

## Place Details

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### Ku-ring-gai Chase National Park, Lion, Long and Spectacle Island Nature Reserves, Ku-ring-gai Chase Rd, Bobbin Head, NSW, Australia

#### Photographs



**List** National Heritage List

**Class** Natural

**Legal Status** [Listed place](#) (15/12/2006)

**Place ID** 105817

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#### Summary Statement of Significance

Ku-ring-gai Chase National Park and Long Island, Lion Island and Spectacle Island Nature Reserves contain an exceptional representation of the Sydney region biota, a region which is recognised as a nationally outstanding centre of biodiversity. The place contains a complex pattern of 24 plant communities, including heathland, woodland, open forest, swamps and warm temperate rainforest, with a high native plant species richness of over 1000 species and an outstanding diversity of bird and other animal species. This diversity includes an outstanding representation of the species that are unique to the Sydney region, particularly those restricted to the Hawkesbury Sandstone landform. The place is an outstanding example of a centre of biodiversity.

#### Official Values

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### Criterion A Events, Processes

Ku-ring-gai Chase National Park, Long, Lion and Spectacle Island Nature Reserves contain an outstanding representation of the species that contribute to the high endemism value of the Sydney region (NSW NPWS 2002, DEH 2006a, DEH 2006b), in particular, those restricted to the Hawkesbury Sandstone landform.

### Criterion A Events, Processes

The Sydney region contains an outstanding concentration of biodiversity and is recognised as a centre of biodiversity when compared to other areas across Australia. Ku-ring-gai Chase National Park, Long, Lion and Spectacle Island Nature Reserves contain an exceptional representation of the Sydney region biota with high species richness across many groups and a representative range of ecosystems. The place contains a complex pattern of 24 plant communities, including heathland, woodland, open forest, swamps and warm temperate rainforest and is important for its species richness, with over 1,000 native plant species in a wide array of families including heaths (Epacridaceae), wattles (Mimosaceae), grevilleas and banksias (Proteaceae) and members of the eucalypt family (Myrtaceae). The place also has an outstanding diversity of birds and other animal species notably perching birds (Passeriformes), including the families scrubwrens (Acanthizidae), honeyeaters (Meliphagidae), Australasian robins (Petroicidae) and fantails, drongos and monarchs (Dicruidae). The place exemplifies the biodiverse Hawkesbury Sandstone environment and is an outstanding example of a centre of biodiversity (Benson & Howell 1994, Braby 2000, DEH 2006a, DEH 2006b, NSW NPWS 2002 and Thomas and Benson 1985).

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### Description

Ku-ring-gai Chase National Park has been a conservation area since 1894. It is located within the Sydney metropolitan area, approximately 20 kilometres north of the centre of Sydney and receives over 2 million visitors a year. The National Park includes Barrenjoey Head, the site of an early customs house and a lighthouse complex with two cottages. Lion Island (8 hectares) is situated just inside the entrance to Broken Bay and is entirely included in the nature reserve. Long Island is situated near the town of Brooklyn. Most of the island (73 hectares) is included in the nature reserve while a small area at the eastern end of the island is managed by the State Rail Authority and includes a railway tunnel and several buildings. Spectacle Island (36 hectares) is situated near the junction of the Hawkesbury River and Mooney Mooney Creek and is entirely included in the nature reserve (NSW NPWS 2002).

Covering an area of 14,882 hectares, Ku-ring-gai Chase National Park is located on the dissected Hornsby Plateau near the centre of the sedimentary Sydney basin and demonstrates a range of landscapes, including drowned river valley estuaries, steep sandstone cliffs and plateaus (Thomas & Benson 1985). Lion Island, Long Island and Spectacle Island Nature Reserves are all located in the lower Hawkesbury River close to Ku-ring-gai Chase National Park.

Three major sedimentary formations dominate the geology within the area namely, Wianamatta shale, Hawkesbury sandstone and Narrabeen Group sandstones and shales. These formations were created during the early Jurassic and late Triassic (approximately 190 to 225 million years ago). The last major rise in sea level occurred during the Holocene and drowned the valleys of Cowan, Coal and Candle and Smiths Creeks to form the current foreshore. This rise in sea level also resulted in several peaks becoming islands, including Lion, Long and Spectacle Islands.

