacant land. Thirty years later this Act was replaced by the *Public Parks Act* 1884. This transferred administrative responsibility to the Minister for Lands. (New South Wales had achieved responsible Government in 1855.)

Van Diemen's Land/Tasmania. In Hobart the Town Plan drawn up between 1811 and 1813 by Surveyor James Meahan on the instructions of Governor Macquarie included the setting aside of a prominent hill feature to the north of the town centre as 'The Queen's Domain'. In 1818 land in this area was set aside for Australia's second oldest botanical garden, The Royal Tasmanian Botanical Garden. Tasmania became an independent colony in 1856. In Launceston, the largest town in Tasmania's north, the *Queens Domain and Launceston Swamp Act* 1860 dedicated 260 hectares at the Queens Domain and 29 hectares at the Launceston Swamp, for public use and recreation.

It is perhaps indicative of the growth of concern about the management of public reserves that prominent Tasmanian bookseller and publisher Charles Walch (1830-1915) in a letter to the Editor of the *Mercury* newspaper about the management of the Queen's Domain used the term 'national park'. Published on 20 May 1875 he wrote: 'First make our national park a fit and attractive place for "the people"', and concluded:

... finally, I hold, and in this I am upheld by the practise of all civilised Governments, that a park in connection with the capital city of a country is a national affair, and its maintenance should be provided by national funds.

In 1874 Walch had opposed plans for showgrounds and buildings on the Domain, and he later became Chairman of a Committee to advise on its use.

The Swan River Colony in today's Western Australia was established in 1829, three years after the first European settlement at Albany. In his Royal Instructions from King William IV, Captain James Stirling, appointed Lieutenant Governor of Western Australia and in 1831 Governor (1829 to 1833, and 1834 to 1838), was directed to:

... report on what particular lands it may be proper to reserve... as public roads... or as places to be set aside for any recreation and amusement of the inhabitants of any town or village or for promoting the health of the inhabitants.

Little time was lost and in 1831 Stirling and Surveyor-General J.S. Roe set aside 171 hectares on the right bank of the Swan River for 'public purposes'. In October 1872 this area (later known as 'The Perth Park' and then 'Kings Park') and additional lands on Mt Eliza total-

ling 175 hectares were set aside by the Commissioner of Lands, Sir Malcolm Fraser, 'for the purpose of a public park and recreation' under the Land Regulations of that year.

South Australia. Further opportunities to make provision for parkland in new Australian cities came with the development of plans for Adelaide and Melbourne. The plan for the new European settlement at Adelaide was developed by Colonel William Light in 1836. It involved a core of 'town lands' completely surrounded by a belt of parkland incorporating the Torrens River valley, which in turn was to be surrounded in time by suburbs. M. Williams (1965) has analysed the social thinking in Britain which may have inspired this plan whose key features, including the park, survive to this day. He also examined the widespread use of this approach for townships elsewhere in South Australia.

Victoria. While this South Australian model was copied in New Zealand it did not make it over the border to Melbourne on Port Phillip which was being settled in 1835 at roughly the same time and which, as Victoria, would become an independent colony in 1851. For a brief time there was a prospect of a similar approach when in 1837 Surveyor Robert Hoddle in his plan left an undeveloped belt of land around his central city rectilinear layout. Then in 1839, before he left for his duty as the Superintendent of the Port Phillip area, C.J. La Trobe was instructed by New South Wales Governor Sir George Gipps (1846-1851) to reserve land for 'Government purposes or for public use as squares' (Shaw, 1996).

The views about the need for parks was not limited to the rulers. In 1844 the Melbourne City Council recorded in its *Proceedings* that:

It is of vital importance to the health needs of the inhabitants that there should be parks within a distance of the town where they could conveniently take recreation therein after their daily labour and that the experience of the mother country proves that where such places of resort are in the vicinity of large towns the effect produced on the minds of all classes is of the most gratifying character; in such places the kindest feelings of human nature are cherished.

La Trobe, who was to become Lieutenant Governor of Victoria (1851-1854), reserved specific areas of land on Hoddle's plan from sale 'for public advantage and recreation'. In 1839 and 1840 he reserved only two areas, both to the north of the town. Melbourne grew rapidly over the following decades, its population increasing from 41,000 in 1851 to 77,000 in 1881, and this was accompanied by increased efforts to create public open spaces. A major reservation of 1,036 hectares for parkland and open space was made to the north of the city in 1845 but by the time this area – 'Royal Park' – was proclaimed in 1854 it had been reduced to 625 hectares and further intrusions by the new suburb of Parkville reduced it to 283 hectares. It was subsequently further devalued by a wide range of developments including the Royal Melbourne Hospital (1944), the Royal Children's Hospital (1963 and 2011), and the Parkville Gardens residential development. In 2012 Royal Park faced a major threat from a State Government plan for an east-west tunnel and tollway under the Park.

To the south, on the opposite (left) bank of the Yarra River, a site for the Royal Botanical Gardens was selected in 1845 and work began on it the following year. Public space in this area was subsequently extended downstream to include the 'Domain Parklands' (including Kings Domain in 1854). Upstream, Yarra Bend Park and Studley Park had been reserved by 1877, and in 1929 both were incorporated into a reserve known as 'Yarra Bend National Park'.

In 1849 La Trobe formally proclaimed Fitzroy Square ('Fitzroy Gardens' after 1862). Gullies in this area had been used for dumping rubbish. An area which became 'Treasury Gardens' in about 1867 was also set aside as the 'Treasury Reserve' at about the same time as Fitzroy Square. Closer to Port Phillip, Albert Park on an old coastal lagoon was proclaimed as a 'Government Park' in 1864. Other parks which developed from areas set aside as open space in the 1840 to 1860 period included Flagstaff Gardens and Carlton Gardens. La Trobe planned the first park at what eventually became the Carlton Gardens in 1839. An area of 26 hectares at this site was reserved for public purposes and identified as a 'recreation reserve' by the Legislative Council in November 1852 and in February 1864 the Government gazetted its intention to declare the reserve a permanent reserve and

vest it in the Melbourne City Council as Trustees. However, under an Act of Parliament of November 1878, control of the Carlton Gardens was transferred to the Trustees of the newly appointed Melbourne International Exhibition and in 1879 the Exhibition Building was constructed within the grounds. In 2004 the Building (used for the 1880 Melbourne Exhibition, for the Centennial Exhibition of 1888 and from 1901-27, as the home of the Victorian Parliament), along with the Carlton Gardens, was inscribed in the World Heritage List.

1B. History of Scenic and Other Natural Features Reserves

New South Wales. The development of an interest in, and a more systematic approach to, the protection of important scenic features in the lands beyond the cities and towns began to gather pace in the 1840s through to the 1860s. A shift in public perception in the concept of “the picturesque” to include wild scenery and natural features can be seen in the way the artist Conrad Martens (1801-78) began to include such scenes in his paintings. Local landowner Dr Charles Throsby took Martens to view what is now the Fitzroy Falls in 1835 and the result was Martens’ painting, “The Falls at Quaroolli”. Other paintings of Martens, symptomatic of the changing market, included: a painting of Govett’s Leap (1835); an oil painting of “Burrangallong Cavern”, now Abercrombie Caves, (1844); “Brush Scene”, a rainforest scene with dramatic Cabbage Tree Palms at Brisbane Water (1848); and paintings of various other waterfalls including Apsley and Wentworth Falls.

The first special legislation for the setting aside of parks and public reserves in New South Wales appears to have been in the *Crown Lands Alienation Act*, 1861, although the policies codified in this Act represented an approach which had operated for several decades. Crown Land Surveyors were given a standing instruction to look out for scenic places and to recommend reserves to protect the public interest. Most early reserves were “reservations from sale” with the Minister having discretion over revocation, often in the form of a change of purpose. Reserves that were considered to be particularly important to the community were placed under the control of Trusts appointed under the *Public Parks Act*, 1854. These were given an annual allocation

and were given the power to make regulations over such matters as the protection of trees (with any logging subject to their consent) and the removal of trespassers.

One of the earliest reserves aimed at protecting natural scenery was that east of Bundanoon Creek in the Southern Tablelands. It is a good example of the evolution and extension of the reserve system from the early part of the Nineteenth Century through to the late 1960s. The dramatic scenery of the area, with its grand vistas, had been discovered by Dr Charles Throsby and Surveyor-General James Meehan in March-April 1818. Throsby, who took up land nearby, seems to have been the person who suggested its reservation, and in 1824 Surveyor Harper was instructed by the New South Wales Governor to set aside 486 hectares as a government reserve. This provided the foundation for the 1,375 hectare Bundanoon Gullies Recreation Reserve set aside in 1877. The Reserve was later placed under the control of Honorary Trustees. It was extended several times up to 1913.

The Great Southern Railway had reached Bundanoon (then known as Jordan's Crossing) in 1868, making its scenery more accessible to visitors. Unfortunately, the reserve did not prevent timber cutting (mainly for railway sleepers) and coal mining (from 1867 to 1913) on the slopes below Bundanoon. Other public recreation reserves were established in the region at Fitzroy Falls (59 hectares in January 1889 extended to 1,694 hectares in 1898), and at Barrengarry and Belmore Falls (for public recreation and preservation of timber, in April 1887). Later the Bundanoon Gullies and Barrengarry Reserves became "State Parks".

A November 1968 amendment to the *National Parks and Wildlife Act*, 1967 resulted in the incorporation of the Bundanoon and Barrengarry State Parks into the Morton National Park. This National Park had in 1967 replaced the 18,201 hectare Morton Primitive Reserve (a reserve for public recreation and preservation of flora and fauna), which on its establishment in September 1938, had incorporated the Fitzroy and Belmore Falls Reserves and the Tallowa Primitive Reserve (established 1934).

At a spectacular area to the west of Bundanoon, the Bungonia Gorge, known as "The Grand Canyon", an area on the southern side of

the Gorge, was set aside as a 'reserve for public recreation and water supply' in 1872. Additional reserves were later established to protect the northern side of the Gorge.

Other important early reserves on the southern and western fringes of the Southern Blue Mountains region were reserved for the protection of limestone caves. These included cave reserves at Wombeyan (1865), Fish River (1866), Colong (1869) and Tuglow (1878). Following representations by John Lucas MP, 1,600 hectares were set aside under the direct supervision of the Lands Department at the Fish River site which became known as the Jenolan Caves Reserve after 1884. Lucas was concerned to save the area from mining. In the Deua area further south an area at the Bendethera Cave was reserved in 1897.

In the Central Blue Mountains a major factor behind the establishment of new reserves in this highly scenic area was the construction of the Great Western Railway which reached Wentworth Falls and Blackheath in 1867 and Mt Victoria in 1868.

In 1870 reserves of 1,063 hectares between Blackheath and Govett's Leap and 650 hectares in the Wentworth Falls area were set aside to protect the land between the railway and the views. Five years later attention was turned to the major scenic features and particularly the Grose and Govett Gorges. Charles Darwin had visited the Govett's Leap waterfall in 1836, describing it as 'a magnificent spectacle'. In December 1875 both of these Gorges and the surrounding plateaus were reserved from sale, including all Crown Land upstream from a point 2 miles below the junction of Govett's Leap Creek with the Grose River (Macqueen, 1997). Surveyor John Deering, who had been asked to report on a reserve at Govett's Leap, in his report of 21 October 1875, noted that there was the possibility of a selection in the valley, and he recommended that 'no such selection or alienation in any form should be permitted'. His rationale was that:

The Grose Valley is a natural spectacle. A house for excursionists at the bottom of the valley can be managed without alienation. I think it will be found that portions of the Yosemite Valley were once alienated, and resumed with compensation by the United States Government.

The main support for this proposal had come from Eccleston Du Faur who for several years had been trying to organise an artists' camp

in the Grose Valley. It finally happened in September 1875. Du Faur in addition to being the Lands Department Chief Draughtsman in the Occupation of Crown Lands Office (1866-81) was a keen supporter of the Arts. Being aware of how the photographs of Carleton Watkins had helped to persuade the US Congress to approve the Yosemite Grant in 1864, Du Faur tried to emulate this success story in the Grose Valley by inviting photographer Joseph Bischoff and landscape painter W. C. Piguenit to participate (Bonyhady, 2000). The vision of Eugene von Guerard's 1873 painting 'Head of the Grose Valley', showing Govett's Leap, has been compared to Thomas Moran's contemporary paintings of the Yellowstone and Yosemite scenery (Bruce, 1980).

In the late 1870s and early 1880s as the railway services improved, the tourist industry grew and an extensive walking track system was developed along the cliff lines, and further reserves were established under trustees with the collective name of the 'Blue Mountains Sights Reserve'. The mountain air was viewed at this time as having important disinfective and restorative properties and as being especially useful for the treatment of tuberculosis. In May 1880 Sydney citizens presented a petition to the Legislative Assembly for a reserve at Katoomba Falls and broadened the case for reservation by stating that it would be of vital importance to the 'health, morale and intellectual advancement of the inhabitants of our daily increasing capital' (Mosley, 1989).

Victoria. Another influence on the community's perception of natural scenery was the growth of landscape painting. Some of the artists such as Eugene von Guerard (1811-1901) were in turn inspired by the works of the German natural scientist Alexander von Humboldt (1769-1859). Von Guerard (who arrived in Victoria in December 1852) in particular took great care in his paintings to provide a detailed and accurate record of what he saw.

In Victoria one of the earliest reserves of a natural feature was that of the spectacular nested 30,000 year old caldera at Tower Hill in the south-west of the State comprising a marshy lake surrounding islands resulting from later eruptions. Here, in 1866, 597 hectares of Crown land at Tower Hill were temporarily reserved to preserve its geologi-

cal features as a 'reserve for public purposes' (Brady, 1992) and placed under the control of the "Committee of Management of the Tower Hill Acclimatisation Society". The reserve comprised the land retained as Crown land during subdivision in the 1840s and 1850s.

Several early visitors were very impressed by this spectacular feature. One of them, a local landowner, James Dawson, commissioned von Guerard to paint the scene. Close examination of his 1855 painting, "Outlook", has suggested (Downes, 1961) that it is an enduring record of the site's natural vegetation at the time.

