

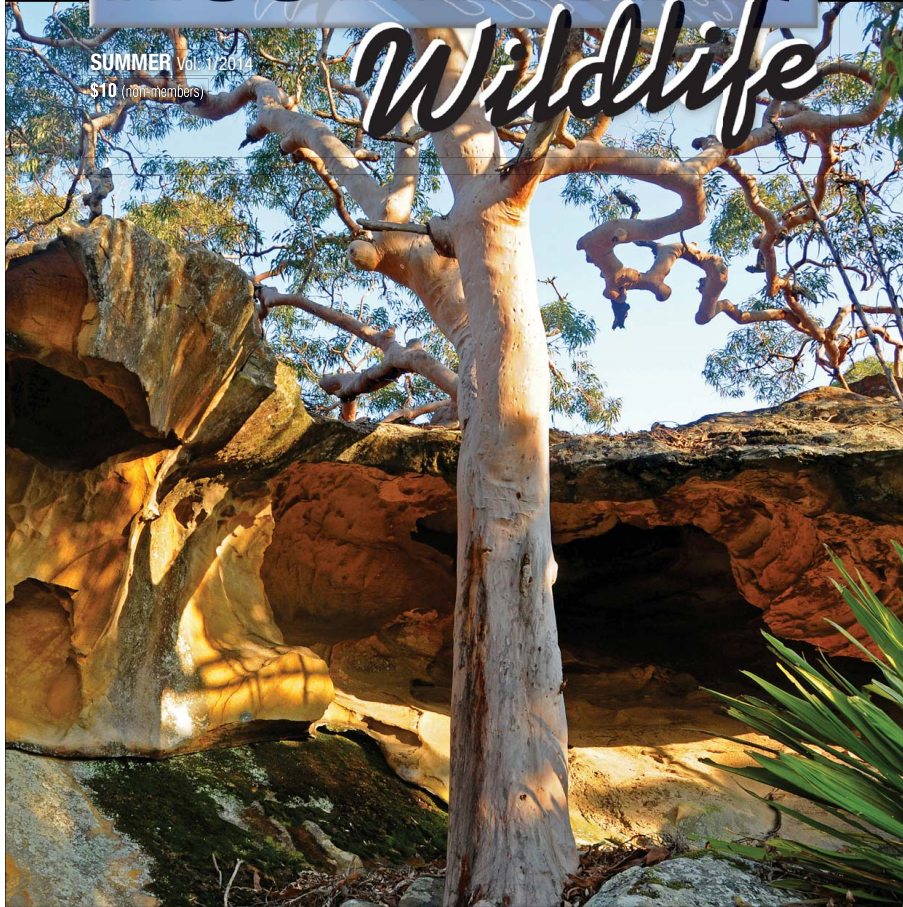


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Wildlife



Celebrating a new century of wildlife preservation in Australia

Journal of the Wildlife Preservation Society of Australia Limited

(Founded 1909)

Royal National Park



Little Marley Beach

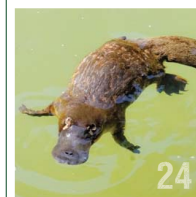
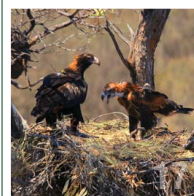
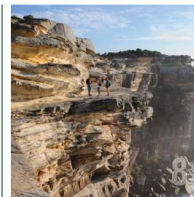


Scelromorphic woodland on Robertsons Roundabout walking track

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Front and back cover:

Royal National Park

Front: The Bee Cave on the edge of the Moss Gardens, Royal National Park

Back: The heathlands and woodlands of Royal National Park put on superb displays of wildflowers, especially in late winter and spring. Yellow eggs and bacon pea (*Dillwynia retorta*) and coral heath (*Epacris microphylla*) are very common

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The sea cliffs at Wattamolla





Young brushtail possum eating the flowers and foliage of a crimson bottle brush (*Callistemon citrinus*). Small mammals such as this, and pygmy possums and bush rats, pollinate many species of plants in the Royal Reserves.