The place is within the Hawkesbury-Nepean catchment, an area with a very rich and distinctive assemblage of species that thrive on poor soils (Benson et al 1996, NSW NPWS 1996). The non-tree component is especially rich and contributes the major part of the plant biodiversity (Benson et al 1996). The place includes a complex pattern of vegetation communities such as heathland, woodland, open forest, swamps and warm temperate rainforest. The attributes and distribution of the vegetation communities within the National Park are strongly related to geology, soil, drainage and aspect. Species from the Proteaceae family are common in the understorey of the Hawkesbury sandstone (Howell and Benson 2000). Wet heathland occurs over Wianamatta shale platforms that remain on some ridge tops. The Narrabeen shales found in gullies and sheltered valleys support open forest communities of taller trees including some rainforest species.

The vegetation communities of most conservation significance in the place are those that are poorly reserved elsewhere (Thomas and Benson 1985). These tend to be associated with uncommon or remnant geological features or specific habitats and therefore tend to be small in area. Of special interest is the vegetation found on Wianamatta Shale that is generally open forest with dominant species being common name silvertop ash (*Eucalyptus sieberi*), myrtle wattle (*Acacia myrtifolia*) and spiny bossiaea (*Bossiaea obcordata*). The diatreme vegetation communities at Campbells Crater and Smiths Crater along with the vegetation growing on volcanic dykes at West Head are other products of unusual underlying geology. Three ecological communities listed on the New South Wales Threatened Species Conservation Act 1995 are also present, namely Duffys Forest, Pittwater Spotted Gum Forest, and Sydney Coastal River-flat Forest.

There are over 1,000 plant species recorded from the place (NSW NPWS 2002), including several species protected under the NSW Threatened Species and Conservation Act 1995: Caley's grevillea (*Grevillea caleyi*), Bynoe's wattle (*Acacia bynoeana*), a shrub (*Haloragodendron lucasii*), a shrub (*Persoonia hirsuta*), a shrub (*Persoonia mollis* spp. *maxima*) and a shrub (*Asterolasia elegans*). Additionally the following species have been listed as vulnerable: a shrub (*Kunzea rupestris*), a shrub (*Darwinia biflora*), Camfield's eucalypt (*Eucalyptus camfieldii*), an orchid (*Cryptostylis hunteriana*) and a shrub (*Tetratheca glandulosa*) (NSW NPWS 2006a).

The place is recognised as containing a rich vertebrate fauna, a reflection of the diversity of vegetation communities and habitats in the area and the Park's location in one of the most diverse parts of Australia, the Sydney basin. There are over 160 species of avifauna recorded. There are 28 mammals recorded in the park and reserves of which 11 are bats. The herpetofauna (reptiles and frogs) is diverse with about 62 species record, including about 20 species of frogs. There is also a rich though poorly recorded invertebrate fauna, including over 100 species of butterfly and moths (NSW NPWS 2002; DEH 2006b; Ku-ring-gai Council 2005).

There are 13 animals found in the place listed under the NSW Threatened Species and Conservation Act 1995. Regionally significant populations of several fauna species occur within the National Park including the spotted-tailed quoll (*Dasyurus maculatus*), the southern brown bandicoot (*Isodon obesulus obesulus*), the koala (*Phascolarctos cinereus*), and the eastern bent-wing bat (*Miniopterus schreibersii*) (NSW NPWS 2002).

Lion Island, at the entrance to Broken Bay, provides breeding habitat for several *Environment Protection and Biodiversity Conservation Act 1999* (EPBC) listed Marine and Migratory bird species; including the wedge-tailed shearwater (*Puffinus pacificus*), the sooty shearwater (*Puffinus griseus*) and the little penguin (*Eudyptula minor*) (DEH 2006a). The breeding colony of little penguins on Lion Island has been the subject of long term research (Rogers et al 1995; Knight and Rogers 2004). Almost all breeding little penguins in the Sydney region are to be found on Lion Island, and long term studies have shown the reproductive success to be higher and more stable than populations at other locations.

The place is an important scientific and educational resource used by many universities and research institutions in the Sydney Region. Pollen and charcoal analysis from South Salvation Creek Swamp provide an indication of the change in species composition over the last 6,000 years and records from moist scrublands and swamps within the place indicate that they may be representative of a cycle of swamps built up, scoured and destroyed and reformed over thousands of years.

Extensive evidence of Aboriginal use and occupation occurs in the place, with over 800 sites or locations with physical evidence of Aboriginal use recorded (NSW NPWS 2002, NSW NPWS 2006b). Shell middens along the foreshore are the most common type of evidence recorded. Other evidence includes rock engravings and paintings, grinding grooves, stone arrangements, burials and occupation sites. No systematic survey has been undertaken across the park, and it is likely that additional sites occur within the park.