Another enthusiastic visitor was Inspector of Schools James Bonwick. Writing about his 1857 visit he described the gigantic ferns of the valley and the beauty of the winding path near the lake where, as he put it (Bonwick, 1858):

There, the graceful Fern tree waves, – almost Tropical reeds rustle in the breeze, – leafy shrubs form delightful bowers and alcoves, and tender emotion, in suitable company, will there receive as genial and as rapid a development.

Having declared that 'No walk in the world can surpass it for soft and quiet beauty and retirement', Bonwick made a plea for Tower Hill's conservation:

Let the few of us who value sentiment in the colony, who sympathise with nature, who love an undisturbed communion with the grand and sublime, join one and all in securing for themselves and posterity the authorised declaration that Tower Hill should be an everlasting Reserve.

Unfortunately for this view, the destruction of the natural vegetation, started by the introduction of grazing in the 1840s and in the 1850s, continued especially after 1857 (Downes, 1961). To raise funds and to carry out what it thought was its duty of bringing the area into what it said was "a proper state of culture as regards the growth of English grasses, etc.", the Committee of Management leased land for grazing, allowed timber cutting, grazing, burning, clearing and removal of 'dead wood, scrub, ferns' and, consistent with the acclimatisation goals of the age, set loose goats, pheasants, jungle fowl and rabbits. Trees were obtained for planting from Dr Mueller. From 1869 official views about the future of the area vacillated. On 17 May 1872 the main Tower Hill island was set aside for the "preservation and growth of timber as the Tower Hill Island State Forest". In September 1873 the

unappropriated Crown land was permanently reserved as "a site for public recreation purposes". A second Committee of Management was established the following year and it permitted quarrying of scoria and grazing on the reserve. Third and fourth management committees were appointed in 1882 and 1885.

Another area with scenic reserve potential was the heavily forested Dandenong Ranges to the east of Melbourne. Von Guerard's painting 'Ferntree Gully', painted in 1857 and first displayed in a Collins Street shop window, helped to attract public visits to the area to see the tree ferns. In the 1860s, concerned about tree-felling in the area, both James Smith an editorial writer in the *Argus* newspaper and Surveyor John Hardy argued for protection, the latter suggesting the area's reservation as a scenic reserve, but it was to no avail because the Government in 1869 included Ferntree Gully in the Dandenong State Forest which allowed for the possibility of logging.

It is worthy of note that another person calling for better protection of Victoria's native forests was Ferdinand Von Mueller (Director of the Botanic Gardens 1857-73) who in 1853, soon after his appointment as Government Botanist of Victoria, had set up a field camp near Dobson's Gully, renamed Ferntree Gully. In an 1871 lecture, heavily publicised in Victoria and overseas (Bonyhady, 2000), Mueller called on Australians to preserve their forest heritage 'as a gift, intrusted to any of us only for transient care... to pass on as a sacred patrimony from generation to generation'.

Van Diemen's Land/Tasmania. One of the first scenic features to attract conservation interest was the prominent peak situated high above Hobart known originally from its shape as Table Mountain but renamed Mount Wellington in 1839. Here in 1837 Surveyor-General George Frankland tried unsuccessfully to stop the quarrying of a fern gully in Salvator Rosa's Glen (Bonyhady, 2000).

In Tasmania the *Wastelands Act*, 1858 (amended 1863) provided for reserves for any purpose of public safety, convenience, health or enjoyment, but there appears to have been few reserves, if any, set aside in rural areas under this Act before 1879. However, Louis Shoobridge,

a fruit grower took up a 20 hectare selection near Russell Falls and began to press for a reserve at the Falls and this was achieved in 1885.

2. Developments in Australia 1879 to 1919

THE FORTY YEARS after the establishment of National Park in New South Wales was marked by further exploration of the wilder parts of Australia and by the first recreational trips by people who would later be called bush walkers. Painters such as W.C Piquenit (1811-1901), Louis Buvelot (1814-88), Eugene von Guerard and, in Tasmania, professional printer James Beattie (1859-1930) played an important role in making the urban public more aware of places like Lake St Clair, the Grampians, the Grose Valley and Mt Kosciusko. Beattie was particularly active, his efforts including giving lantern slide lectures and the production of picture postcards and articles. In the first decades of the new century protection of the assets of the growing tourist industry was an important factor in reservation. The 1880s and 1890s were witness to a considerable surge in Australian nationalism which included a celebration of the aesthetic qualities of the Australian landscape by the painters of the Heidelberg School. Control of land continued to remain the responsibility of the colonial governments and these became State governments after Federation in 1901. There was not much contact between them, each developing its own ideas on reserves for public recreation and conservation.

New South Wales. From the date of the *Public Parks Act*, 1884, it became common to specify in the gazettal the purposes of a reserve. Apart from such general terms as "public recreation" these purposes included "preservation of native fauna". Until the dedication of the 7,284 hectare National Park in 1879 (extended to 14,164 hectares in 1880) most reserves were relatively small.

In 1894 the 12,963 hectare Ku-ring-gai Chase reserve was gazetted on the Hawkesbury Sandstone Plateau to the north of Sydney. Its chief proponent, Eccleston du Faur, was particularly concerned about the threat to native plants from wildflower picking. Having worked for the

Government in the survey field and having had success in his Grose Valley efforts, he began campaigning for this major new park in 1892. His main aim he declared was "the fullest preservation of native flora and the establishment of an area in which the marsupials and other Australian fauna might roam and breed in safety".

The Snowy Mountains was another area attracting visitor interest after the turn of the century. In December 1906 the Snowy Mountains National Chase of 25,910 hectares located on either side of Mt Kosciusko was set aside for 'public recreation and preservation of game'. Lesser reserves in the Snowy Mountains were established at Diggers Creek (Trefle Park) and at Yarrangobilly Caves. Government Chalets were later built at both. These reservations were made in advance of the opening up of the area for tourism. Construction of a road from Jindabyne to Mt Kosciusko was started in 1906 and completed in 1919. The National Chase was extended in 1921 and again in 1925 (to 45,344 hectares) when "preservation of native flora" was added to its purpose. In the 1890s Richard Helms (1842-1914), a biologist and Collector for the Australian Museum, had made a plea for the protection of the area's rare flora and fauna. The area was well known from Eugen von Guerard's paintings, "Mount Kosciusko" (1864) and "Mount Kosciusko from Mount Hope Ranges" (1866).

In 1891 in the Southern Blue Mountains south-west of the Jenolan Caves Reserve the "Kanangra Tops Tourist Resort" was proclaimed over an area of 1,554 hectares, a public recreation reserve.

Victoria. On 5 December 1892, following renewed efforts by local landowner James Dawson, and the sponsorship of local MP Sir Brian O'Loughlen, a special Act of Parliament, *The Tower Hill National Park Act*, was passed for Tower Hill, reserving 1,475 acres (590 hectares) as 'a public park for public recreation purposes' (Downes, 1961). Revisiting the site in 1891, Dawson had found it to be nothing like the way it was when von Guerard painted it in 1855. He noted in the *Camperdown Chronicle* of 14 February 1891 that "...the fine trees on the cones and the craters on the island, all gone excepting half a dozen or so and the banks turned into a cabbage garden". Instead of a cover of natural vegetation, the banks of the lake had been cleared, the local Koroit

Borough Council had cut a drain into it, and grazing was continuing. Being a strong supporter of public reserves Dawson appealed directly to the Government for action.

The Act vested control of the National Park in the Koroit Borough Council. A major aim of the legislation was to give this local municipality the right to raise funds for improvements. But the stipulation in the legislation that the park could be used for no purpose other than public recreation was ignored and its desecration, including removal of water, and allowing quarrying and grazing, continued. Revegetation efforts in the 1920s involved the planting of exotic pines. In May 1960 the national park's status was changed to that of a State Game Reserve under the control of the Fisheries and Wildlife Department of Victoria; only then, finally, did some restoration of the native flora commence.

More successful was the campaign to establish national parks at Wilson's Promontory on Victoria's south-east coast and, to a lesser extent, at Mt Buffalo in the Alps region. In the period up to July 1898 when 34,400 hectares at Wilson's Promontory was set aside as a temporary reserve for a national park, it had been impacted by a wide range of land-uses including whaling, sealing, timber getting, granite quarrying, exploration for gold, commercial fishing and bush grazing. During the 1860s, acclimatisation and sportsmen's associations had released four different species of deer into the area.

The movement for the Promontory's reservation was triggered by two main developments: first, the discovery of the area's natural beauty and scientific interest and, second, the realisation of the threat to these newly realised values from further development (Mosley, 2002). Describing an 1884-85 Christmas walking trip to the lighthouse (established 1859) by members of the Field Naturalists Club of Victoria (formed 1880), two members of the party, John Gregory and Arthur Lucas, described the area as 'full of interest to naturalists of all persuasions' and they saw it as the 'future summer haunt of lovers of nature, lovers of scenery'. They noted that while 'it was practically inaccessible', improved conditions would change all that. This was most likely a reference to the proposal for the building of the Great Southern Railway from Dandenong to Alberton. Commenced in 1887 this line was completed in 1892.

The immediate threat was an 1887 philanthropist's proposal for the leasing of land on the Promontory to 1,000 Scottish crofters and the freeholding of land to them after 14 years. Although this was quickly rejected by the Government it did give conservationists a sense of urgency. At the August 1887 meeting of the Field Naturalists Club, John Gregory moved that steps were necessary for the vesting of "Wilson's Promontory and the islands and waters adjoining in a Board of Trustees for the purpose of a national park for the preservation of fauna and flora, for the conservation of the fisheries and for public recreation". In February 1888 a combined delegation of the Field Naturalists Club, the Royal Society of Victoria, the Geographical Club and the Victorian Academy of the Arts put the proposal to the Minister for Lands who promptly sent a government survey team to the area to investigate.

By mid-1888 the idea of a national park had the support of both the Government and the local community. The *Yarram Chronicle* on 20 April 1888 called Wilson's Promontory "the future People's Park, the Sanatorium of Victoria, the most picturesque spot in the colony...".

Action was delayed because, while supporting the national park proposal, the Government was not sure about the wisdom of control by a trust. On 8 July 1898, 36,855 hectares were temporarily reserved from sale as "a sanctuary for native flora and fauna and a site for a national park" under the *Lands Act*. On 4 November 1898 under the *Game Act* it also became Victoria's first year-round sanctuary for wildlife.

In spite of these actions the threat of development did not go away. In 1892 land at the Singapore Peninsula was surveyed for a 316 lot township of Seaforth. Although lots were sold and a hotel constructed, Victoria's spectacular land boom came to an end and the development of the township did not go ahead. Unfortunately for the conservationists, early fears about the tenuous nature of the situation were renewed when the timber industry was revived at Sealers Cove (1903), and the Lands Minister decided to subdivide the Promontory into 1,000 acre (405 hectare) grazing blocks. It was this last decision that prompted a campaign for a permanent reserve.

A resolution passed at a public meeting in Melbourne in October 1904 called for the whole area to be "proclaimed as a national park,

invested in Trustees", "as a heritage of the people forever". Even then the Government's response fell short. In March 1905 the Government cancelled the grazing lots subdivision proposal and permanently reserved from sale the inner 30,363 hectares of the 1898 reservation but excluded from this a 40-chain-wide strip around the coast including the Seaforth township site. A further public meeting, in February 1906, attracted over 1,000 people. In addition to its value as a park for people the area was lauded as "a valuable asylum" for native animals. In 1907 a Joint Societies Conference called on the Government to reserve the whole Peninsula as a National Park for Victoria. In this year the Buchan Caves in Gippsland were reserved to protect them against vandalism at the request of geologist Albert Kitson.

Gazette notices in July and August 1908 reported the permanent reservation of the coastal strip around the Promontory, bringing the area of the Park to 40, 875 hectares, and the appointment of a Committee of Management. A further 296 hectares were added in 1909 when nearby islands were included in the Park.

The campaign for Wilson's Promontory National Park was the first of its kind in Australia in that it involved not only several community groups and the prominent biologist Professor Baldwin Spencer but also the general public through their attendance at packed public meetings in Melbourne. At a still further public meeting in the capital in December 1908, convened by the Mayor of Melbourne, a Vigilance Committee was formed and this soon became the National Parks Association whose main role was to press for other national parks in Victoria. As a non-government group specialising in this objective, it was one of the first of its kind in Australia and one of the first in the world (the Sierra Club formed in the USA in 1892 had broader objectives). James Barrett who became Honorary Secretary of the new body was an influential member of the parks movement in Australia over the next 30 years. The involvement of the public in such large numbers with this campaign was a novel feature compared with the earlier campaigns in the other colonies, including that for the National Park (Royal), where politicians and a few individuals were the main players.

The National Parks Association's efforts were soon rewarded with the dedication in 1909 of 4,532 hectares at Mallacoota Inlet, 1,943 hectares

at Wingan Inlet in East Gippsland (as temporary reserves for National Parks) and a 3,887 hectare temporary reservation at Wyperfeld in the north-west of the State (permanently reserved as Wyperfeld National Park in 1921). In 1914 the Association was absorbed into a new body, the Town Planning and National Parks Association, which continued its work. In 1952, in a period of renewed interest in national parks, a new National Parks Association was formed one of whose prime aims was the securing of legislation for a State-wide national parks system, an objective attained in October 1956 with the passage of the *National Parks Act* and the creation of the National Parks Authority. Among the areas now finally declared as permanent National Parks were Mt Buffalo, Wingan Inlet and Mallacoota Inlet.

The making of the case for a National Park at Mt Buffalo on the fringes of the alpine region near Bright involved a strong tourist development factor but here the push for opening up and protection came largely from local groups. The main proponent was the Bright Alpine Club formed in 1887 (initially as the Bright Tourist Club and Promotion Committee) to promote the development of tourist facilities in the region. The Club was one of the first groups in Australia to organise walks into natural areas, in this case to Mt Buffalo and the Bogong High Plains district (Mosley, 1988). In 1889 it organised the first winter ascent of Mt Feathertop. The Government was also interested in the opening up of the area for tourists as a means of providing customers for the railway which reached Bright in October 1890. Mt Buffalo presents a dramatic scene and in 1864 a painting by Nicholas Chevalier (1828-1902), "The Buffalo Ranges", won a prize for an Australian landscape. The first party of tourists appears to have visited the Mountain in the 1870s and by the late 1880s accommodation houses had been developed on the Buffalo Plateau. The Bright Alpine Club promoted the scenic attractions of the area, produced the *Illustrated Guide to the Victorian Alps* in 1891, and persuaded the Government to schedule excursions and later to provide funds for a road up Mt Buffalo. One of its earliest actions, in 1888, was to write to the Secretary of Lands calling for reservation of certain areas on the mountain. There was also local opposition to the alienation of the mountain for grazing.

