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FLORA OF THE RECHERCHE ARCHIPELAGO

THE 1991 AUSTRALIAN GEOGRAPHIC EXPEDITION

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PREVIOUS STUDIES

The first botanical collections from the Recherche were made by the French in 1792, followed by the English in 1802. However, the first systematic attempt to survey the flora of the Archipelago was undertaken by the Australian Geographical Society in November 1950. They were able to collect extensively on 20 islands and listed 275 species of vascular plants as occurring on these islands.

Since this expedition Goodsell *et al.* (1976) have re-collected on Woody Island, during the spring of 1975. Abbott and Black (1978) collected on Mondrain, Woody, Salisbury and Wilson Island. Hopkins (*pers. comm.*) has studied Salisbury Island. Brown *et al.* (1984) have undertaken extensive pre and post fire studies on Middle Island (and collected on Goose Island).

These published and unpublished studies have now recorded 378 species (235 on Middle Island alone!) of vascular plants from the Archipelago, of which 61 are naturalized aliens. Surveys have been undertaken on 21 islands.

THE 1991 EXPEDITION

The expedition was able to land on 13 islands to study the flora. Of these New Year, Anvil, Spindle, Six Mile Rock, Bellinger, Wickham and Taylor Island had not previously been studied.

Landings were also made on Daw, Middle, North Twin Peak, Mondrain, Sandy, Hook and Wilson Island.

The flora lists for the six previously unstudied islands and for Wilson Island (where numerous new records were noted) are given in Appendix One.

RESULTS

We recorded six species (*Chamaescilla corymbosa*, *Wilsonia backhousei*, *Wilsonia humilis*, *Calandrinia corrigioloides*, **Corrigiola littoralis* and **Monadenia bracteata*) not previously listed for the Archipelago. This raises the known vascular flora to 384 species.

The *Wilsonia backhousei*/*W. humilis* vegetation association found on Bellinger Island has not previously been recorded on any other island in the Archipelago.

Wilson Island, was previously studied by Abbott and Black (1978) who recorded 40 species of vascular plants. We recorded 63 species from the island, a 57% increase. It would appear, from a number of unidentifiable fragments that a spring survey would result in further new records.

The expedition recorded an additional 9 species (*Stipa flavescens*, *Parietaria debilis*, **Stellaria media*, **Euphorbia paralias*, *Lavatera plebeia*, *Melaleuca pubescens*, *Solanum simile*, *Gnaphalium indutum* and *Gnaphalium sphaericum*), on Daw Island, compared to those listed by Willis raising to known flora to 55 species. One species *Spinifex hirsutus* was not relocated, it has apparently become extinct on Daw Island since 1950.

Only one new record *Eriochilus dilatatus* was made for Mondrain Island.

Twelve new species (*Isopogon tridens*, *Petrophile teretifolia*, *Atriplex cinerea*, *Disphyma clavellatum*, *Lepidium foliosum*, *Drosera glanduligera*, *Acacia nigricans*, **Euphorbia paralias*, *Lavatera plebeia*, *Melaleuca lanceolata*, *Daucus glochidiatus*, **Pseudognaphalium luteo-album*) were recorded for Sandy Hook Island, raising the number of species recorded for the island to 112.

One other interesting observation was that Willis found the littoral alien, *Euphorbia paralias* (Sea Spurge) only on Middle Island. Whereas 40 years later all ? islands with beaches throughout the Archipelago has this species on them.

The expedition found that the severe summer temperatures (up to 45°C) and prolonged drought resulted in numerous deaths of the native vegetation on the shallow soils surrounding granite hills on all islands visited, from Daw to Woody. These deaths were recorded and photo points taken to monitor recovery.

REFERENCES

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- Brown, J.M., Hopkins, A.J.M., Trudgen, M.E. and Weston, A.S. (1984). Regeneration after fire in 170 year old vegetation on Middle Island, South Western Australia. Medecos IV, Proceedings. Ed. B. Dell. Perth, pp 18-19.
- Goodsell, J., Tingay, A. and Tingay, S.R. (1976). A Resource Survey of Woody Island, Archipelago of the Recherche. Report 21. Dept. Fisheries and Wildlife, Perth.

APPENDIX ONE

1. New Year Island (33°51'18"S 124°07'E) visited 6.5.1991.

The northern end of the island has a prostrate or very low heath of *Atriplex cinerea* (60% cover), *Disphyma* (25) and *Frankenia* (10). The central summit area has a low open heath (to 40 cm) of *Olearia axillaris*, *Rhagodia*, *Threlkeldia* and *Myoporum*. On the protected south-eastern side of the island where sand has accumulated there is a thicket of *Nitraria billardierei* over *Threlkeldia*.

