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THE VEGETATION OF KENTFORD FOREST STATE RESERVE, KING ISLAND

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Introduction

The present article results from a visit on the 1 April, 1985. The visit was prompted by the need to record the plant species and character of the vegetation in this Nature Reserve. The vegetation was sampled by walking two transects the north-south length of the reserve.

Few studies of the vegetation have been done on King Island although several special lists exist, both published (e.g. Campbell 1887, Anon. 1972) and unpublished. It is important to know the flora and vegetation communities represented in existing reserves so that deficiencies in the reserve system can be more accurately determined.

History of the Reserve

The area comprising the reserve was a piece of surplus land remaining from the War Service Land Settlement Scheme and was administered by the Closer Settlement Board. The block was advertised for sale by tender in the "King Island News" on 12th and 19th September, 1973. This resulted in the Field Naturalists Club of King Island and the Council Clerk of the King Island Municipality writing to the Forestry Commission seeking its reservation. The Field Naturalists Club commented on the importance of the block as habitat for the strong billed honeyeater "...together with other forest birds – and there are very few forest areas left on the island"! The occurrence of *Eleocharis reticulatus* was also mentioned.

As a result of these representations and following an inspection of the area by the then Minister responsible for National Parks and Wildlife the National Parks and Wildlife Service proceeded to acquire the land. The acquisition was completed on 24th June, 1974 and the reserve comprising 36.69 hectares was proclaimed under the *National Parks and Wildlife Act 1970* and gazetted on 23rd July, 1975 as the Pegarah Forest State Reserve. Due to confusion with the State Forest block at Pegarah about 8km to the north, the name of the State Reserve was changed to Kentford Forest State Reserve on 18th March 1981.

There are some rough overgrown vehicle tracks through parts of the reserve. These were probably used as access for the cutting of wood for farm use. The 9m wide access from the Kentford Road is used as a farm track and is trodden by cattle. The reserve is pretty well fenced but some relatively recent cutting of paperbark trees for fenceposts has occurred inside the northern boundary.

Climate, Geology and Soils

The study area is subject to westerly air streams which bring a low to moderate rainfall. The average annual rainfall recorded at Currie is about 1016mm. There is no orographic rainfall because of the low lying topography of the island. Due to a strong maritime influence winters are mild, summers warm, and frosts are extremely rare.

The bedrock in the area comprises comparatively unmetamorphosed sediments of Precambrian age (Jennings and Cox, 1978). A low ridge of lateritic ironstone occurs on part of the block and appears to have some effect on vegetation regrowth. The soils in the area have been mapped (Richley, 1984) as duplex and uniform silty loam soils. There is a deep vegetable litter on much of the block.

The Reserve is mostly flat with no permanent creeks or other incised drainage. A shallow linear depression with no free water at the time of inspection, is the nearest feature to a creek that there is. Ground water drainage is into the Ettrick River system.