In October 1898 the Government temporarily reserved 1,165 hectares around the Gorge and Eurobin Falls area as a site for a national park and this was increased to 10,230 hectares in two further extensions of the temporary reserve (in October 1908 and November 1934) bringing the total area to 27,280 hectares. Two years after the first reserve, a road to the plateau, commenced in 1908, was completed to the top of the mountain and a 100-bed chalet was opened, the lease of which was transferred to the Railways Refreshment Service in 1924. Regulations made in 1948 and 1952 referred only to the three temporary reservations of 1898, 1908 and 1934. Although a Management Committee for the National Park was appointed in 1918 it was not until October 1956 when the *National Parks Act* commenced that Mt Buffalo was permanently reserved as a National Park.

Another area where interest in nature conservation continued unabated was Ferntree Gully in the Dandenongs. In 1882 when the Government agreed to extend the railway to the area (opened 1889) 167 hectares at Ferntree Gully and One Tree Hill were set aside as a 'temporary reserve for public recreation'. This clearly did not go far enough for the area's conservation advocates as demonstrated by *Argus* essayist Francis Myers who in March 1888 urged the Government to protect the remaining unalienated land in the Dandenongs as a 'national estate' or 'national park', stressing the health benefits of 'the purifying country influences' for the thousands who could potentially access the area by train and suggesting that the park would make a good forest park partner to an ocean park at Wilson's Promontory (Bonyhady, 2000). Ongoing efforts to this end during the 1890s, including a Field Naturalist Club lantern show, continued but so did the damage to the area. Major bushfires burnt many of the oldest large tree ferns in 1898 and 5,000 new ones were planted. In a time of severe financial depression the Dandenong State Forest was opened to selection – and land clearing and unmanaged tourism have left their marks. Ferntree Gully did not in fact achieve National Park status until 1928. In December 1967 it became part of the much larger Dandenong Ranges National Park.

Tasmania. In the last two decades of the Nineteenth Century, as in Victoria, there was a growing demand in Tasmania for new reserves protecting natural areas, with the push coming from scientists, field naturalists, and photographers as well as from those concerned with the development of the tourist industry (Mosley, 1963 and 1966 a). Prominent among the non-government advocates of new reserves were the Royal Society of Tasmania (formed 1843), the Tasmanian Tourist Association (1893) and the Tasmanian Field Naturalists Club (1904).

Most of the initial reserves set aside were small. In a list of 12 reserves published in 1899 the largest was a 405 hectare 'scenery reserve' comprising a coastal strip on South Bruny Island. There were also several "falls", and "caves" reserves and one "fernery reserve". One of the falls reserves was at Russell Falls near Mt Field. In the first two decades of the Twentieth Century the pressure for scenic reserves was stepped up as tourism promoters became more active. New reserves established during this phase were much larger, indicating the first major step towards modern national parks. Areas afforded protection between 1899 and 1915 included the Freycinet Peninsula, the Ben Lomond Plateau, linear parks along the King and Gordon Rivers in western Tasmania, a Mountain Park on Mt Wellington and an 81 hectare flora reserve at Rocky Cape.

At Ben Lomond 7,284 hectares of the plateau was proclaimed under the *Crown Lands Act*, 1903 as a scenic reserve, in January 1907. The scenic reserves on the two western rivers proclaimed in April 1907 comprised strips 5 chains wide and 16 miles long on the banks of both rivers. One of the main advocates of the Gordon River Reserve, which stretched upstream from Macquarie Harbour, was the photographer James Beattie who, relying on the tourist industry advantage argument, wrote that 'a public awakening may be better aroused by a proposition in this form rather than a more scientific viewpoint'.

The campaign for a major reserve at Mt Wellington had a disappointing outcome but fed into a more successful campaign for a national park at Mt Field. In 1887 George Perrin Conservator of Forests in a report to Parliament had proposed a 'State Reserve' on Mt Wellington. One of the supporters of the park proposal was the prominent politician Henry Dobson (Premier 1892-94) who served as the President of

the Tasmanian Tourism Association from 1895 to 1914. His call was for the mountain to become a "Peoples Park". The Tasmanian Field Naturalists Club also joined in, pressing for legislation to preserve a part of the eastern slopes of the Mountain as a national park and for it to be placed under a board of trustees. The area was already under the control of the Hobart City Council which was concerned that increased public access might conflict with the area's function as a water supply catchment. The campaign resulted in the *Mountain Park Act 1906* declaring an area at The Springs on Mt Wellington to be a "Public Park" to be called "Mountain Park", though it was subsequently sometimes referred to as either "the National Park", or "Mt Wellington National Park". The City Council was appointed as the park manager.

This setback helped to focus conservationists' attention on the Russell Falls and Mt Field area. The leading proponent of this new campaign was William Crooke (1846-1920) a teacher who had been involved with moves for improved protection both at the Queens Domain and at Mt Wellington. There had already been some progress towards protection in the Russell Falls area. Orchardist Louis Shoobridge's hopes that this area would be protected had been rewarded when in 1884 a survey was made for a 121 hectare reserve, and improved access was provided to the falls. The reserve was proclaimed in March 1885 (Luckman, 1953). Crooke, an angler with a cottage in the Russell Falls area, in 1912 formed the National Park Association to further the campaign for a National Park at Mt Field. The Association combined through its membership all the diverse backers of a national park in the Mt Field area. At this stage the advent of the railway in the valley also played a helpful role. By 1911 approval had been given to extend the Derwent Valley Railway to nearby Tyenna. Without a reserve, there was a threat of uncontrolled visitation. With a reserve, both railway patronage and revenue could be increased.

A joint group deputation to the Minister for Lands in October 1913 proposed a 22,000 acre (8,903 hectare) national park, taking in the Mt Field Plateau; but all the Government would agree to was a reserve a quarter of this size around Russell Falls covering 2,023 hectares. The election of a Labor Government in 1914 greatly changed the

prospects (Lord, 1918 and Luckman, 1953). In 1915 the Government made a commitment to extend the Russell Falls reserve to 10,927 hectares for the purpose of a national park. The decision to expand this reserve set the Government thinking about the wider questions of reserve development and management across the State. In 1914 the Government had established the Government Tourist Bureau as a branch of the Government Railways Department. The outcome was the passage in 1915 of the *Scenery Preservation Act* which for the first time in Australian history made provision for the establishment of a State-wide system of "scenic reserves" under the control of a specialised agency, the Scenery Preservation Board. The Act also provided for the Board to delegate management for individual parks to specially constituted individual boards. It is interesting to note that New Zealand had established a Scenery Preservation Board in 1906 (replacing the Scenery Preservation Commission set up under the *Scenery Preservation Act*, 1903), that Canada's Dominion Parks Branch was created under *The Dominion Forest Reserves and Parks Act*, 1911, and that the United States National Park Service came into being in 1916.

In 1904, on Tasmania's East Coast, the Freycinet Peninsula and Schouten Island were reserved for the preservation of native fauna under the *Crown Lands Act*, and in 1903 and in 1906 all Crown land in the two areas was also preserved as a game reserve for five years under the *Game Protection Act*, 1905 to protect kangaroos, possums and deer against hunting. Freycinet had been recommended in 1893 as 'The National Park of Tasmania' by the Fauna Committee of the Australasian Association for the Advancement of Science (AAAS). Its list had suggested a specific national park for each colony (Wheeler, 1980). The work of the Fauna Committee coincided with a period of Australia-wide concern about the ever-growing threat of extinction of Australia's native fauna. This was a factor in the reservation and management of reserves in the other colonies including National Park near Sydney in 1879. The proposed parks were seen as having a vital sanctuary role in saving the last vestiges of Australia's native wildlife. Tasmanian fauna conservationists backed the AAAS proposal. James D. Barrett's letter to the Minister of Lands in February 1903, put the views of many, saying:

With the progress of settlement in Tasmania, as elsewhere, the indigenous plant and animal life of the country is almost certain to be largely destroyed, and it seems desirable that a small portion of the country should be reserved for their perpetuation. Such reservation may be of importance directly or indirectly to all classes of the community, to men of science, tourists, in some instances to the commercial world, and lastly to those who are simply intelligently curious.

Like its counterpart at Wilson's Promontory, the area in the reserves at the Freycinet Peninsula and Schouten Island had been impacted by a wide range of land uses, including whaling and sealing, sheep and cattle grazing, coal mining and quarrying. Coles Bay was a favourite picnic area for visitors from the settlements across the Bay to the west. The Peninsula was also a favourite with field naturalists. Between 1904 and 1914 the Field Naturalists Club held four of its annual Easter Camps on the Peninsula (Fenton, 2004).

After the reservations of 1904 and 1906 the Field Naturalists Club and the Royal Society continued to press for better supervision against raiding boat parties, including the appointment of trustees and a ranger.

At its second meeting in July 1916 the Scenery Preservation Board recommended the reservation of 26 areas under the *Scenery Preservation Act*. One of them was in the Cradle Mt Lake St Clair area in the Central Highlands. In 1916 a 14,164 hectare area near Cradle Mountain had been withdrawn from selection as a 'proposed reserve'. Another recommendation was for a strip of land 10 chains wide on either side of the Gordon River up to the junction with the Franklin River. The inclusion of the Central Highlands area in the recommendations was of particular interest in terms of interstate connections in the parks movement because the chief proponent of this national park, Gustav Weindorfer, as a member of Victorian Field Naturalists Club, had witnessed the move for a national park at Mt Buffalo. He is well known for his 1910 declaration, made while standing on the summit of Cradle Mountain that 'This must be a National Park for the people for all time'. In 1922, after a campaign in which Weindorfer and Fred Smithies, a Launceston businessman, took a leading role, the 63,940 hectare Cradle Mountain Lake St Clair Scenic Reserve was proclaimed, the largest of its kind in Australia at this time.

In August 1916 both 'The National Park' at Mt Field and the Freycinet Peninsula were reserved as scenic reserves under the new Act. The scenic reserve on the Freycinet Peninsula was given the name "Freycinet National Park". It retained this name until it was changed to Mt Field National Park in 1946. A Board for The National Park was appointed in January 1917 and former Premier and founder of the Tasmanian Tourism Association, Henry Dobson, was appointed its first Chairman.

At the official opening of The National Park, performed by the Governor, Sir Francis Newdegate, on 13 October 1917, the Premier's representative emphasised the development value of the Park for tourism, but William Crooke in his speech challenged this, saying:

The idea of the Park was not originally conceived simply for tourists. Only by preserving a Park in this way would the people of Tasmania in the far future be able to see what primeval Tasmania was like. That was one of the objects. Another was the preservation of the native flora and fauna and still another the recreation of the people of Tasmania.

The *Mercury* newspaper in an editorial two days later referred to the new Park as, "An enduring possession of the State, a possession of which all Tasmania has a right to be proud and which all Tasmanians and all sojourners in Australia should come to visit and talk of as worth visiting". It went on to stress the education and health values of the Park and finished on a strong note by stating that "The only creatures to be driven out of the Park and kept out with a flaming sword is the utilitarian who would indiscriminately dig up rare plants, kill live things and destroy everything for a money profit".

South Australia. The establishment of public recreation reserves in South Australia followed a similar course to that in the other colonies but the only reserve to gain wide publicity was the 796 hectare national park at Belair in the Adelaide Hills which was established by special legislation, *The National Parks Act, 1891*, 'for the sole purpose of a public national recreation and pleasuring ground'.

The way Belair developed into a significant park was to some extent reminiscent of the sequence of events in the London parks and the Sydney domains. The area included in the National Park was origi-

nally, in 1842, a Government Farm and then in 1859 became the site of Government House, a summer residence for the Governor. A decision on an 1881 proposal to subdivide the area was delayed because of community opposition in 1883. Part of the area became a forest reserve in 1886. From 1883 the area became more attractive to the public with the completion of railway access to the area, the train line running through the grounds. The subdivision threat led to a strong campaign for the conversion of the area to a public park which was led by Belair resident Walter Gooch and the Field Naturalists Section (formed 1883) of the Royal Society of South Australia. The field naturalist campaign leaders, Arthur Robin and Samuel Dixon, stressed both the recreational and conservation objectives although their real interest was in wildlife conservation. Dixon was another person who had the view that Australian wildlife faced extinction and that parks should have a lifeboat role, involving movement of remnant communities into them.

During the parliamentary debate on the Bill for the Park the Premier, T. Playford (1890-92), argued for the inclusion of "National" in the park's title because the Park near Sydney was so called (Mosley, 1991 and Fox, 1999). In 1892 a Board of Commissioners, "The Commissioners of the National Park", was appointed for the Park. The emphasis on management, from the earliest years, was very much on the development of the area as a picnic area and sporting facility (including football ovals and a golf course) and the continued high density recreation use was reflected in the area being subject between 1972 and 1991 to a gazetted name change to 'Belair Recreation Park'.

Other South Australian reserves established in the second decade of the Twentieth Century included a reserves at Morialto (1913), the Naracoorte Caves (1917), and the Flinders Chase (1919).

After its success at Belair the Field Naturalists Section had turned its interest to an area at the western end of Kangaroo Island where there was the possibility of a reserve for wildlife conservation on an island free from the ravages of both the fox and the rabbit. The campaign started in 1892 and following several deputations to the Minister a reserve of 17,353 hectares was set aside as the Cape Borda Lighthouse Reserve – for "lighthouse purposes and the protection and preservation of fauna and flora". This was increased to 38,610 hectares in 1910

and the area began to be referred to as "Flinders Chase". In June 1911 one hundred people, representing 27 organisations, waited on the State Treasurer to advance the cause of a larger and more secure reserve. Such a strong show of interest led the Government to draft a bill for a National Park and Fauna and Flora Reserve under the control of a Board; but financial problems delayed action until after the end of the First World War. Under the *Flora and Fauna Reserve Act*, 1919 a 42,200 hectare reserve at Flinders Chase was established under the control of the Fauna and Flora Board of South Australia. It had been one of the strongest campaigns of its kind in Australia to that date. Flinders Chase was now used for the propagation of native species. Among the species liberated there were Mallee Fowl, Cape Barren Geese, and Koalas. Several were not native to the area. Similar policies were followed at other Australian National Parks including at National Park (Royal), Wilson's Promontory and Mt Field.