Flora

Poa porphyroclados
Sporobolus virginicus
Atriplex cinerea
Enchylaena tomentosa
Rhagodia baccata
Sarcocornia quinqueflora
Threlkeldia diffusa
A. paludosa
Carpobrotus virescens
Disphyma clavellatum
Tetragonia implexicoma
Calandrinia calyptrata
Lepidium foliosum
Lavatera plebeia
Frankenia tetrapetala
Apium annuum
Nitraria billardierei
Myoporum insulare
Lobelia alata
Calocephalus brownii
Olearia axillaris
Senecio lautus
**Sonchus oleraceus*

23 species

2. Spindle Island (33°44' 124°10') visited 7.5.1991.

Flora

Sporobolus virginicus
Lavatera plebeia
Apium annuum
Lobelia alata

3. Six Mile Rock (33°38'30"S 123°59') visited 7.5.1991.

Flora

Sporobolus virginicus
Disphyma clavellatum
Lepidium foliosum
Lavatera plebeia
Lobelia alata

4. Anvil Island (33°44' 124°05') visited 7.5.1991.

This island consists of two low hills separated by a low valley with a beach on each side. Between the beaches a low closed *Nitraria* heath occurs, edged on one side by a low open heath of *Atriplex* to 15 cm, with rare *Olearia axillaris*, *Carpobrotus* and *Poa*. The granitic slopes and summit have a low open heath of *Olearia/Atriplex* and *Myoporum* over *Disphyma*. The edges of open granite areas have a herbfield of *Sporobolus*, *Disphyma* and *Carpobrotus*

Flora

Danthonia caespitosa
Sporobolus virginicus
Stipa flavescens
**Ehrharta longiflora*
Isolepis nodosa
Atriplex cinerea
Enchylaena tomentosa
Rhagodia baccata
Threlkeldia diffusa
Carpobrotus virescens
Disphyma clavellatum
Lepidium foliosum
Pelargonium australe
Nitraria billardierei
Lavatera plebeia
Frankenia tetrapetala
Apium annuum
A. prostratum
Trachymene pilosa
**Anagallis arvensis*
Myoporum insulare
Lobelia alata
Calocephalus brownii
Gnaphalium indutum
Olearia axillaris
**Pseudognaphalium luteo-album*
Senecio lautus

Species 27

5. Bellinger Island (33°52'54" 123°38'48") visited 8.5.1991.

The island has two distinct parts separated by a shallow channel. The northern rocky area is sparsely vegetated in its highest portion by a succulent herbfield of *Disphyma* with scattered plants of *Lobelia*, *Lavatera*, *Sporobolus* and *Atriplex cinerea*. The sheltered cliffs are covered in a succulent herbfield of *Wilsonia backhousei* and *Wilsonia humilis*. The southern area has tall sand dunes dominated by a low open heath with mixtures of *Nitraria*, *Atriplex cinerea* and *Tetragonia*. *Acacia cyclops* becomes dominant near the beach.

Flora

**Ehrharta longiflora*
 **Parapholis incurva*
Poa poiformis
Spinifex hirsutus
Dianella revoluta
Atriplex cinerea
A. paludosa
Enchylaena tomentosa
Rhagodia baccata
Threlkeldia diffusa
Carpobrotus virescens
Disphyma clavellatum
Tetragonia implexicoma
Lepidium foliosum
Crassula colorata
Acacia cyclops
Nitraria billardierei
Zygophyllum billardierei
 **Euphorbia paralias*
Lavatera plebeia
Pimelea ferruginea
Frankenia tetrapetala
Sporobolus virginicus
Stipa flavescens
Isolepis nodosa
Lepidosperma gladiatum
Apium Annuum
Daucus glochidiatus
Trachymene pilosa
 **Anagallis arvensis*
Myoporum insulare
Lobelia alata
 +*Wilsonia humilis*
 +*W. backhousei*
Calocephalus brownii
Olearia axillaris
Senecio lautus
 **Sonchus oleraceus*

38 species

6. Wickham Island (34°01' 123°17'30") visited 8.5.1991.

A low island covered by variable low open heath up to 50 cm, dominated by *Nitraria*, *Atriplex cinerea* or *Olearia*. Scattered through the heath are granite pools which support an annual herbfield.