The Great Mackerel rock shelter has been excavated within the park. Dates for the site range from 3,670 ± 150 to 220 ± 120 Before Present (McDonald 1992a). McDonald suggests that the art in this shelter was made from 600 years ago until just prior to contact. Attenbrow also states that temporal changes in the proportions of the dominant shellfish were documented at Great Mackerel Beach, near the estuary mouth, where radiocarbon determinations indicate the shell-bearing layer extends from about 560 to 220 years ago (Attenbrow 2002:68).

Rock art within the place has been investigated by McDonald (1994) as part of a broader analysis of rock art in Sydney Basin. Specific features of the Sydney Basin rock art include: pecked intaglio motifs, interpreted as being a 'residual Panaramittee' assemblage (predating the majority of art and occupation in the Sydney region); shelter art sites present in large numbers across the entire sandstone landscape, while engraving sites are more geographically confined, with a dense core of engraving sites in the central coastal area; and a small number of engravings found on vertical boulders in close proximity to major waterways. There are striking similarities in the motif preferences of both art forms, as well as several major differences (e.g. marine depictions in engravings but not in the shelter art). Stylistic differences in both engravings and paintings across the region may demonstrate the nature of contacts between language groups. There was generally less stylistic homogeneity in pigment art than engravings; however the Ku-ring-gai area was a sharp contrast, as it had a core and highly homogenous engraving assemblage while the pigment art was highly heterogenous. There is no evidence for a change in motif forms over time, with the exception of change from early to later style engravings.

The mainland areas of the park include wharves associated with recreational use as well as walking tracks, such as that built to Perry's Lookout on Pittwater, and roads. The two main roads are from North Turrumurra to Bobbin Head (1901) and from Mount Colah railway station to the Bobbin Head road via a causeway (1903). There are also roads to

## Illawong and Apple Tree Bay.

The park was originally established under management by the Ku-ring-gai Chase Trust. Properties originally purchased or managed by the Trust include 'The Basin' on Pittwater (purchased 1915), 'Beechwood Cottage' (erected in 1882), 'Bobbin Inn' as well as jetties, boatsheds and a swimming enclosure.

A number of observation posts and other defence emplacements were constructed at West Head. Between 1924/1925, a small replica of the Great Sphinx was carved out of sandstone near Turramurra. The monument is flanked by two small pyramids inscribed in memory of AIF comrades who died during World War I.

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### History

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Early historical evidence indicates Ku-ring-gai Chase National Park, Lion Island, Long Island and Spectacle Island Nature Reserves fell within the boundaries of two local clans - the Garrigal people, who occupied an area around Broken Bay and the Terramerragal, who occupied an area around the Turramurra area (NSW NPWS 2002, Attenbrow 2002). It is understood that these clans belonged to the Guringgai language group. Evidence for the past activities of these people is found at a number of sites in the park. They including shell middens, rock shelters, artefact scatters, grinding grooves, stone arrangements, burials, rock engravings, rock paintings and hand stencils (NSW NPWS 2002)

Within six weeks of his arrival at Port Jackson in 1788, Governor Arthur Phillip explored Brisbane Water and Cowan Creek. He commented on the friendliness of Aboriginal people in each of the bays and inlets who came out in their canoes to greet him (NSW NPWS 1996). In August 1788, Phillip and his party travelled overland to Pittwater and back, walking along Aboriginal tracks and exploring the southern shores of Pittwater and around McCarrs Creek.

Governor Phillip and others described Aboriginal engravings at Broken Bay (Attenbrow 2002). These observers do not mention painted images and they provide no information about the role of the art in Aboriginal society. In 1789, during a second exploratory trip of Broken Bay by Phillip, the Aboriginal people were less welcoming. There was also clear evidence of Aboriginal deaths from smallpox, with skeletons and bodies in rock hollows along the harbour (Attenbrow 2002).

During subsequent conflict between Aboriginal people and white settlers in the upper reaches of the Hawkesbury, many Aboriginal people were displaced and moved to Pittwater. Skirmishes were also recorded in the Pittwater area during 1805. While many Aboriginal people had moved away by the 1840s, a few Aboriginal people were reported as still living in the western foreshores of Pittwater and in Ku-ring-gai Chase in 1900 (NSW NPWS 1996).