It was a clear indication of thinking about the importance of reserves to tourist development that in 1914 the South Australian Parliament passed the *National Pleasure Resorts Act*. One of the first areas to be declared a National Pleasure Resort was the spectacular Adelaide Hills valley and falls at Morialto. Most of the land (218 hectares) had been donated for this purpose by the private landowner. It was re-proclaimed as the Morialto Conservation Park in 1972 with the passage of the *National Parks and Wildlife Act*. A reserve at Naracoorte Caves which had its origins as a forest reserve in 1882, was also declared a National Pleasure Resort under the control of the South Australian Tourist Bureau in 1917 and similarly became the Naracoorte Conservation Park in 1972 under the *National Parks and Wildlife Act*. With Riversleigh in Queensland in 1994 it became part of a serial World Heritage site for its fossil mammal remains. In 2001 it was made a National Park to better reflect its world heritage status.

Western Australia. Western Australia was granted self government in 1890. In 1893 The Fauna Committee of AAAS recommended that Rottnest Island (for the protection of the Mallee Fowl) and the Houtman Abrolhos Group of islands should become closed reserves but there was more interest at the time in the conservation of flora.

This may have been due in part to the influence of Victorian botanist Baron von Mueller who was corresponding with scientists in Western Australia. At the AAAS meeting in 1890 von Mueller had put a strong case for reserves for the ‘...maintenance of the original vegetation, and therewith for the preservation of animal life concomitant to peculiar plants’. Referring to the urgency he had spoken of areas “where the endemic riches are greatest being swept out of existence” unless unalienable reserves were created, ‘protecting them from disturbing influence on primeval harmonies’ (The Western Australian Sub Committee, Australian Academy of Science Committee on National Parks, 1965).

When the AAAS approached the Premier Sir John Forrest (1890-1901) about the selection of a national park for Western Australia he asked Museum Director and biologist W. H. Woodward to suggest an area other than the recommended Rottnest Island (Ride, 1975). Sir John was the President of the Western Australian Natural History Society formed in 1891. The area Woodward selected for a “flora and fauna reserve” was a 65,000 hectare area of Jarrah-covered land in the southern Darling Ranges between Pinjarra and North Dandalup which was considered unsuitable for agriculture because of the presence of poisonous plants. The reserve (no. 2461) was proclaimed in 1894 (*Government Gazette*, 6 February 1894) under the Land Regulations of 1887.

The idea that this was land unwanted for other uses proved illusory when, three years after reservation, timber and orchard interests began to press for access. In spite of proposals that 20,000 hectares of the reserve be retained as a National Park and despite support for retaining a reserve from the acclimatisation movement (Baskerville, 1994) the purpose of the whole reserve was changed to timber reserve in 1907, and in 1911 it was incorporated into a State Forest. The only good thing to come out of the demise of Western Australia’s first large conservation reserve was that it showed the need for greater security of tenure.

More specialised provisions for parks and reserves were made in the *Parks and Reserves Act*, 1895 (providing for Boards of Control), the *Land Act*, 1895 (providing for areas to be set aside for specific purposes) and the *Permanent Reserves Act*, 1899. The last of these established three

classes of tenure, with 'A' Class being the most secure, having a tenure which could only be changed by Act of Parliament.

The first of several parks to be created in the period 1898 to 1919 was the Greenmount National Park which was alternatively referred to for many years as 'The National Park'. This, situated on the edge of the Darling Scarp, 26 kilometres east of Perth, began its life as two reserves of 43 hectares near Swan View in the Jane Brook Valley. Attractive to visitors for their waterfalls the reserves were set aside in 1895 for public purposes. In 1900 John Forrest expressed his support for a reserve over the Swan View Tunnel on the Eastern Railway (Baskerville, 1994). By 1900 the reserve, with the name of Greenmount National Park, had an area of 1,466 hectares. As with other reserves in the eastern colonies the advent of railway travel had played a role in setting it aside. With the construction of the Eastern Railway through the area in 1893 to 1895 it was only a 30-minute ride away from Perth. The Park's name was officially changed to Forrest National Park in 1928 and in 1947 changed again to John Forrest National Park.

In 1902 Reserves 8427 to 8438 in the Leeuwin-Naturaliste Ridge area of the south-west were set aside as caves reserves and placed under the control of the Caves Board of Western Australia. Among the other early parks in Western Australia were: the Yanchep National Park of 2,800 hectares, protecting caves situated to the north of Perth which was set aside in 1905 and placed under the control of the Caves Board of Western Australia; the Nornalup National Park 120 kilometres west of Albany, which with several areas of Karri forest near Pemberton (Beedalup and Warren National Parks) was reserved in 1909; Barrow Island which became an A class reserve in 1910; and the Stirling Range National Park (temporarily reserved in 1908) which was set aside as an A class reserve of 109,312 hectares in June 1913.

Meanwhile the area we know today as Kings Park continued to receive strong Government support. In 1890 it was extended to 406 hectares at the suggestion of Sir John Forrest. In 1895 it was named "The Perth Park" and placed under the control of the Perth Park Committee (the Perth Park Board from 1896). In 1900 the Park became a class A reserve under the *Permanent Reserves Act*, 1899 and in 1901 the Board changed the name to "Kings Park". Parts of the Park were developed

for sporting purposes, and exotic species were planted, but protection of native flora remained an important objective. A Botanic Gardens was opened in Kings Park in 1965.

Queensland. The earliest protected areas in Queensland were set aside under the *Crown Land Act*, 1884. On 15 December 1906 the *State Forests and National Parks Act* was passed, and came into force in 1907. This was the first legislation in Australia and possibly the world that provided for the declaration and management of a secure state-wide system of "national parks", for all previous national park enactments, including those for national parks in New South Wales and South Australia and the United States, had been for the declaration of individual parks. The Act provided for the Governor in Council to permanently preserve any Crown lands and declare them to be a National Park under the Act, to be revocable only by Act of Parliament, and to be under the control of the Forestry Department. In his second reading speech (Mosley, 1991) the Minister for Public Lands, Joshua Bell, made clear both the recreational intent and the permanency, saying with regard to the latter:

We may not, in connection with those places I am thinking of, be able to say, 'There is a promising growth of young marketable timber here. Let us preserve it...'

Bell said that there would be places where, as the population grew, people could 'go from time to time and know they will get pure air, good scenery and country life' (Goldstein, 1979).

In answer to questions the Minister explained that he knew of a place near the southern border which would make a suitable national park. Other places mentioned in the debate were the Bunya Mountains, Islands in the Whitsunday Passage, and the Barron River. In 1908 Queensland's first national parks were established at Witches Falls (Tamborine Mountain) (131 hectares), and the Bunya Mountains (9,112 hectares). The latter, renowned for its Bunya Bunya Pines (*Aracaria bidwillii*) and for their cones, which served as an attractive food source for Aborigines, had been recommended by the Inspector of Forests, G.L. Broad, who after a visit to the area in 1903 reported that the "special values" of the area were more important than its harvestable timber and that "it would be a disgrace to allow this beautiful spot to be alienated or otherwise lost to the public". The area had been a timber

reserve from 1881 but there was pressure for settlement. Grazing was banned but logging continued in parts of the National Park until 1917.

The area referred to on the southern border was in fact the Lamington Plateau. Robert Collins (1843-1913), a pastoralist from the McPherson Range area, had been advocating since 1896 that Lamington should be a national park and health resort. He had made a trip to the United States in 1878 and was said to have been impressed by accounts of the US national parks. He was a member of the Queensland Legislative Assembly from 1896 to 1898. It seems likely that his advocacy played an important role in the inclusion of national parks in an Act which chiefly related to State Forests.

Lamington National Park (19,033 hectares) was proclaimed under the new legislation in July 1915. From 1908 a much larger reserve than that proposed by Collins had been advocated by Romeo Lahey (1887-1968), the son of a well known saw milling family from Corinda, who by 1911 was an engineering student at Sydney University. Lahey was impressed by what had been achieved in the establishment of the parks and reserves near Sydney and the Blue Mountains and used these examples to try to persuade the Queensland Government to protect the rainforest-covered plateaus near the border. Although the area was largely undisturbed, most of it was a timber reserve and some blocks had been alienated. Lahey gave illustrated lectures in nearby towns and lobbied local councils and relevant Ministers, stressing the value of the land for nature conservation as well as for health and recreation. A 521-signature petition was organised and a local conservation group was formed at Canungra to promote the reservation. A change in government and the appointment of a well disposed new Labor Party Minister for Lands is said to have helped bring about the proclamation (Bardwell, 1980).

Part of the official reasoning behind the establishment of one large park (Mosley, 1991) was the high cost of providing roads to individual settlements and the adverse effect this land-use fragmentation would have had on the wildlife. Lahey fought hard to exclude roads from Lamington. What was developed instead over the next few decades, except for roads to two inholdings where privately run guesthouses were developed, was a landmark system of graded walking tracks.

This strongly affected the approach of the Government to the management of the Parks established in the rest of Queensland over later years.

In April, 1930 the National Parks Association of Queensland was formed with Romeo Lahey its first President. It became the driving force behind the establishment of new parks in the State.

3. Overseas National Parks in the Nineteenth Century

THE AIM OF the cultural heritage sections of this book is to examine the way in which the history of The Royal Reserves throws light on an a significant aspect of modern history – the national parks movement. It has already provided the Australian context for the story of the establishment and management of The Royal Reserves in the period 1788 to 1919. Reference has been made to the influence the parks of London had on the development of urban parks in the colonies and we know that Governors and Surveyors received instructions from England concerning the reservation of riverbank and coastal areas deemed of longterm public importance. Unfortunately, there appears to have been little research carried out concerning other overseas influences over the development of national parks in Australia. For instance, how did the old English term 'Chase' (an area reserved for breeding and hunting wild animals in the form of the medieval royal deer forests) influence the choice of names for parks at Ku-ring-gai, the Snowy Mountains and Kangaroo Island? Robert Collins learnt of the existence of national parks in the United States during his trip across that country in 1878 but there is no evidence that the early public parks established at Yosemite in 1864 and Yellowstone in 1872 influenced the proclamation of our National Park in 1879. Nevertheless, the Nineteenth Century movement for these and other parks in the United States, Canada and New Zealand does illustrate similar motives and concerns which were at work and which contributed to a movement which has today led to the reservation in national parks of an appreciable portion of the Earth, a movement that is therefore worth examining.

Today the world has the following accepted definition for a national park, referred to as 'Category II National Park' (Dudley, 2008):

...large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally compatible spiritual, scientific, educational, recreational and visitor opportunities.

3A. *The Development of the National Parks Concept in the United States*

THE FIRST GOVERNMENT action setting aside land for purposes which we today would regard as being for a national park was at Yosemite in California in 1864. This was preceded by a number of suggestions about the need for such parks by leading United States thinkers.

Over thirty years before the dedication of Yosemite the painter George Caitlin (1796-1872) in a letter published in 1833 in a New York newspaper, the *Daily Commercial Advertiser*, and republished in a later book (Caitlin, 1841) had put forward the idea of government action to create 'a magnificent park' to preserve the Indian life and the herds of Buffaloes and Elks in the Great Plains, extending from Mexico to Lake Winnipeg. The proposal was made only three years after the *Indian Removal Act* had provided for the relocation of Indian tribes in the east to the west of the Mississippi.

Enthusing about the area and the originality of his idea, Caitlin wrote:

What a beautiful and thrilling specimen for America to preserve and hold up to the view of her refined citizens and the world in future ages! A Nation's Park, containing man and beast, in all the wild and freshness of their nature's beauty. I would ask no other monument to my memory, nor any other enrolment of my name amongst the famous dead, than the reputation of having been the founder of such an institution.

His park idea had little chance of becoming a reality in the decades dominated by the expansion of the frontier westwards. Much more possible at this stage were small reserves to protect specific features and the first of these appears to have been a 1,000 hectare "hot springs

reservation" in Arkansas, set aside in 1832 and placed under the control of the Department of the Interior.

Similar suggestions for area protection were made by Henry David Thoreau (1817-62) who, like the colonists in Australia, saw the royal parks of England as a precedent – in this case not the urban royal parks but the royal forest hunting parks of the countryside established by the Normans (such as "High Peak Forest" and "The Forest of Dean"). After witnessing the cutting down of forests in Maine, Thoreau wrote in his journal (published in the *Atlantic Monthly* in August 1858 and posthumously republished in *The Maine Woods* (Thoreau, 1964), that: "the kings of England formerly had their forests to hold the king's game for sport or food, sometimes destroying villages to create and extend them, and I think they were impelled by a true instinct", and he went on to ask:

Why should not we, who have renounced the king's authority, have our national preserves, where no villages need be destroyed, in which the bear and the panther, and some even of the hunter race, may still exist, and not be 'civilised off the face of the earth' – our forests, not to hold the king's game merely, but to hold and preserve the king himself also, the lord of creation – not for idle sport or food, but for inspiration and our own true recreation? Or shall we, like villains, grub them all up, poaching on our own national domains?

Thoreau's works were particularly influential on the conservationists who followed. The early conservationist and founder of the Sierra Club, John Muir, took a copy of *The Maine Woods* with him on his first visit to Alaska in 1879. Muir was to become a leading advocate for the Yosemite National Park and a founder of the Sierra Club.

Yosemite. There is almost universal agreement that the reservation of Yosemite Valley and the Mariposa Big Tree Grove located in the western slope of the Central Sierra Nevada of California was the first area in the world to be established for the purposes we associate today with those of national parks, although in the United States this tends to be disputed because 'national' is so closely associated there with federal ownership and control.

The Yosemite Valley had superlative natural scenery and the Mariposa Grove was noted for its giant sequoia trees. The photographs

of Carleton Watkins taken in 1861 helped bring this area's spectacular scenery to the notice of the world (see reference to Grose Valley campaign above).