Flora List

Triglochin minutissima
T. trichophora
 **Aira caryophyllea*
Spinifex hirsutus
Stipa flavescens
Isolepis nodosa
I. marginata
Centrolepis polygyna

Juncus bufonius
Bulbine semibarbata
Atriplex cinerea
A. paludosa
Enchylaena tomentosa
Rhagodia baccata
Threlkeldia diffusa
Carpobrotus virescens
Disphyma clavellatum
Tetragonia implexicoma
Calandrinia corrigioloides
 **Corrigiola littoralis*
 **Cakile maritima*
Lepidium foliosum
 **Avena barbata*
 **Ehrharta longiflora*
Sporobolus virginicus
Crassula colorata
Nitraria billardierei
 **Euphorbia paralias*
Lavatera plebeia
Frankenia tetrapetala
Apium annuum
Daucus glochidiatus
Trachymene pilosa
 **Solanum nigrum*
Plantago drummondii
Lobelia alata
Myoporum insulare
Anthocercis viscosa
Calocephalus brownii
Cotula cotuloides
Gnaphalium sphaericum
Olearia axillaris
 **Pseudognaphalium luteo-album*
Senecio lautus
 **Sonchus oleraceus*
 **Vellereophyton candidissimum*

46 species

7. Taylor Island (33°56' 122°52') visited 9.5.1991.

A steep single summit island, covered by either a low open heath dominated by *Olearia* with scattered *Rhagodia*, *Poa*, *Muehlenbeckia* and *Carpobrotus* or a *Poa/Stipa* tussock grassland with scattered shrubs of *Carpobrotus* and *Muehlenbeckia*. Open areas of granite are dominated by *Lomandra rigida* or *Carpobrotus*. Valleys contain a low shrubland of *Paraserianthes lophantha*.

Flora List

**Aira caryophyllea*
 **Bromus diandrus*
 **Avena barbata*
Poa poiformis
 **Ehrharta longiflora*

Sporobolus virginicus
Stipa flavescens
Isolepis nodosa
+*Corynotheca micrantha*
Dianella revoluta
Lomandra rigida
Muehlenbeckia adpressa
+*Monadenia bracteata*
Enchylaena tomentosa
Rhagodia baccata
Threlkeldia diffusa
Carpobrotus virescens
Disphyma clavellatum
Tetragonia implexicoma
Lepidium foliosum
Apium annuum
Crassula exserta
Paraserianthes lophantha
Pelargonium australe
Phyllanthus scaber
Lavatera plebeia
Gonocarpus scordioides
Apium annuum
Leucopogon revolutus
**Anagallis arvensis*
Myoporum insulare
Lobelia alata
Gnaphalium indutum
G. sphaericum
**Hypochaeris glabra*
Olearia axillaris
**Pseudognaphalium luteo-album*
Senecio lautus
**Sonchus oleraceus*

39 species

Wilson Island visited 12.5.1991

Flora List

Cheilanthes austrotenuifolia
**Aira caryophyllea*
Bromus diandrus
Sporobolus virginicus
Stipa flavescens
Poa porphyroclados
**Vulpia bromoides*
Isolepis cernua
I. nodosa
Centrolepis polygyna
C. strigosa
Bulbine semibarbata
Lomandra rigida
+*Chamaescilla ?corymbosa*
Eriochilus dilatatus
Hakea clavata
H. suaveolens

Muehlenbeckia adpressa
Atriplex paludosa
Rhagodia crassifolia
Enchylaena tomentosa
Threlkeldia diffusa
Carpobrotus virescens
Disphyma clavellatum
Tetragonia implexicoma
T. tetragonoides
Lepidium foliosum
Bossiaea dentata
Eutaxia obovata
Geranium pilosum
Pelargonium australe
Dodonaea oblongifolia
Phyllanthus scaber
Beyeria viscosa
Crassula colorata
Stackhousia pubescens
Rulingia cygnorum
Pimelea clavata
Eucalyptus cornuta
Agonis marginata
Leptospermum sericeum
Melaleuca globifera
Haloragis acutangula
Astartea fascicularis
Apium annuum
Trachymene pilosa
Daucus glochidiatus
Platysace compressa
Andersonia sprengelioides
Leucopogon obovatus
Centaurium erythraea
**Solanum nigrum*
Myoporum insulare
Levenhookia pusilla
Stylidium adnatum
Anagallis arvensis
Calocephalus brownii
Angianthus tenellus
Gnaphalium indutum
Cotula australis
Hypochaeris glabra
Olearia axillaris
Senecio lautus

63 Species