In the early days of the colony the Ku-ring-gai area was used mainly for timber extraction and boat building. Soda ash, salt and shell lime were also collected and manufactured in the area. A navigation light on Barrenjoey Head (1855) was replaced in 1868 by the Stewart Towers and in 1881 by the present lighthouse designed by Colonial Architect James Barnet. A customs house also operated at Barrenjoey Head from 1843 to 1904. In the late 1870s, construction began on the railway to the Hawkesbury River. By the 1880s a number of boatsheds were in place and the Hawkesbury Railway Bridge (1886-1889) was completed (NSW NPWS 2002).

From the 1880s, there was concern about the loss of native vegetation and the degradation of bushland in and around Sydney. Eccleston Frederic Du Faur successfully lobbied the NSW Government to establish a park near Turramurra to protect native flowers from a rapidly expanding neighbourhood. The conservation area "Ku-ring-gai Chase" was established in 1894 covering 13,500 hectares and administered by the Ku-ring-gai Chase Trust with Du Faur as managing trustee from 1894 until his death in 1915 (Australian Dictionary of Biography 1972, NSW NPWS 2002).

Du Faur was an influential figure in colonial society being a government surveyor, the founder of the Art Gallery of NSW as well as the founder of Ku-ring-gai Chase conservation area. In the 1870s he conducted artists' camps in the Blue Mountains promoting natural values, parts of which were already set aside for forest reserves and as water catchment areas.

The Pittwater area was closely associated with the writing of the Australian Constitution. In March 1891, the Drafting Committee (including Samuel Griffith, Edmund Barton, Charles Kingston and John Downer) revised the draft Constitution on board the paddlesteamer *Lucinda* when it anchored in The Basin. Although this 1891 draft was not implemented, it later served as the starting point for the Convention of 1897-98 (Deane 2000, Pittwater Council 2002).

In 1967, following 73 years of management by the Ku-ring-gai Chase Trust, the Chase was declared a national park under the NPWS Act 1967. Spectacle Island was dedicated as a reserve for public recreation in 1919 and as a nature reserve in 1972. In 1891 Long Island was reserved for public recreation and in 1972 became a nature reserve except for railway uses. Lion Island, dedicated as a fauna reserve in 1956, was also dedicated as a nature reserve under the NPWS Act 1967.

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### Condition and Integrity

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Although large areas within Ku-ring-gai Chase National Park, Lion Island, Long Island and Spectacle Island Nature Reserves are in natural or near natural condition, the popularity of the park along with its location within an urban-fringe environment means that the conservation of the area requires considerable and ongoing management of weeds and pests, fire risk as well as other impacts caused by recreational activities.

The sections of the place where introduced plants cause the greatest problem are along watercourses, in areas adjacent to urban development, in areas of past habitation and in some areas of high public usage (NSW NPWS 2002). Two hundred and thirty-six exotic plant species have been recorded within the park (Thomas and Benson 1985). A number of introduced animals have been recorded within the park with foxes (*Vulpes vulpes*) considered to cause the greatest impact (NSW NPWS 2002).

Over the past fifty years, most of Ku-ring-gai Chase National Park has been subject to a fire frequency of ten to fifteen years, particularly on the ridges and upper slopes. During this period the park has had on average ten small fires a year with extensive fires (over 500 hectares) occurring approximately twice a decade. A fire in January 1994 burnt almost half the park and it is estimated that only about 1% of the park contained vegetation that was more than twenty-one years old (NSW NPWS 2002 and Conroy 1996). A Fire Management Plan is currently in place for the National Park (NSW NPWS 2005).

The place also plays an important role in providing protection for a proportion of the lower Hawkesbury catchment area. Urban development surrounding the park has resulted in accelerated siltation and pollution of watercourses within the park which has led to increased weed growth. Recreational use of the waterways has also led to deteriorating water quality. The deterioration of the park's waterways has been recognised by the NSW NPWS as having a significant impact on native plants and animals (NSW NPWS 2002).

NSW NPWS plans to negotiate with the State Rail Authority to establish a conservation agreement over the part of Long Island managed by that Authority (NSW NPWS 2002).

Condition assessed 2006.

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### Location

About 15000ha, Bobbin Head Road, Bobbin Head, comprising Ku-ring-gai Chase National Park, Lion Island Nature Reserve, Long Island Nature Reserve and Spectacle Island Nature Reserve.

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