By an Act of Congress (13 Stat. 325) of 30 June 1864 both areas of federal land, covering a total of 14,614 hectares, were granted to the State of California with the stipulation that the State:

Shall accept this grant upon the express conditions that the premises shall be held for public use, resort and recreation; shall be unalienable for all time; but leases not exceeding ten years may be granted for portions of said premises.

The agreement was signed by President Abraham Lincoln while the US Civil War was still proceeding and enacted by California Governor Frederick F. Low.

Speaking about this event as the birthplace of the national park idea at the First World Conference on National Parks in 1962, Conrad L. Wirth, Director of the US National Parks Service, described it as 'The first action by the Congress of the United States to set apart some public lands for man's inner needs' (Wirth, 1962), and said of the conditions that:

In those words are to be found the seed of an idea and the beginning of a new national public-land policy – a policy that recognised the need for the holding of land in public ownership in perpetuity for other than public gain.

The Governor of California appointed a Board of Commissioners to develop the management policy for the Yosemite Valley and this was set out in an 1865 report written by one of the Commissioners, Frederick Law Olmstead, the first Superintendent of New York's Central Park. In the report, Olmstead, quoted by Wirth, established what amounted to the foundation for the national park concept, writing:

Thus, unless means are taken by government to withhold them from the grasp of individuals, all places favourable in scenery to the recreation of the mind and body will be closed against the great body of people... To simply reserve them from the monopoly by individuals, however, it will be obvious, is not all that is necessary. It is necessary that they should be open to the use of the body of the people. The establishment of by government of great public grounds for the free enjoyment of the people under certain circumstances, is thus justified and enforced as a political duty.

A further Act of Congress of 1 October 1890, *The California Forest Reservation Act* (26 Stat. 650), set aside several areas including the high country surrounding the 1864 Yosemite Grant as “reserved forest lands” under the control of the Secretary of the Interior. These were then administered as national parks. California passed control of the land in the Yosemite Grant to the federal government in 1906 and it was included in the Yosemite National Park.

In spite of the high level of protection for this National Park, Secretary of the Interior, James Garfield, in May 1908, issued a permit to the City of San Francisco for the building of a major water supply reservoir on the Tuolumne River in the Hetch Hetchy Valley some 40 kilometres north of the Yosemite Valley. After a long battle involving John Muir and the Sierra Club, Congress approved the project in October 1913. It was completed in 1923 and opened in 1934. Probably the wild state of the valley (undeveloped for recreation) made it more vulnerable at this time in the evolution of the national parks movement.

Yosemite National Park became a world heritage site for two natural values in 1984.

Yellowstone. On 1 March 1872, President Ulysses S. Grant signed into law the Congress approved *Yellowstone Act* (S.392), referred to in the preamble as “An Act to set apart a certain tract of land lying near the Head-waters of the Yellowstone River as a public Park”. Under the Act this “Yellowstone Park”, covering 898,349 hectares of wild country, was:

Reserved and withdrawn from settlement, occupancy, or sale under the laws of the United States and dedicated and set apart as a public park or pleasuring-ground for the benefit and enjoyment of the people.

The Act provided that “the said public park” should be under the exclusive control of the Secretary of the Interior who was required to make rules and regulations:

...for the preservation from injury or spoliation, of all timber, mineral deposits, natural curiosities, or wonders within said park, and their retention in their natural condition.

Yellowstone, had been the subject of much exploration and, as with Yosemite, had some particular natural attractions, in this case its gey-

sers and hot springs and herds of Buffalo and Elk. Congress had provided finance for an 1871 expedition to the region and is said to have been energised to provide protection for the area by the report of the expedition's leader, geologist Ferdinand Hayden, and by the images presented by the expedition's photographer William Henry Jackson and its artist Thomas Moran (1837-1926). Moran's participation had been financially assisted by Northern Pacific Railroad promoter Jay Cooke. An account of the visit published in *Scribner's Magazine* was illustrated by Moran (Wilkins, 1966). A report to Congress from the Committee of Public Lands spoke of the desecration which could occur if the bill failed to pass. In the debate which preceded the passage of the bill, reference was made to Hayden's report and to the precedent set by the protection of the Yosemite Valley. The jurisdictional circumstances were different to those at Yosemite and contributed to the decision to establish a park under the control of the federal government. None of the three territories in which the area was located had achieved Statehood and two of them, Wyoming and Montana, were vying for control of the area.

Writing to appoint Nathaniel Langford as Superintendent of the new park in May 1872, the Secretary for the Interior advised that the reservation was to be known as "Yellowstone National Park". The *Yellowstone Act* had the major effect of preventing settlement in what was to be the largest park in the world for many years. Just how the land was to be managed was less certain. The Indian Wars were still taking place on the Northern Great Plains and Congress did not pass an appropriation for the care of the National Park until 1878. The Northern Pacific Railway (line commenced in 1870) built a train station to provide improved access to the Park on the railroad's completion to the north of the Park in 1883.

The revolutionary aspect of the setting aside of Yellowstone was its great size and relatively natural character. As to whether it was the world's first national park, this was addressed in the 1972 Yellowstone centenary publication of the Yellowstone Library and Museum Association – *Yellowstone: A Century of the Wilderness Idea* (Sutton et al, 1972). It stated with regard to primacy of designation:

...but the first time the words 'national park' were used in the body of a public act was in the establishment of Royal National Park near Sydney, Australia in 1879. It was then simply called 'the National Park' (the first legislative reference to Yellowstone as a national park occurred in 1883 in a bill relating to appropriations).

One of the authors of this book, Myron Sutton, had an extensive knowledge of the national parks system of the world and had taken the trouble to investigate the history of Royal National Park. What the authors of this publication were doing was comparing the words used for the statement in the *Yellowstone Act* concerning what the area was set aside for (its purpose) with the words in the gazettal for National Park (Royal) and pointing out that it was the latter where 'national park' was first used. The bracketed part of the Yellowstone centenary reference was incorrect because the name 'Yellowstone National Park' had in fact been used in a congressional appropriations act in 1878. The claim regarding Royal's primacy as an area specifically dedicated for the purpose of a 'national park' was also made in a special centenary celebration section on national parks in the *Christian Science Monitor* of 16 September 1972.

Referring to the significance of the *Yellowstone Act*, Aubrey Haines in *The Yellowstone Story* (Haines, 1977) wrote:

That revolution completed the evolution of the park idea: from roots in the Saxon concept of holding village lands 'in common', through economic and philosophical developments of the early 19th century to the scenic cemetery, the landscaped city park, the state park, to arrive at last at the idea of reserving wild lands 'for the benefit and enjoyment of the people' under federal management.

In 1978 Yellowstone National Park was included in the World Heritage List for all four possible natural heritage values. Neither Yosemite nor Yellowstone were nominated by the US Government for cultural values in spite of their strong association with what is an idea of universal significance and their role as internationally significant cultural landscapes.

Mackinac. On 3 March 1875, US Congress passed "An act to set apart a certain portion of the island of Mackinac in the Straits of Mackinac, as a national park". It dedicated and set aside part of a military reservation on this Island (in the north western part of Lake Huron), "as a

national public park, or grounds, for health, comfort, and pleasure, for the benefit and enjoyment of the people”.

The Act placed the park, covering about 1,000 acres, under the control of the Secretary for War and provided for it to continue to be available for military purposes. In 1895 after the US Army decided to withdraw its soldiers from Fort Mackinac, Congress provided for the national park lands to be turned over to the State of Michigan to be used as a State Park.

By the end of the century there were four large National Parks in the United States: Yellowstone (1872); Yosemite and Sequoia (1890); Mt Rainier (1899); and the 1,036 hectare General Grant National Park (1890). The establishment of these parks had a strong recreational motive. As in Australia, Canada and New Zealand, railway building and the desire to develop custom for the railways played an important role.

3B. Developments in Canada

Banff National Park. The establishment of the first Canadian national park was associated with the development of a railway. Railway workers on the cross-continental Canadian Pacific Railway (CPR) which reached Banff in 1883 discovered hot springs nearby and in 1885 a federal reserve of 2,600 hectares was set aside around the site. (The Dominion of Canada had been formed in 1867.)

The railway and the development of the Banff Springs Hotel (1888) and Chateau Lake Louise (from 1890) by the CPR attracted large numbers of visitors to the area. In 1886 the reserve was expanded to 67,300 hectares with the name of “Rocky Mountains National Park”. The name of a still further expanded park of 669,500 hectares was changed to “Banff National Park” in 1930. In 1984, and extended in 1990, a site comprising four national parks and three provincial parks in the Rocky Mountains region, including Banff National Park and Jasper National Park(1930), was included in the World Heritage List for its natural values.

The first area to be designated a national park under provincial legislation in Canada was the Algonquin National Park established by

the Government of Ontario in 1893 following a recommendation from the "Royal Commission on Forest Reservation and National Parks". Covering 379,700 sq kms it was reserved under the "Act to establish 'Algonquin National Park of Ontario'" of 23 May 1893. A railway through the park was opened in 1897. In 1913 the park's name was changed to "Algonquin Provincial Park".

3C. *Developments in New Zealand*

NEW ZEALAND BECAME a separate colony from New South Wales in 1841 and was granted self government in 1853. Provincial governments and assemblies existed from 1841 to 1876.

Tongariro National Park. This park had its beginnings in a September 1887 deed of gift of an area of 2,640 hectares comprising land around the three main peaks of Ruapehu, Ngauruhoe and Tongariro in the centre of New Zealand's North Island by Maori chief Te Heuheu Tukino. The gift was made as a method of protecting this sacred mountain during a period of Maori land disputes and expanding European land claims. Action in passing the enabling legislation was delayed until sufficient surrounding land had been acquired. The *Tongariro National Park Bill* was introduced in 1887 but was not approved by Parliament until October 1894, extinguishing native title. It was gazetted in 1907 covering an area of 25,213 hectares (Thom, 1987). The North Island Main Trunk railway was completed in 1908 and Tongariro National Park was serviced by a station appropriately named "National Park". By the time of this event there were already parks and reserves in other key scenic areas including two permanent reserves for recreation set aside under the *Land Act*, 1877 in the Hooker, Mueller and Tasman valleys near Mt Cook ("Hooker Glacier Recreation Reserve" covering 546 hectares in January 1885, extended to 15,942 hectares in May 1890, and "Tasman Recreation Reserve" covering 25,495 hectares in May 1887), and then at Mt Egmont, covering 33,000 hectares, set aside under the *Egmont National Park Act*, 1900. New Zealand celebrated its national parks centenary in 1987 in recognition of the Tongariro deed of the gift.

In 1990 Tongariro National Park was inscribed on the World Heritage List for its natural values and in 1993 it was also listed as a “culturally associative landscape”.

4. The Development of the Concept of the National Estate and National Heritage in Australia

Among the outcomes of the grand experiment with The Royal Reserves was an increased public awareness that there were some natural areas of such high public importance that they belonged to all Australians. Evidence of this can be seen by the use of such phrases as “a national domain” and “the national heritage” in *An Official Guide to The National Park of New South Wales* (Elwell, 1893). At Federation in 1901, jurisdiction over Crown lands in the former colonies was left with the States. The Commonwealth was given power over land in the Australian Territories and has continued to exercise it in external Territories to the present day. Among the federal government’s main collaborative efforts since this time has been the maintenance of a national list of national parks and reserves and the building up, partly through financial efforts, of a National Reserve System. When the first international list of protected areas, covering 81 countries, was prepared and presented to the first World National Parks Conference in July 1962, Australia’s list was exceeded in length only by those for Great Britain and the United States. Annual meetings of Australian Nature Conservation Ministers commenced in 1967, and in 1975 the Australian National Parks and Wildlife Service was established. The Service took over the task of maintaining these protected area lists in 1980. By 2010 Australia’s protected area system covered 10.55% of its terrestrial area (IUCN and UNEP-WCMC, 2010). Included among the many classes of protected area in Australia are ‘Indigenous Protected Areas’ where traditional owners have entered into an agreement with the Australian Government.

Closely interwoven with efforts to add a national element to the development of the of Australia’s State and Territory protected area systems was a parallel effort to identify and protect the nationally sig-

nificant natural and cultural heritage. The National Trust Australia (New South Wales) founded in 1945 had led the way in broadening the base of heritage protection. It had its genesis in the English National Trust for Places of Historic Interest or Natural Beauty, founded in 1895. An important event leading to the next stage of heritage protection was the major ALP policy speech of November 1972 by the leader of the Australian Labor Party, Gough Whitlam. In it he spoke of plans to protect “the national estate”, a term President J.F. Kennedy had used in a speech in 1963. 1972 was also the year the UNESCO General Conference adopted (on 16 November 1972) the *Convention Concerning the Protection of the World Cultural and Natural Heritage* (World Heritage Convention). President Nixon’s 1971 “Environment Message” had connected his hopes for this to the Yellowstone Centenary saying (Train, R. 1992):

It would be fitting that by 1972 (being the centennial anniversary of the establishment of Yellowstone National Park) for the nations of the world to agree to the principle that there are certain areas of such unique worldwide value that they should be treated as part of the heritage of all mankind and accorded special recognition as part of a World Heritage trust.

The first four sites were placed on the World Heritage List in 1978.

The Committee of Inquiry into the National Estate established by the Whitlam Government in 1973 and its report of 1974 led to the passage of the *Australian Heritage Commission Act, 1975*, the appointment of the Australian Heritage Commission, and the initiation of the Register of the National Estate. The Committee of Inquiry took as its starting point for definition of the national estate the definitions laid down in Article 1 of the *World Heritage Convention* (National Estate Committee of Inquiry, 1974). By 2003 the Register comprised 13,100 places. Royal and Heathcote National Parks were placed on the Register in March 1978 along with several cabin communities (see Chapters 2 and 4). The Register was frozen in February 2007 following an amendment to the *Australian Heritage Council Act, 2003*. This Act provided for the replacement of the Australian Heritage Commission by the Australian Heritage Council and the development from scratch of a much more restricted Australian Heritage List. This is likely to number in the hun-

dreds rather than the thousands on the Register of the National Estate whose placement had no statutory relevance after February, 2012. Royal National Park and Garawarra State Conservation Area were jointly placed on the National Heritage List in July 2006.