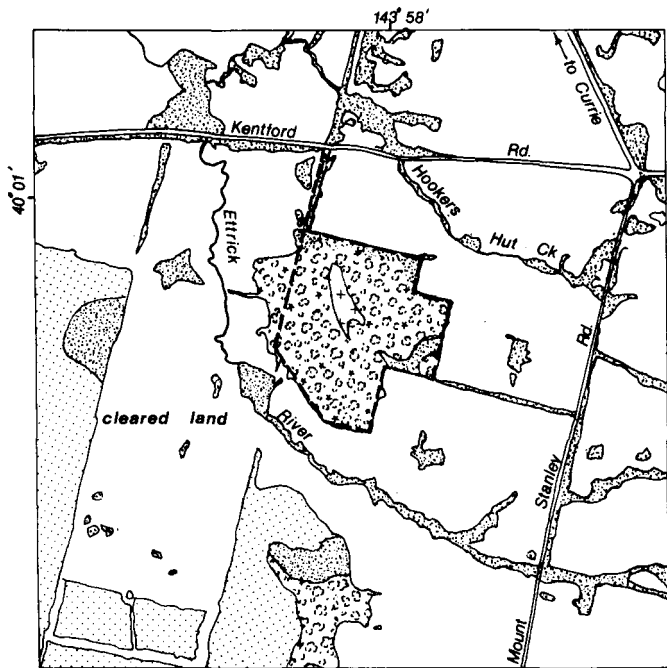
Vegetation

Three formations have been recorded for the reserve. The boundaries were mapped from a 1980 aerial photograph and checked in the field when the plant species for all combined formations were listed. Trees dominate two of the formations while shrubs, herbs and sedges characterise the third. The principal species and general characteristics of each formation is given below.






Eucalyptus brookerana open forest

This formation covers most of the reserve. Occasional specimens of *Eucalyptus globulus* occur. There is a dense intermediate layer of *Melaleuca ericifolia* which tend to form an unbroken canopy between the taller eucalypts. A solitary umbrageous specimen of *Elaeocarpus reticulatus* was

observed. The ground cover comprises mainly a dense litter layer with some small herbs and shrubs including *Coprosma quadrifida* (heavily browsed), *Viola hederacea*, *Pimelea* spp. and *Drymophila cyanocarpa*. The climbers *Parsonia straminea* and *Clematis aristata* were evident also. The course of a shallow drainage line is marked by occasional clumps of *Blechnum minus*.



0 300 600
metres

-  *Melaleuca ericifolia* closed scrub
-  *Eucalyptus brookerana* open forest
-  cleared land - closed heath
-  *Acacia* open shrubland
-  reserve boundary



Vegetation; Kentford Forest State Reserve

Melaleuca ericifolia closed scrub

This is similar to the previously described formation except that eucalypts are absent. Because of the closed canopy, species diversity may be marginally lower but this is not apparent. In the north west corner of the block, blackwood (*Acacia melanoxylon*) and *Monotoca glauca* occurs. The climbers *Billardiera longiflora* and *Clematis aristata* also occur.

Acacia open shrubland

This formation is represented within the reserve by a small area open along an old track on a laterite soil. The area was possibly once cleared but is being successfully recolonised by a number of shrubs including *Acacia mucronata*, *Leptospermum scoparium*, *Pultenaea juniperina*, *Pomaderris apetala*, *Phebalium squamaeum*, *Banksia marginata*, *Acacia verticillata* var. *verticillata* and gorse (*Ulex europaeus*). This is most likely the area reported by the King Island Field Naturalists Club in 1975 (N.P.W.S. files) to have contained at that time "3 large shrubs of gorse and many smaller plants, approximately 50 in all". This formation includes rushes, sedges and herbs (e.g. *Gahnia grandis*, *Juncus australis*, *Schoenus apogon*, *Centaurium erythraea*) and has a comparatively high species diversity. Species diversity is only higher than this on the edges of the reserve where there is more light, and where contiguity with farmland provides a source of invasions, particularly by exotic grasses and herbs.

Flora

A total of 37 native vascular species was recorded from the reserve. (see Appendix). Only one of these species (*Monotoca glauca*) is a Tasmanian endemic. The species comprise the following life forms: 11 trees, 6 shrubs, 3 climbers, 2 ferns, 7 herbs, 4 grasses, 2 sedges and 2 rushes. Six exotic species (1 shrub, 3 grasses and 2 herbs) were also recorded. The native flora of the reserve represents about 10 percent of the native vascular flora of King island.

The survey was carried out at the end of summer but a search during spring and summer may yield a small number of additional species, particularly orchids and other geophytes.

Only 2 species are of biogeographic interest. *Viola hederacea* subsp. *cleistogamoides* is a recently erected taxon (Adams, 1982) with few records in Tasmania, though it is probably widespread at least in the north of the State. The Tasmanian distribution of *Elaeocarpus reticulatus* is restricted to King Island and isolated localities on Flinders Island. The specimen noted during this survey is the only known occurrence of the species within the State Reserve system. The species has an intermittent occurrence on forested non-allocated Crown land on King Island, and also occurs in the Pagarah State Forest, and on uncleared private freehold land at Reekara.