Sydney sits on a hotspot! That's right. Sydney sits on a true hotspot of biodiversity and geodiversity. Royal National Park, Heathcote National Park and Garawarra State Conservation Area – the Royal Reserves – are all part of the southern edge of Sydney and constitute a major centre of plant species richness, having one of the richest concentrations of plant species in temperate Australia with more than 1,300 species – 1,131 species in Royal alone. The wide array of species includes beautiful heaths (*Ericaceae*), richly fragrant peas (*Fabaceae*)

floraliferous wattles (*Mimosaceae*), specialised orchids (*Orchidaceae*), honey-rich grevilleas and banksias (*Proteaceae*), towering eucalypts and lilly pillies (*Myrtaceae*), and numerous rushes and sedges. They contain an important sample of rainforest families and species.

Here are 231 bird species, with more than one third of the Australian total recorded for Royal alone. The perching birds (Passeriformes) are especially abundant. The once rare lyrebird is now common in the rain forested areas and

the honeyeaters (*Meliphagidae*), eg the little wattlebird, delight visitors with their garrulous calls. It is significant to note that there are more species of birds in the Sutherland Shire, which includes most of Royal and Heathcote National Parks, than there are in the world famous Kakadu National Park, an internationally acclaimed area for bird diversity. Garawarra SCA is particularly noted for the diversity and abundance of its rainforest birds.

Frogs especially like the rainforest margins, swamps and creeks. Tiger snakes, black snakes and diamond pythons, which feed on the rich supply of frogs, small reptiles and possums at Wattamolla and Curracurrang, are some of the 40 species of reptiles. There is more herpetofauna here than any other studied section of the New South Wales coastline.

Horseshoe bats, one of 16 bat species, breed in Toonoom Cave and the tunnels of the Waterboard Pipeline from Woronora Dam to Sutherland. A distinct subspecies of greater glider possum has long made it home along Bola Creek in Royal, along with sugar glider, squirrel glider, feathertail glider, mountain brushtail, and common brushtail possums. The coats of the ring-tail possums at Curracurrang are a unique, beautiful, rich, golden honey-brown. They are a favourite food of the diamond python and the powerful owl.

For many years after the great fires of 1992 and 1994, few glider possums were recorded in Royal and they are just beginning to extend their range again with some species being seen using the southern Wildlife Movement Corridors between the Illawarra Escarpment and the Royal Reserves, which are essential for their integrity.

Being a centre of plant species richness, it is just as likely to be a centre for fungi and invertebrate species richness, and many discoveries wait in this regard. Most study has been done along Bola Creek, where rainforest fungi walks in autumn are just as impressive as the renowned heathland flower walks on the plateau top in spring. The strange, parasitic caterpillar fungi and many luminous species are haunting, and the colourful corals and gigantic boletes are common. However, the fungi and invertebrate fauna are poorly known. The total number of invertebrate

species could be reasonably expected on extrapolation from elsewhere in Australia, to be ten times the number of vascular plants – a high figure for temperate latitudes. Royal National Park has one of the richest native insect faunas of any studied are in New South Wales and is the type locality for hundreds of species. It also has a very diverse fauna of terrestrial molluscs, fauna and butterflies.

The area displays outstanding continuing ecological and biological processes of adaptation associated with the Sydney Basin Bioregion, Cataract Sub-region ecosystems – on Quaternary alluviums, and Wianamatta Series, Hawkesbury Sandstone, and Narrabeen Series rock outcrops and soils derived thereon significant in the evolution of the highly diverse ecosystems and communities of plants and animals. These are of outstanding value to science including a very diverse array of structural adaptations of the Australian vegetation to a range of conditions, eg a range of soil nutritional statuses, especially poor soil nutrition; soil drainage, soil depth, and soil structure; water stress; fire (*scleromorphy/xeromorphy*); unique plant reproductive strategies (fire and disturbance recovery, pollination by wind, birds, insects and mammals, dispersal by birds, ants and bats); patterns of endemism and rare species; and adaptive radiation.