In 1974 Australia signed the *World Heritage Convention* and by 2011 nineteen Australian places had been included on the World Heritage List: twelve for natural values, three for cultural values, four for mixed values (natural and cultural). As the State Party to the Convention, the Commonwealth has a duty of preparing and maintaining an inventory of potential world heritage nominations (a 'Tentative List'), submitting nominations, and caring for listed places. In August 2012, Australia's Tentative List comprised only two places.

APPENDIX D

References And Major Sources

A. References

- Andrew, D. 2012, 'Post Vertebrate Fauna Survey of Royal and Heathcote National Parks and Garawarra State Conservation Area', *Proceedings of the 2011 Symposium, Natural History of the First National Park*, The Linnean Society of New South Wales and NSW National Parks and Wildlife Service, Sydney.
- Australian Conservation Foundation 1969, *The High Country*, Viewpoint Series No. 4, September 1969.
- Bajpai, S. and Dragovich, D. 2012, 'Visitor attitudes and erosional impacts on the Coast Walk Royal National Park', *Proceedings of the 2011 Symposium, Natural History of the First National Park*, The Linnean Society of New South Wales and the NSW National Parks and Wildlife Service, Sydney.
- Bardwell, S. 1980, 'Queensland Pioneers', *Parkwatch*, 120, May 1980.
- Baskerville, B. 1994, Talking about national parks: intentions, making places and history in NSW and WA, Paper delivered at History '94 Conference, Perth, 29 September 1994.
- Beadle, N.C.W. 1954, 'Soil phosphate and the delimitation of plant communities in Eastern Australia', *Ecology*, 35, pp. 370-75.
- (1962). 'Soil phosphate and the delimitation of plant communities in Eastern Australia 11', *Ecology*, 43, pp. 281-88.
- Beder, S. 1995, 'SLAPPS – Strategic Legal Actions Against Public Participation: Coming to a controversy near you', *Current Affairs Bulletin*, 72(3), Oct-Nov 1995.
- Bonwick, J. (undated, probably 1858). *Western Victoria: Its Geography, Geology and Social Conditions*. Thomas Brown, Geelong.
- Bonyhady, T. 2000, *The Colonial Earth*. Melbourne University Press.

- Bowen, S. and Burchett, M.D. 2012, 'The ecology of the Gynea Lily; sentinel plant of the Royal National Park', *Proceedings of the 2011 Symposium, Natural History of the First National Park*. The Linnean Society of New South Wales and the NSW National Parks and Wildlife Service, Sydney.
- Brady, A. 1992, *A Centenary History of Tower Hill*, Department of Conservation and Natural Resources, Melbourne.
- Branagan, D.F. 2000, 'The Hawkesbury Sandstone: its origins and later life', in G.H. McNally and B.J. Franklin (eds), *Sandstone City*, Geological Society of Australia, Sydney.
- Brown, I. and Delaney, R. 2005, *Illawarra Escarpment State Conservation Area Draft Master Plan for Walking Tracks and Associated Facilities*, November, 2005, Epacris Environmental Consultants.
- Briggs, J.D. and Leigh, G.H. 1996, *Rare or Threatened Australian Plants*, 1995 revised edition, CSIRO/ANCA, Canberra.
- Bruce, C. 1980, *Eugen von Guerard*, Australian Gallery Directors Council and Australian National Gallery, Canberra.
- Bryant, E.A., Young, R.W., Price, D.M., and Short, S.A., 1994, 'Late Pleistocene Dune Chronology: Near-coastal New South Wales and eastern Australia', *Quaternary Science Review*, 13, pp. 209-23.
- Byles, M.B. 1945, 'What Is a Primitive Area?', *The Sydney Bushwalker*, July 1945.
- 1946, 'A Bushwalker Reserve or a Fauna and Flora Reserve', *The Sydney Bushwalker*, October 1946.
- Cabena, P.B. 1983, *Victoria's Water Frontage Reserves: An Historical Review and Resource Appreciation*, Department of Crown Lands and Survey, Melbourne.
- Caitlin, G. 1841, *Letters and Notes on the Manners, Customs and Condition of the North American Indians*.
- Carleton, M. 1994, *Report to the Hon. Robert Webster, Minister for Planning and Housing, Appropriate Landuse Zonings in the Vicinity of Helensburgh, Wollongong Local Government Area*, December, 1994, Office of the Commissioners of Inquiry for Environment and Planning, Sydney.
- Carrick, J. (forthcoming), *European History of Royal National Park – Revisited*.
- Clark, M.R. 1993, 'Tower Hill's peculiar attractions', *The Age*, 30 October 1993.
- Clarke, P. 1986, *Hell and Paradise*, Viking Penguin, Ringwood, Victoria.

- Colley, A. and Gold, H. 2004, *Blue Mountains World Heritage*, Colong Foundation for Wilderness, Sydney.
- Committee of Inquiry into the National Estate 1994, *Report of the Committee of Inquiry into the National Estate*, Australian Government Publishing Service, Sydney.
- Conaghan, P.J. 1980, 'The Hawkesbury Sandstone', in C. Herbert and R. Helby (eds), *Geological Survey of New South Wales Bulletin* 26, pp. 188-253, Department of Mineral Resources, Sydney.
- Connolly, D., Keith, D., Tozer, M., and Woodward, R. 2012, 'The Vegetation of Royal National Park and Surrounding Landscape', *Proceedings of the 2011 Symposium, Natural History of the First National Park*, The Linnean Society of NSW and NSW National Parks and Wildlife Service, Sydney.
- Coward, D. 1988, *Out of sight: Sydney's environmental history 1851-1951*, Department of Economic History, Australian National University, Canberra.
- Crombie, B. 1984, *Impact of Helensburgh, Otford and Stanwell Tops on Their Surrounding Natural Environment*, Report to Department of Environment and Planning, March 1984.
- 1984, *Impact of Proposed Urban Development in the Helensburgh Area of the Hacking River System upon Nature Conservation Values in the Area*. Report to National Parks and Wildlife Service, January 1984.
- 1985, *Weed Invasion of the Hacking River Catchment via Riparian Systems*, Report to State Pollution Control Commission, December 1985.
- Crombie, B. and Fairley, A. 2007, *A Biota of Royal National Park*. 2nd edn.
- Cumberland County Council 1948, *The Planning Scheme for the County of Cumberland, New South Wales*, New South Wales Government Printer, Sydney.
- Dingwall, P., Weighell, T., and Badman, T. 2005, *Geological World Heritage: A Global Framework, A Contribution to the Global Theme Study of World Heritage Sites*, International Union for Conservation of Nature, Gland, Switzerland.
- Downes, M.C. 1961, *The History of Tower Hill to 1892*.
- Dudley, N. (ed) 2008, *Guidelines for Applying Protected Area Management Categories*, International Union for Conservation of Nature, Gland, Switzerland.

- Dunphy, M.J. 1961, 'Proposed Kanangra-Boyd National Park Southern Blue Mountains', *Australian Wildlife* 4.
- 1963, manuscript: *Kosciusko State Park, Snowy-Indi National Park Origins: A summarised account of the beginnings and progress of the Snowy-Indi National Park and Primitive Area (Kosciusko State Park) up to the year 1946*, taken from the files of the National Parks and Primitive Areas Council by M.J. Dunphy, Hon. Sec., May-June 1963.
- 1971, manuscript: *Notes on Timber Getting in National Park*, sent to Marie Dibby on 20th May, 1971.
- 1975, manuscript: *The New Conservators*.
- Duyker, E. and Duyker, M. 2001, *Voyage to Australia and the Pacific 1791-1793*, Miegunyah Press, Melbourne.
- Elwell, T.D. 1893, *An Official Guide to the National Park of New South Wales*, published by the authority of the Trustees, Charles Potter, Government Printer, Sydney.
- Emerson, E. 2009, 'Editorial re Bedford Cottage', *Doryanthes*, Vol. 2 (4), November, 2009.
- Fenton, J. 2004, *A Century Afield, A History of the Tasmanian Field Naturalists Club*, Tasmanian Field Naturalists Club, Hobart.
- Flood, J. 1983, *Archaeology of the Dreamtime*, William Collins, Sydney.
- Fox, A. 1991, *Centenary Field Guide of Major Parks and Reserves of South Australia*, National Parks and Wildlife Service, Adelaide.
- Goldstein, W. (ed) 1979, *Australia's 100 years of National Parks*, National Parks and Wildlife Service, Sydney (reprint from *Parks and Wildlife*, Vol. 2, no. 3-4, April 1979).
- Haines, A.L. 1977 and 1996, *The Yellowstone Story: A History of Our First National Park*, 2 vols, Yellowstone Association for Natural Science, History and Education.
- Hutton, G. (ed) 1981, *Australia's Natural Heritage*, Australian Conservation Foundation, Hawthorn, Victoria.
- IUCN and UNEP-WCMC 2011, *The World Database on Protected Areas (WDPA)*, Cambridge, UK.
- Jacobs, P. and Anderson, G. 1998, 'Battles and Victories in the Australian Alps – Mt Buffalo and the Alpine National Parks', in E. Hamilton-Smith (ed), *Celebrating the Parks: Proceedings of the First Australian Symposium on Parks History. Mt Buffalo, 16-19 April 1998*, Rethink Consulting, Victoria.

- James, T.A. (ed) 1994, *An Assessment of the World Heritage Values of the Blue Mountains and Surrounding Plateaus, December, 1994*, Royal Botanic Gardens, Sydney.
- Jeffreys, C. 1820, *Geographical and Descriptive Delineation of Van Diemen's Land*, London.
- Karskens, G. 2009, *The Colony A History of Early Sydney*, Allen and Unwin, Sydney.
- Keith, D. and Tozer, M. 2012, 'Vegetation dynamics on coastal sandstone plateaus of the Sydney Basin', *Proceedings of the 2011 Symposium, Natural History of the First National Park*, The Linnean Society of New South Wales and the NSW National Parks and Wildlife Service, Sydney.
- King, P.G. 1794, Extract from Governor King's diary quoted in Nobbs, R. (ed), *Norfolk Island and its First Settlement 1788-1814*, Library of Australian History, Sydney.
- Koboyashi, T., Jacobs, S., and Treanor, M. 2011, 'Aquatic micro invertebrates in Marley and Jibbon lagoons in Royal National Park', *Proceedings of the Symposium, Natural History of the First National Park*, The Linnean Society of New South Wales and the NSW National Parks and Wildlife Service, Sydney.
- Kosciusko State Park Trust 1965, *Proposed Plan for the Preservation and Development of the Kosciusko State Park*, November 1965.
- Kosciusko National Park Trust 1967, *Report on the Proposed Park Zoning Plan by the Resources Management Committee*, October, 1967.
- Laseron, C. 1984, *Ancient Australia, The Story of its Past Geography and Life*, revised by R.O. Brunnschweiler, Angus and Robertson, Sydney.
- Lord, C.E. 1918, 'The Foundation of the National Park', *Proceedings of the Royal Society of Tasmania*. p. 35.
- Luckman, J. 1953, 'Mount Field National Park Historical Notes', *The Tasmanian Tramp*, no. 11, December 1953, Hobart Walking Club.
- Madden, K., and Connolly, D. 2012, 'Fauna recovery after extreme wildfire in Sydney's sandstone bushland', *Proceedings of the Symposium, Natural History of the First National Park*, The Linnean Society of New South Wales and NSW National Parks and Wildlife Service, Sydney.
- Macqueen, A. 1997, *Back from the Brink, Blue Gum Forest and the Grose Wilderness*, A. Macqueen, Springwood, New South Wales.

- McArthur, C., Stephens, H., Pedersen, S., and Keith, D. 2011, 'Direct and indirect ecological interactions between rusa deer, vegetation and small mammals in the Park', *Proceedings of the Symposium, Natural History of the First National Park*, The Linnean Society of New South Wales and the NSW National Parks and Wildlife Service, Sydney.
- McDonald, B., Burton, C., Foulcher, J. and Thorp, W. 1987, 'Audley Conservation Plan. Royal National Park', unpublished report for Department of Public Works, Sydney.
- Meredith, P. 1998, *Myles and Milo*, Allen and Unwin, Sydney.
- Meyers, P.C. 2010, *The Royal Coastal Experience: A guide and annotated map of the Coast Track in Royal National Park, NSW*, SIT Study Abroad report.
- Mitchell McCotter and Associates 1984, *West Menai and Helensburgh: Evaluation for Urban Development*.
- Monahan, C.A. 2006, *Exploring the Relationship Between Experience in the Outdoors and an Ecological Conscience*, SIT Study Abroad report.
- Mosley, J.G. 1963, *Aspects of the Geography of Recreation in Tasmania*, PhD thesis, Australian National University, Canberra.
- 1965, *Origin and early growth of the New South Wales park and reserve system*. Unpublished.
- 1966a, 'The Tasmanian National Park System', *The Tasmanian Tramp*, no. 17, January 1966, Hobart Walking Club (paper presented at ANZAAS Congress, Hobart, August 1965).
- 1966b, 'Wilderness Areas', *Architecture in Australia*, March 1966.
- 1979, 'People and parks', *Habitat Australia*, 7 (4), August 1979.
- 1988, *Australian Alps World Heritage Nomination Proposal*, Victorian National Parks Association, Melbourne.
- 1989a, 'History of Conservation of the Australian Alps', in R. Good (ed), *The Scientific Significance of the Australian Alps The Proceedings of the First Fenner Conference September, 1988*, The Australian Alps Liaison Committee and the Australian Academy of Science. CPN Publications.
- 1989b, *Blue Mountains for World Heritage*, Colong Foundation for Wilderness, Sydney.
- 1991, *Australia's Conservation Reserve Systems – History of Reservation*, Report for ACF/WWF ESD Policy Unit, October 1991, Australian Conservation Foundation, Melbourne.