The *Blechnum minus* is the robust variety with fronds more than 1 metre and pinnae with wavy margins.

Discussion

The comparatively low number of species recorded from the reserve can be attributed to three main factors.

Firstly, King Island itself is species poor, compared to the Tasmanian mainland, and to islands of similar size (e.g. Flinders Island). Although much of the native vegetation has been cleared, the low species diversity is mainly a function of broad topographical and geological uniformity. Consequently there are a smaller number of habitats than would otherwise be expected for an island of its size. This situation is reflected in the reserve itself, with only three habitats being identified: a shallow drainage channel, a rocky laterite outcrop, and the remainder of the reserve being flat land.

However, the second and main reason for the low number of species in the reserve is the dense and extensive cover provided by *Melaleuca ericifolia*. The dense litter buildup and the low light levels reaching the ground have eliminated shrub and ground layer species associated with earlier successional stages and has inhibited further development of these layers. It is interesting that highest species diversities were recorded on the area of open shrubland, where light penetration and litter buildup are not inhibiting.

The third factor is related to the frequency of fire. Elsewhere on King Island, highest species diversities are associated with early successional stages (1-7 years) in heaths on recent sand. In the absence of fire the heathland is replaced by scrub, often of similar composition and diversity to that observed in the reserve. However, heaths are absent from more fertile PreCambrian substrates, suggesting that after fire or other disturbance a more rapid reversion to *Melaleuca* scrub is likely (F. Duncan and M.J. Brown, pers. comm.).

Forests and scrub of similar structure and composition to those of the reserve are widespread on Cambrian and PreCambrian substrates elsewhere on King Island. They appear to owe their origin to a severe fire in the mid 1930's (F. Duncan and M.J. Brown, pers. comm.). It is likely that the forests of Kentford Forest State Reserve also date from this event. In the absence of further fire, such communities could maintain their present structure and composition for hundreds of years with the eucalypt component eventually dying out.

It is likely though, that fire will sooner or later eliminate the present vegetation and start the succession at the beginning again.

Acknowledgements

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APPENDIX

Vascular plants observed in the Kentford Forest State Reserve. Except where authorities are given after species names, species nomenclature follows Curtis (1963, 1967) and Curtis and Morris (1975) for dicotyledons, and Willis (1970) for monocotyledons and pteridophytes. Tasmanian endemic species are prefixed by an "e", and introduced species by an "i".

PTERIDOPHYTA : FILICINAE

- Blechnaceae *Blechnum minus*
- Dennstaedtiaceae *Pteridium esculentum*

ANGIOSPERMAE : DICOTYLEDONEAE

- Apiaceae *Hydrocotyle javanica*
- Apocynaceae *Parsonia straminea*
- Asteraceae *Olearia ramulosa*
- Chenopodiaceae *Rhagodia baccata*
- Elaeocarpaceae *Elaeocarpus reticulatus*
- Epacridaceae e *Monotoca glauca*
- Fabaceae i *Pultenaea juniperina*
- Ulex europaeus*
- Gentianaceae *Centaurium erythraea*
- Mimosaceae *Acacia melanoxydon*
Acacia mucronata
Acacia verticillata var. *verticillata*
- Haloragaceae *Gonocarpus teucrioides* DC
- Myrtaceae *Eucalyptus brookerana* A.M. Gray
Eucalyptus globulus
Leptospermum scoparium