White Pointer rock formation, Wattamolla

Many unique examples of co-evolutionary processes extend the range of such phenomena for the Sydney Basin. These include a range of ant-dispersed plants (peas and wattles): interesting and unique pollination processes, eg those displayed by the many orchids in the area (*Chiloglottis* orchids and their wasp pollinators); bird (very large number of Meliphage honeyeater species associated with pollination) and species pollinated by mammals (possums, bush rats and flying foxes); flowers pollinated by flies, moths, wasps, butterflies, mosquitoes, gnats and other species; highly significant beetle pollination interactions (eg

jewel beetles); trigger plants; plant defence mechanisms, eg glands on wattles attracting ants and forming part of a defence strategy for many wattle species; a great range of plant species forming mycorrhizal associations; bat-dispersed species; *Pisonia* with sticky seeds dispersed by birds; and carnivorous plants. As more becomes known, the significance of jewel beetles and moths for pollination will surely become very important.

The Sydney Basin has a large proportion of scleromorphic species and a very diverse range of scleromorphic features that



Royal National Park supports 16 species of bat such as these horseshoe bats in Toonoom Cave



The reserves are world-renowned for their array of scleromorphous species and features they display notably small, hard, pointed and often incurved leaves and concerted flowering. The grey spider flower (*Grevillea buxifolia* ssp. *sphacelata*) is a coastal heathland shrub species.



Puff ball mycorrhizal fungus

they display that are uniquely and distinctively Australian and therefore of great scientific interest equal to that of parts of South Africa with a Mediterranean climate (eg The Cape Floral Region and Namakwaland), and the south west of Western Australia, also with a Mediterranean climate. The three regions have few species in common and all are therefore of high scientific value. Of the three, the area centred on the Sydney Basin provides the best example of the juxtaposition of scleromorph diversity with species of the original Gondwanan vegetation from which the explosion of scleromorphs emerged. The area is also the only one of the three regions largely dominated by trees and without a Mediterranean climate. The Royal Reserves conserve a coastal, low altitude, southeastern and eastern sample of this vegetation. Many of its species are not common to the Greater Blue Mountains, eg the rare eucalypt yellow-top Mallee ash (*Eucalyptus leuhmanniana*). This produces enormous lignotubers that may extend over great areas. These can often fragment over time into a number of separate individuals to give the appearance of a 'grove' of trees the size of the lignotubers on some trees, and of 'groves' suggests a very old age for many of them. There are stands of bloodwood (*Corymbia gummifera*) at Bundeena and Jibbon that have truly enormous lignotubers.

The Royal Reserves contain a great diversity of ecosystems (communities and habitats) – heathlands, mallee heaths, sclerophyll woodlands, sclerophyll forests, rainforests, swamps (notably significant upland swamps), marshes, mangroves, littoral zones, estuaries and adjacent seabed. This stems from its geographic location and a very diverse range of physiographic, geologic, edaphic, climatic, fire, ecotonal and boundary transitions, and human influences. It is on the boundary between southern and northern bioregions and includes many species with either their northern-most or southern-most extension of their range here. This has resulted in a diversity of biota, which is amongst the world's richest, especially for a temperate area. It has an unusual and significant collection of species usually found only at higher altitudes and more inland in the Blue Mountains extending the range of

these species to the present-day coast. These may be relicts from not so long ago when the coastline was much further (about 14 kilometres) to the east when these species would have been inland. The three Royal Reserves continue the exemplification and reservation of the Gondwanan biota as made in the Greater Blue Mountains to the coast including new species and processes.