- 1999, *Battle for the Bush: The Blue Mountains, The Australian Alps and the Origins of the Wilderness Movement*, Colong Foundation/Envirobook, Sydney.
- 2001, *Island on the Brink: A Conservation Strategy for Norfolk Island*, Norfolk Island Conservation Society.
- 2002, *International and World Heritage Values of Wilsons Promontory National Park*, Report to the Department of Natural Resources and Environment, Victoria.
- 2003, 'Celebrating National Parks – Nineteenth Century Origins', in A. McConnell (ed), *With Every Step: Reflections on the Place and Meaning of Tasmania's Parks and Reserves, An Appreciation through History*, Public Seminar, Hobart, 5 October 2002, National Parks and Wildlife Advisory Council, Hobart.
- Mosley, G. and Costin, A. 1992, *World Heritage Values and Their Protection in Far South East New South Wales*, Earth Foundation Australia, Sydney.
- Myers, N. 1988, *The Environmentalist*, 8, pp.187-208.
- National Parks Association of NSW Southern Sydney Branch 2011, *The Green Corridors of Southern Sydney*, DVD, also available on Youtube. www.npansw.org.au
- National Parks and Primitive Areas Council 1934, *The Katoomba Daily – Blue Mountains Special Supplement*, 24 August 1934, written by H.J. Chandon and M.J. Dunphy.
- National Parks and Primitive Areas Council and NSW Federation of Bush Walking Clubs 1934, *National Parks and Primitive Areas*, April 1934.
- NSW National Parks and Wildlife Service 1975, *Royal National Park Plan of Management*.
- 1979, 'Royal National Park: One hundred years ago a vision splendid took root in the Sydney sandstone', *Habitat Australia*, 7 (2), April 1979.
- 1985, *The Upper Hacking Catchment A Natural Resource Survey*.
- 1994, *Huts Study Royal National Park Cabins Conservation Plan Draft September, 1994*, A second volume contains a number of appendices.
- 2000, *Royal National Park, Heathcote National Park and Garawarra State Recreation Area Plan of Management*.
- 2002a, *Royal National Park deer management plan*.
- 2002b, *Royal National Park draft fire management plan*.
- 2002c, *Royal National Park trial cycling management plan*.

- 2003, *Royal National Park, Audley Draft Master Plan*, Department of Environment and Conservation, New South Wales.
- 2006, *Royal National Park Audley Masterplan*.
- 2011, *Illawarra Escarpment State Conservation Area Draft Plan of Management*, June 2011, Office of Environment and Heritage, Sydney.
- Nobbs, R. (ed) 1988, *Norfolk Island and Its First Settlement 1788-1814*, Library of Australian History, Sydney.
- Organ, M. 1990, *A Documentary History of the Illawarra and South Coast Aborigines 1770-1850*, Aboriginal Education Unit, Wollongong University.
- Parks and Wildlife Division, NSW Department of Environment and Conservation 2005, *Royal National Park Coastal Cabins Areas Conservation Management Plan*.
- Powell, J.M. 1989, *Watering the Garden State, water, land and community in Victoria 1834-1988*, Allen and Unwin, Sydney.
- Ride, W.L.D. 1975, 'Towards an Integrated System: A Study of Selection and Acquisition of National Parks and Nature Reserves', in F. Fenner (ed), *A National System of Ecological Reserves*, Australian Academy of Science, Canberra.
- Robinson, N.H. 1977, 'The Need for Joining Illawarra Wilderness Areas', *Australian Zoologist*, 19 (2).
- Ryan, M. 2001, *Dharawal. The story of the Dharawal speaking people of southern Sydney. A collaborative work by Les Bursill, Mary Jacobs, Deborah Lennis, Auntie Timberry-Beller and Merv Ryan*. Kurranulla Aboriginal Corporation.
- Schoer, G. (ed) 1981, *Royal National Park Centenary 1879-1979: historical insights*, St George Regional Development Committee, NSW Department of Education.
- Schoer, G. 1988, *Forest Path: Royal National Park*, unpublished manuscript.
- 2011a, 'The Green Corridors of Southern Sydney and South-western Sydney still not Safe', *National Parks Association Southern Sydney Branch Newsletter*, no. 95, May 2011.
- 2011b, *NSW National Parks Association Presentation Concerning Planning Options for the Upper Hacking River Catchment to Public Meeting in Helensburgh for New Wollongong City Councillors*, 21 November 2011.
- Schulz, M. and Magerey, E. 2012, 'An area of outstanding fauna density: results of a recent systematic vertebrate fauna survey of Royal National Park and adjoining reserves', *Proceedings of 2011 Symposium, Natural*

- History of the First National Park*, The Linnean Society of New South Wales and the NSW National Parks Wildlife Service, Sydney.
- Scott, D. 1988, *Victoria's Inland Waters*, Office of the Commission for the Environment, Melbourne.
- Shaw, A.G.L. 1996, *A History of the Port Phillip District: Victoria Before Separation*, Melbourne University Press.
- Sheppard, J. 2012, 'Dharawal Achieving NSW's Newest National Park', *Nature New South Wales*, Autumn 2012, 56 (1), National Parks Association of NSW.
- Singleton, C.C. 1984, *Railway History in Illawarra New South Wales*, Illawarra Historical Society, Wollongong.
- Slade, B. 1985, 'Royal National Park: The People in a People's Park', in *Geo*, 7(4).
- Somerville, J.G., and Forbes, H.G. 1987, *History of Heathcote Primitive Area, Heathcote State Park, Heathcote National Park, 1943-72*.
- Specht, R.L., Specht, A., Whelan, M.B., and Hegarty, E.E. 1995, *Conservation Atlas of Plant Communities in Australia*, Centre for Coastal Management in association with Southern Cross UP.
- Stanley, H.J. 1964, 'State Legislation for National Parks', *National Parks Report of the Proceedings of the National Parks School held at the University of New England February 14-16, 1964, Armidale*.
- 1976, *History of Royal National Park*, Report to the New South Wales National Parks and Wildlife Service, Sydney.
- State Pollution Control Commission 1986, *Investigation into the Impact of Urban Development at Helensburgh on Water Quality of the Hacking River*.
- 1989, *Hacking River Total Catchment Management*.
- Stitt, P. 2010, *Document, A.J. (Joe) Cahill, The Resumption of the Era Lands and The Coastal Cabins in Royal National Park*, document based on archival research and a report by Bob McClelland of the Burning Palms Community, supported by John Arney of the Bulgo Community.
- Stockton, J. 1985, 'Health and Education – Local Industries Built on Air', in P. Stanbury (ed), *The Blue Mountains Grand Adventure for All*, Second Back Row Press, Leura, NSW and Macleay Museum, University of Sydney.
- Sutton, A., Sutton, M. and Steinhacker, C. 1972, *Yellowstone: A Century of the Wilderness Idea*, The MacMillan Company, New York, Collier MacMillan Canada, and the Yellowstone Library and Museum Association.

- The Western Australian Sub-Committee of the Australian Academy of Science Committee on National Parks 1965, *National Parks and Nature Reserves in Western Australia*, edited by the Standing Committee on Conservation of the Royal Society of Western Australia.
- Thom, D. 1987, *Heritage, The Parks of the People*, Lansdowne Press, Auckland.
- Thompson, P. 1985, 'Dunphy and Muir – two mountain men', *Habitat Australia*, 13(2), April 1985.
- 1986, *Myles Dunphy Selected Writings: Compiled and Annotated by Patrick Thompson*, Ballagrin, Sydney.
- Thoreau, H.D. 1858, 'Chesuncook', *Atlantic Monthly*, August 1858.
- Total Environment Centre 1986, *Royal National Park Southern Extension and Environment Protection*, Total Environment Centre, Sydney.
- Tozer, M.G., Keith, D.A., Tindall, D., Pennay, C., Simpson, C., Mackenzie, B., Beukers, P., and Cox, S. 2010, 'Native vegetation of southeast NSW: a revised classification and map for the coast and eastern tablelands', *Cunninghamia, A journal of plant ecology for eastern Australia*, 1 (3). 277-406.
- Tozer, M., and Keith, D. 2012, 'Population dynamics of *Xanthorrhoea resinosa* over two decades: implications for fire management', *Proceedings of 2011 Symposium, Natural History of the First National Park*, The Linnean Society of New South Wales and NSW National Parks and Wildlife Service, Sydney.
- Train, R.E. 1992, 'The World Heritage Convention. The First Twenty Years and Beyond', Speech by Hon. Russell Train, Chairman, World Wildlife Fund in Report of 16th Session of the World Heritage Committee, Santa Fe , 7-14, December 1992.
- Udvardy, M.F. 1975, *A Classification of the Biogeographic Provinces of the World*, IUCN Occasional Paper No 18, IUCN, Morges, Switzerland.
- Webb, D. and Adams, B. 1998, *The Mount Buffalo Story 1898-1998*. Miegunyah Press, Melbourne University Press, Melbourne.
- Wheeler, E. 1980, 'The First Adelaide Conference Congress of AAAS, September-October 1883', *Search*, 11(5), 1980.
- Wilkins, T. 1966, *Thomas Moran, artist of the mountains*, Norman, University of Oklahoma Press.
- Williams, G. 1978, *The Royal Parks of London*, Constable and Co., London.

- Williams, M. 1965, 'The Parkland Towns of Australasia', *Proceedings of the Fourth Institute of Australian Geographers Conference Newcastle Meeting, February 1965*.
- Wills-Johnson, G. 1979, 'Some Australian Bushwalkers – 2 Paddy Pallin', *Walk*, vol. 30, 1979.
- Wirth, C. L. 1964, 'National Parks', in A.B. Adams (ed), *Proceedings of the First World Conference on National Parks Seattle, Washington, June 30-July 7, 1962*. National Parks Service, US Department of the Interior, Washington D.C.
- Wildland Research Center 1962, *Wilderness and Recreation – A Report on Resources, Values and Problems, Report to the Outdoor Recreation Resources Review Commission*, Washington, D.C.
- Wilkinson, J. 1810, *Select Views in Cumberland, Westmoreland and Lancashire*, contains anonymous Introduction by William Wordsworth.
- Wollongong City Council 2006, *Illawarra Escarpment Strategic Management Plan*.
- Woodward, C. J. 1985, *The Likely Impact of Urban Development in the Helensburgh Area of the Hacking River System*, State Pollution Control Commission report.
- Young, R.W., and Young, A.R.M. 1988, 'Altogether Barren, Peculiarly Romantic: The Sandstone Lands Around Sydney', *The Australian Geographer*, 19 (1), May 1988.
- 2006, *Understanding the Scenery, The Royal National Park with Heathcote National Park*, Envirobook.
- Young, R.W. and Wray, R.A.L. 2000, 'The geology of sandstone in the Sydney region', in G.H. McNally and F.J. Franklin (eds), *Sandstone City*, Geological Society of Australia, Sydney.
- Zachos, F.E., and Habel, J.C. (eds) 2011, *Biodiversity Hotspots Distribution and Protection of Conservation Priority Areas*, Springer.

B. Major Sources

In addition to the sources below, please see:

- 1) the select bibliography and references in Appendix IV, Mosley, J.G. 1989, *Blue Mountains for World Heritage*, Colong Foundation for Wilderness, Sydney;

- 2) the bibliography in James, T.A. (ed) 1994, *An Assessment of the World Heritage Values of the Blue Mountains and Surrounding Plateaux*, Royal Botanic Gardens, Sydney;
- 3) the bibliography in Appendix 6.5, New South Wales National Parks and Wildlife Service in association with Environment Australia 1998, *The Nomination of the Greater Blue Mountains Area for Inscription on the World Heritage List by the Government of Australia* 1998;
- 4) references in *The Greater Blue Mountains Area World Heritage Nomination Supplementary Documentation provided by Australia in support of the nomination*, January, 2000;
- 5) *Proceedings of the Symposium, Natural History of the First National Park*, 29 September-1 October 2011, The Linnean Society of New South Wales and the NSW National Parks and Wildlife Service, Sydney;
- 6) bibliography for National Heritage listing of Royal National Park and Garawarra State Conservation Area. See pages 7-10 of 'Place Details'.

1. Geology and landforms

Royal Reserves

- Sherwin, L. and Holmes, G. G. 1986, *Geology of the Wollongong and Port Hacking*, 1:100,000 sheets 9029 and 9129, New South Wales Geological Survey, Sydney.
- Young, R. W. and Young, A. R. M. 2006, *Understanding the Scenery: The Royal National Park with Heathcote National Park*, Envirobook.

The Sydney Basin

- Branagan, D. 1985, 'An Outline of the Geology of the Sydney Region', in P.J. Pells (ed), *Engineering Geology of the Sydney Region*, Balkema, Rotterdam 3-48.
- Branagan, D., Herbert, C., and Langford-Smith, T. 1976, *An Outline of the Geology and Geomorphology of the Sydney Basin*, Science Press, Sydney.
- Conaghan, P.J. 1980, 'The Hawkesbury Sandstone: gross characteristics and depositional environment', *New South Wales Geological Survey Bulletin* 26. pp.189-253. New South Wales Department of Mineral Resources, Sydney.

- Herbert, C. 1972, 'Palaeo drainage patterns of the Southern Sydney Basin', *Records of the Geological Survey of New South Wales*.
- Herbert, C. and Helby, R. (eds) 1980, 'A Guide to the Sydney Basin', *New South Wales Geological Survey Bulletin*, 26, New South Wales Department of Mineral Resources, Sydney.
- McNally, G.H. and Franklin, B.J. (eds) 2000, *Sandstone City*, Geological Society of Australia, Sydney.
- New South Wales Department of Mines 1969, *Sydney Basin 1:500,000 Geological Map*.
- Rose, G. 1966, *Wollongong 1:250,000 Geological Sheet S1/56-09*, Geological Survey of New South Wales, Sydney.
- Taylor, G.T. 1957, *Sydneyside Scenery and How it Came About*, Angus and Robertson, Sydney.
- Ward, C.R. 1980, 'Notes on the Bulga Sandstone and the Bald Hill Claystone', *New South Wales Geological Survey Bulletin* 26.
- Young, R.W. and Young, A.R.M. 1988, 'Altogether Barren, Peculiarly Romantic: The Sandstone Lands Around Sydney', *The Australian Geographer*, 19 (1), May 1988.

Australia

- Jennings, J.N. and Mabbutt, J.A. 1986, 'Physiographic Outlines and Regions', in D.N. Jeans (ed), *Australia a Geography, Vol. 1, The Natural Environment*, Sydney University Press.
- Johnson, D. 2009, *The Geology of Australia*, Cambridge University Press, Melbourne.
- Laseron, C.F. 1953, 3rd edn revised by Jennings, J.N. 1972, *The Face of Australia The Shaping of a Continent*, Angus and Robertson, Sydney.
- Laseron, C.F. 1954, revised by R.O. Brunnschweiler, 1984, *Ancient Australia: The Story of its Past Geography and Life*, Angus and Robertson.
- Twidale, C.R. and Campbell, E. 2005, *Australian Landforms – Structure, Process and Time*, Rosenberg Publishing.
- Young, R.W. and Nansen, G.C. 1983, *Aspects of Australian Sandstone Landscapes*, Australia and New Zealand Geomorphology Group, Wollongong.
- Young, R.W. and Young, A.R.M. 1992, *Sandstone Landforms*, Springer.