	<i>Melaleuca ericifolia</i>
	<i>Melaleuca squarrosa</i>
Pittosporaceae	<i>Billardiera longiflora</i>
Proteaceae	<i>Banksia marginata</i>
Ranunculaceae	<i>Clematis aristata</i>
Rhamnaceae	<i>Pomaderris apetala</i>
Rubiaceae	<i>Coprosma quadrifida</i>
Rutaceae	<i>Phebalium squameum</i>
Scrophulariaceae	i <i>Parentucellia</i> sp.
Solonaceae	i <i>Solanum nigrum</i>
Thymelaeaceae	<i>Pimelea drupacea</i>
	<i>Pimelea linifolia</i>
Violaceae	<i>Viola hederacea</i> subsp. <i>hederacea</i>
	<i>Viola hederacea</i> subsp. <i>cleistogamoides</i> L. Adams
ANGIOSPERMAE : MONOCOTYLEDONEAE	
Cyperaceae	<i>Gahnia grandis</i>
	<i>Schoenus apogon</i>
Poaceae	<i>Agrostis avenacea</i>
	i <i>Agrostis tenuis</i>
	i <i>Anthoxanthum odoratum</i>
	<i>Danthonia semiannularis</i>
	<i>Deleuxia quadriseta</i>
	i <i>Holcus lanatus</i>
	<i>Microlaena stipoides</i>
Juncaceae	<i>Juncus australis</i>
	<i>Juncus vaginatus</i>
Liliaceae	<i>Dryophila cyanocarpa</i>

BLACK-BROWED ALBATROSS AND GIANT-PETRELS FROM SOUTH GEORGIA

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Queen Victoria Museum, Launceston

An immature Black-browed Albatross, *Diomedea melanophrys*, recently accessed into the Queen Victoria Museum's collection by courtesy of Tasmanian National Parks and Wildlife Service has been banded as a nestling at Bird Is., South Georgia on 15 April 1985 by the British Antarctic Survey. It was found alive at Bakers Beach, Northern Tasmania, on 14 July 1985 by Ranger Jans Howe but died almost straight away, 90 days after being banded and having travelled at least 13,126km. It was found to be in a very starved condition, weighing only 2.25kg as compared to the normal weight of 2.81-3.64kg (Serventy *et al.* 1971, p.72). The gut was empty except for some wing feathers of a Prion, *Pachyptila* sp. and fragments of cuttle-bone.

The Queen Victoria Museum collection also includes another Black-browed Albatross, Reg. No 1962/2/6, banded on Bird Is. on 18 February 1962 by the United States Antarctic Research Program and recovered on 17 June 1962 at Badger Head Beach, Northern Tasmania.

There are also two Southern Giant-Petrels, *Macronectes giganteus*, in the collection, Reg. Nos. 1962/2/7 and 1975/2/1. The first was banded at Bird Is. on 2 February 1962 by United States Antarctic Research Program and recovered at Pipers Head, Northern Tasmania on 20 October 1962. The other was banded at Signy Is., South Orkney in March 1974 by the British Antarctic Survey and recovered at Bridport, Northern Tasmania on 17 September 1974.

Migration from the breeding islands is probably circumpolar and wind assisted. Tickell (1967) gives information on long distance recoveries of Black-browed Albatross banded as chicks on South Georgia and Lockley (1974, p.100) gives somewhat similar data for the Southern Giant-petrel. These data indicate that in their first year the birds probably suffer from starvation and stress which results in mortalities in Australian waters. A search for dead birds on our beaches in the winter months is always worthwhile and recoveries such as these can be a reward for the effort.

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MASKED OWL EATS KOOKABURRA

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An adult female Masked Owl, *Tyto novaehollandiae*, salvaged as a road kill by Mrs. L. Thorne at Sidmouth, West Tamar on 29 July 1986 was recently accessioned into the Queen Victoria Museum collection as a study skin, Reg. No. 1986/2/118. Upon preparation the stomach was found to contain the right leg of a Laughing Kookaburra, *Dacelo novaeguineae*. This supports the evidence of Green and Rainbird (1985) that the Masked Owl includes a range of introduced bird and mammal species as a major part of its diet.

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