The group **First National Park** believes that the Sydney Basin Sandstone ecosystems constitute a bioregion of World Heritage value equal to the south west of Western Australia, and the Cape Floral Region and Namakwaland of South Africa. The three reserves – Royal and Heathcote National Parks and Garawarra State Conservation Area – provide an excellent reserved representative sample of these ecosystems adding to those already recognised and listed for the Greater Blue Mountains World Heritage Area (GBMWH). It extends the exemplification of outstanding eucalypt-dominated vegetation reserved and recognised in this area, and the already great diversity of ecosystems, to lower altitudes, the east and south east, and to the coast.

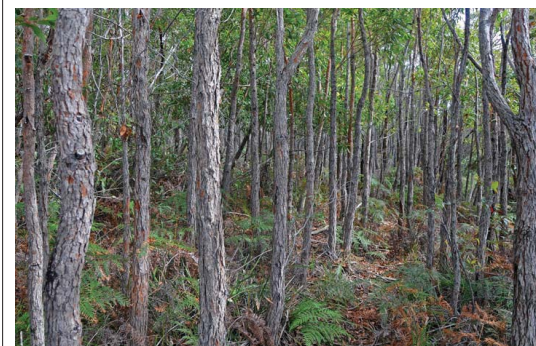
These lands are becoming increasingly integrated into the great cities of Sydney and Wollongong and form a leading opportunity to incorporate reserves and integrate wildlife into urban areas. The surrounding and enclosed suburbs are becoming an increasing part of the range of a growing number of species now foraging across both the reserved lands and the suburbs, eg many birds such as black cockatoos; flying foxes; microbats; swamp and redneck wallabies; echidnas; antechinus; many species of possum; koalas; bush rats; frogs; lizards; snakes; and invertebrates. There is a growing awareness of this new direction in conservation and developing pride in the 'suburban' native wildlife such that many people are beginning to *bewilder* their gardens and suburbs and encourage this process. The Sutherland Shire Council and the South Metropolitan District of the NSW National Parks and Wildlife Service support the largest number of bush regeneration volunteers in Australia, actively encouraging



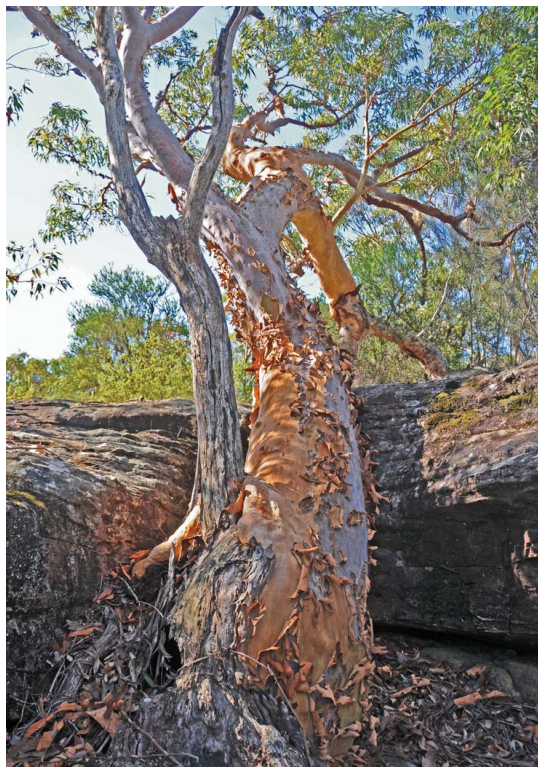
Coastal Walking Track, The Waterrun



The common sundew (*Drosera spathulata*) is carnivorous feeding on small insects that it traps with its specially modified leaves. It lives in wet places.



Bloodwoods at Bundeena with gigantic lignotubers, Royal National Park



The Sydney red gums (*Angophora costata*) are stunningly beautiful, especially during and after their bark changing which occurs in early summer when the old grey bark peels off to be replaced by new pink and orange bark



Javan Rusa deer

and participating in *bewildering* – the protection, enhancement, construction and maintenance of habitat, and the integration and incorporation of wildlife into urban and industrial areas. The reserves have the capacity to lead the world movement to *bewilder* – integrate wildlife with urban, industrial and rural areas.