2. Soils

Royal Reserves

NSW National Parks and Wildlife Service 1985, *The Upper Hacking*

Catchment, A Natural Resource Survey, 2 vols (report and appendices).

Hazelton, P.A. and Tille, P.J. 1990, *Soil Landscapes of the Wollongong-Port Hacking 1:100,000 Sheet*, Map and report, Soil Conservation Service of NSW, Sydney.

3. Climate

Bureau of Meteorology 1979, *Climate Survey Sydney Region 5 New South Wales*, Australian Government Publishing Service, Canberra.

Pilgrim, D.H. 1972, 'Physical and Climatic Characteristics of the Western and Port Hacking Catchments', *Water Laboratory Report No. 125*.
University of New South Wales Department of Civil Engineering, Sydney.

Australia

Gentilli, J. 1972, *Australian Climate Patterns*, Thomas Nelson, Adelaide.

4. Natural Vegetation/Flora

Royal Reserves

Crombie, B. and Fairley, A. 2007, *A Biota of Royal National Park Species lists of the vascular plant species, bryophytes, algae, fungi, slime moulds, and lichen; and bacteria, cyanobacteria and other micro-organisms of Royal National Park*, 2nd edn 2007, Crombie and Fairley.

Fairley, A. 2000, *Discovering Royal National Park on Foot*, 2nd edn, Envirobook.

Gill, A.M., Belbin, L., and Chippendale, G.M. 1985, *Phytogeography of Eucalyptus in Australia*. *Australian Flora and Fauna Series*, no.3.

Keith, D.A. and Tozer, M.G. 1998, 'Vegetation of Royal National Park and surrounds', unpublished, NSW National Parks and Wildlife Service.

Stricker, 1979, 'Some Aspects of Ecological Studies of Heathland in Royal National Park', unpublished.

Sydney Basin/South-East NSW

- Beadle, N.C.W., Carolin, R.C., and Tindale, M.D. 1982, *Flora of the Sydney Region*, 3rd edn, A.H. and A.W. Reed, Sydney.
- Benson, D. and Howell, J. 1994, 'The natural vegetation of the Sydney 1:100,000 map sheet', *Cunninghamia*, 3(4), 1994.
- 1994, *Hawkesbury-Nepean Catchment Vegetation Mapping: explanatory Notes for the Wollongong 1:100,000 Map Sheet*, National Herbarium, Royal Botanic Gardens, Sydney.
- 1995, *Taken for Granted: the bushland of Sydney and its suburbs*, Royal Botanic Gardens, Sydney.
- Clarke, L.D. and Hannon, N.J. 1967, 'The mangrove swamps and salt marsh communities of the Sydney district 1. Vegetation, soils and climate', *Journal of Ecology*, 5 pp 753-71.
- Fairley, A. and Moore, P. 2002, *Native Plants of the Sydney District An Identification Guide*, 2nd edn, Kangaroo Press, Sydney.
- Howell, J. and Benson, D. 2000, *Sydney's Bushland, more than meets the eye*, Royal Botanic Gardens, Sydney.
- James, T. (ed) 1994, *An Assessment of the World Heritage Values of the Blue Mountains and Surrounding Plateaus*, Royal Botanic Gardens, Sydney.
- Mills, K. 1984, 'Vegetation of the Upper Hacking River Catchment', in *The Upper Hacking Catchment, A Natural Resource Survey, Appendices*. NSW National Parks and Wildlife Service.
- NSW National Parks and Wildlife Service 1977, *Rain Forests*, NPWS, Sydney.
- (1981). *Heaths in New South Wales*. NPWS, Sydney.
- Tozer, M.G., Turner, K., Keith, D.A., Tindall, D., Pennay, C., Mackenzie, B., Beukers, P., and Cox, S. (2010). 'Native vegetation of southeast NSW: a revised classification and map for the coast and eastern tablelands', in *Cunninghamia*, 11(3). pp 277-406.

Australia

- AUSLIG 1990, *Atlas of Australian Resources Vegetation*, vol 6, Third Series.
- 1997, *Vegetation Maps of Australia (1:5 million)*, 2nd edn, Map 1 Natural Vegetation, Map 2 Present Vegetation, Department of Administrative Services, Canberra.

- Barlow, B.A. 1994, 'Phytogeography of the Australian region', in Groves, E.H., *Australian Vegetation*, Cambridge University Press.
- Beadle, N.C.W. 1981, *The Vegetation of Australia*, Cambridge University Press.
- Benson, B.J., and Redpath, P.A. 1997, 'The nature of pre-European native vegetation in south-eastern Australia: a critique of Ryan, D.G., Ryan, J.R. and Starr, B.J. (1995). "The Australian Landscape – Observations of Explorers and Early Settlers"', *Cunninghamia*, 5(2), December, 1997.
- Gill, A.M. 1981, 'Patterns and processes in open-forests of *Eucalyptus* in southern Australia', in R.H. Groves (ed), *Australian vegetation*, Cambridge University Press.
- Groves, R.H. 1994, *Australian vegetation*, 2nd edn, Cambridge University Press.
- Specht, R.L. 1981, 'Heathland', in R.H. Groves (ed), *Australian vegetation*, Cambridge University Press.
- Specht, R.L., Specht, A., Whelan, M.B., and Hegarty, E.E. 1995, *Conservation Atlas of Plant Communities in Australia*, Centre for Coastal Management, Lismore NSW in association with Southern Cross University Press.
- Thackway, R. and Cresswell, I.D. 1995, *An Interim Biogeographic Regionalisation of Australia*, Nature Conservation Agency, Canberra.
- White, M.E. 1998, *The Greening of Gondwana*, 3rd edn, Reed Books.
- 1994, *After the Greening: the Browning of Australia*, Kangaroo Press.

International

- Udvardy, M. D. F. 1975, *A classification of the biogeographical provinces of the World*, IUCN Occasional Paper, no. 18, International Union for Conservation of Nature and Natural Resources.
- 1984, 'A Biogeographical Classification System for Terrestrial Environments', in J. McNeely and K.R. Miller (eds), *National Parks, Conservation, and Development: The Role of Protected Areas in Sustaining Society. Proceedings of the World Congress on National Parks, Bali, Indonesia 11-22 October 1982*, IUCN and UNEP, Smithsonian Institution Press, Washington DC.

5. History of The Royal Reserves

Aboriginal history

- Bursill, L., Jacobs, M., Lennis, D., Timberry-Beller, B., and Ryan, M. 2001, *Dharawal: The story of the Dharawal speaking people of southern Sydney*, Dharawal.
- Lampert, R.J. 1971, 'Coastal Aborigines of South-eastern Australia', in D.J. Mulvaney and J. Golson (eds), *Aboriginal Man and Environment in Australia*, Australian National University Press.

European History of Royal Reserves

- Carrick, J. (forthcoming). 'European History of Royal National Park – revisited'.
- Elwell, T. D. 1893, *An Official Guide to The National Park of New South Wales*, The Trustees, Government Printer, Sydney (enlarged editions published in 1902, 1914 and 1915. A facsimile reprint of the first edition was published in 1979 to mark the centenary of Royal National Park).
- Goldstein, W. (ed) 1979, *Australia's 100 years of National Parks*, National Parks and Wildlife Service, Sydney (a reprint from *Parks and Wildlife*, 12 (3-4), April 1979).
- Slade, B. 1985. 'Royal National Park: The People in a People's Park', *Geo*, 7(4), December 1985/February 1986, pp. 64-77.
- Stanley, H.J. 1976, *History of Royal National Park*, report to the New South Wales National Parks and Wildlife Service, Sydney.

History of New South Wales Parks and Reserves

- Beasley, M. 1988, *The Sweat of Their Brows: 100 Years of the Sydney Water Board 1888-1988*, Sydney Water Board.
- Coward, D. 1988, *Out of Sight, Sydney's Environmental History 1851-1951*, Department of Economic History, Australian National University, Canberra.
- Colong Foundation for Wilderness 1998, *The Wilderness Advocate*, September 1998.
- Dunphy, M.J. 1963-75. Various manuscripts including: 'Kosciusko State Park (Snowy-Indi National Park), a summarised account of the beginnings and progress of the Snowy-Indi National Park and Primitive

- Area (Kosciusko State Park). project up to 1946', 79 pages (June 1963); 'The New Conservators', 76 pages (1975); 'Classification of Reserves' (revised as at Nov. 1966); and Correspondence with Geoff Mosley, 1965-75.
- Maps: *Map of Bindook Highlands, Colong Maze, Tomat Heights, Bindook Gorge, The Talabon and the Southern Kowmung*. 1937; *Sketch Map of the Kanangra Tops and Environs*, 1937; *Gangerang, Wild Dog Mountain, Lower Kowmung, North Thurat*, 10th edn, 1979; *Map of Kowmung*. 1963. (There is a full list of Dunphy's topographic, tourist and bushwalking maps in chronological order in Thomson, P. 1986, *Myles Dunphy: Selected Writings Compiled and Annotated by Patrick Thompson*, Ballagarin, Sydney).
- Lewis, B. 1988, 'The Trailblazer. How Myles Dunphy carved out a kingdom of great national parks', *The Weekend Australian*. 4 June 1988.
- Lothian, W. F. 1987, *A Brief History of Canada's National Parks*, Ministry of Supply and Services, Ottawa.
- Meredith, P. 1998, *Myles and Milo*, Allen and Unwin, Sydney.
- Mosley, J.G. 1965, revised to 1967.. 'Origin and early growth of the New South Wales park and reserve system', unpublished. Mainly based on examination of the files of the Department of Lands in 1965.
- 1998, 'Sydney's Sandstone Parks', unpublished. Prepared for the Greater Blue Mountains Area World Heritage Nomination.
- National Parks and Primitive Areas Council and New South Wales Federation of Walking Clubs 1934, *National Parks and Primitive Areas April, 1934*.
- NSW National Parks and Wildlife Service and Environment Australia 1998, *Nomination of the Greater Blue Mountains Area for inscription in the World Heritage List*, NSW National Parks and Wildlife Service in association with Environment Australia.
- Somerville, J.G., and Forbes, H.G. 1987, *History of Heathcote Primitive Area, Heathcote State Park, Heathcote National Park 1943-1972*. Based on 400 pages of minutes and personal recollections.
- Thompson, P. 1986, *Myles Dunphy Selected Writings: Compiled and annotated by Patrick Thompson*, Ballagarin Press, Sydney.
- Wills-Johnson, G. 1978, 'Some Australia Bushwalkers – 1 Myles Dunphy', *Walk*, vol. 29.

History of Australian Parks and Reserves

- Australian Heritage Commission and the MacMillan Company of Australia 1981, *The Heritage of Australia, The Illustrated Register of the National Estate*, The MacMillan Company of Australia and the Australian Heritage Commission.
- Bardwell, S. 1982, '100 Years of National Parks in Victoria: Themes and Trends', *Parkwatch*, 129, Winter, 1982.
- Baskerville, B. 1994, 'Talking about National Parks: intentions, making places and history in NSW and WA', paper delivered at History 1994 Conference, Perth, 29 September 1994.
- Bonyhady, T. 2000, *The Colonial Earth*, Melbourne University Press.
- Heathcote, R.L. 1972, 'The Visions of Australia 1770-1970', in A. Rapoport (ed), *Australia as Human Setting*, Angus and Robertson, Sydney.
- Hutton, G. (ed) 1981, *Australia's Natural Heritage: A Guide to Wild Australia*, Australian Conservation Foundation, Melbourne (2nd edition 1983, published by Australian Conservation Foundation and William Collins, Sydney).
- Johns, E., Sayers, J., Kornhauser, E.M., and Ellis, A. 1998, *New world's from old; 19th century Australian and American landscapes*, National Gallery of Australia, Canberra and Wadsworth Atheneum, Hartford, Connecticut.
- Mosley, J.G. 1972, 'Towards a History of Conservation in Australia in A. Rapoport (ed), *Australia as Human Setting*, Angus and Robertson, Sydney.
- 1988, 'The Australian conservation movement', in R.L. Heathcote (ed), *The Australian Experience Essays in Australian Land Settlement and Resource Management*, Longman Cheshire, Melbourne.
- 1991, 'Australia's Conservation Reserve Systems – History of Reservation, A report for the Australian Conservation/World Wildlife Fund, ESD Policy Unit, October, 1991' (unpublished).
- 1999, *Battle for the Bush. The Blue Mountains, The Australian Alps and the Origins of the Wilderness Movement*, Colong Foundation and Envirobook, Sydney.
- Powell, J.M. 1976, *Environmental Management in Australia 1788-1914*, Oxford University Press, Melbourne.

Quarmby, D. 2006, 'The Politics of Parks. A History of Tasmania's National Parks 1885-2005', PhD thesis, Murdoch University, 2006.

International History and Context for Parks and Reserves

Brockman, C.F. and Merriman, L.C. 1979, *Recreational Use of Wildlands*, McGraw-Hill, Sydney.

Convention on Biological Diversity Secretariat 2011, *Strategic Plan for Biodiversity 2011-2020*, Convention on Biodiversity Secretariat and UNEP, Montreal.

Haines, A.L. 1977 and 1996, *The Yellowstone Story: A History of Our First National Park*, 2 Vols, Yellowstone Association for National Science, History and Education.

Ise, J. 1961, *Our National Park Policy: a critical history*, John Hopkins.

Nash, R. 1982, *Wilderness and the American Mind*. Yale University Press.

Sutton, A., Sutton, M. and Steinhacker, C. 1972, *Yellowstone a Century of the Wilderness Idea*, The MacMillan Company, New York, Collier MacMillan Canada, and the Yellowstone Library and Museum Association.

UNESCO World Heritage Centre 2011, *Preparing World Heritage Nominations*, 2nd edn, World Heritage Centre. Paris.

Thom, D. 1987, *Heritage, The Parks of the People*, Lansdowne Press, Auckland.

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