Now, if you think that all this is good, read on for it is only the supporting act for these universally outstanding reserves. In 2013, the Federal Government of Australia and the NSW State Government announced that they have agreed to work together on a potential World Heritage nomination for Sydney's Royal National Park as a stand-alone World Heritage nomination based on selection criterion (vi) – be tangibly associated with events or living traditions with ideas or beliefs, with artistic and literary works of outstanding universal significance and be included as a 'cultural landscape'.

Royal National Park is the premier national park in Australia and attracts more than four million visitors each year.

"There is tremendous public support for this World Heritage listing and the local members of parliament and community members from groups such as the First National Park Committee have brought a convincing argument to the government," said The Hon. Robyn Parker MP, Minister for Environment, Minister for Heritage.

"Any nomination would require a substantial effort over several years and an extensive assessment would be required including thorough consultation with local government, indigenous and interested groups," Ms Parker said.

Fortunately, most of this work has been already done by First National Park, who have published their report in the book *The First National Park: A Natural for World Heritage* written by the eminent conservationist Dr Geoff Mosley (2012).

Royal was dedicated in 1879 as the first national park in Australia, making it one of the oldest national parks in the world. It is a 'pioneer' national

park along with Yosemite (1864), Yellowstone (1872) and Mackinac (1875) in the USA, and of these reserves, it was the first to be dedicated "for the purpose of a national park". For many, this makes it the first actual national park in the world.

It is representative of the birthing and evolution of the worldwide recreation-based conservation movement of the last few decades of the Nineteenth Century. An outstanding feature is the clear manner in which it illustrates how national parks developed from urban parks set aside as 'lungs' of growing cities and how, once set aside, they evolved from a focus on intensive recreation in natural surroundings towards priority given to nature conservation. The Royal Reserves are representative of the many developments in the world's national park systems and continue to play a pioneer role.

It was also a place that helped the European colonists in New South Wales adjust to their new environment. Over a period of 90 years, the Royal Reserves were an important 'sorting out' place for a variety of actual and potential land uses including several types of recreation, acclimatisation, military activities, logging, mining, science and education, as well as nature conservation. This process is still going on, especially with the integration of these reserves into the great cities of Sydney and Wollongong.

The effect of this process was manifest not only on the landscapes of these reserves but by their influences further afield. The legacy of this includes the expansion of the parks system, larger parks, the wilderness area system, and the recognition of the importance of regional wildlife conservation in and out of parks and reserves.

The reserves have a rich Aboriginal history of the Dharawal-speaking People.

The reserves provide outstanding opportunities for environmental education and contain outstanding and diverse scenery. They are part of the great cities of Sydney and Wollongong and have the capacity to lead the world movement to integrate wildlife with urban, industrial and



Fuchsia Heath (*Epacris lingo flora*)



Coastal Walking Track, Marley Head



Heath monitor



Pygmy possum

rural areas. The reserves meet the integrity criteria.

National parks are the world's best known and most important conservation measure, but of all the 962 places on the World Heritage List not one has been selected to commemorate and celebrate its European origins and early development in the Nineteenth Century.

This gap would be filled if Royal and Heathcote National Parks and Garawarra State Recreation Area were nominated for the World Heritage List and accepted for their internationally significant cultural and natural heritage values.

Inclusion of the Royal Reserves on the World Heritage List would not be the end of the matter. People from around the world would have a share in looking after these areas, which Australians have held in trust for so long. The enormous potential of these areas to teach and to inspire would have been recognised and would be more fully realised.

Royal National Park is the premier national park in Australia and the first reserve in the world 'dedicated for the purpose of a national park'.



Hawkesbury sandstone at The Waterrun on the Coastal Walking Track

