

**PARTIAL FLORA SURVEY  
ROTTNEST ISLAND GOLF COURSE**

Prepared by Marion Timms

**Commencing 1<sup>st</sup> Fairway travelling to 2<sup>nd</sup> – 11<sup>th</sup> left hand side**

<u>Family</u>	<u>Botanical Name</u>	<u>Common Name</u>
Mimosaceae	Acacia rostellifera	Summer scented wattle
Dasypogonaceae	Acanthocarpus preissii	Prickle lily
Apocynaceae	Alyxia Buxifolia	Dysentery bush
Casuarinaceae	Casuarina obesa	Swamp sheoak
Cupressaceae	Callitris preissii	Rottnest Is. Pine
Chenopodiaceae	Halosarcia indica supsp. Bidens	
Chenopodiaceae	Sarcocornia blackiana	Samphire
Chenopodiaceae	Threlkeldia diffusa	Coast bonefruit
Chenopodiaceae	Sarcocornia quinqueflora	Beaded samphire
Chenopodiaceae	Suada australis	Seablite
Chenopodiaceae	Atriplex isatidea	Coast saltbush
Poaceae	Sporobolus virginicus	Marine couch
Myrtaceae	Melaleuca lanceolata	Rottnest Is. Teatree
Pittosporaceae	Pittosporum phylliraeoides	Weeping pittosporum
Poaceae	Stipa flavescens	Tussock grass

**2<sup>nd</sup> – 11<sup>th</sup> Fairway**

<u>Family</u>	<u>Botanical Name</u>	<u>Common Name</u>
Chenopodiaceae	Sarcocornia quinqueflora	Beaded samphire
Chenopodiaceae	Atriplex isatidea	Coast saltbush
Cyperaceae	Gahnia trifida	Coast sword sedge
Pittosporaceae	Pittosporum phylliraeoides	Weeping pittosporum
Myrtaceae	Melaleuca lanceolata	Rottnest Is. Teatree
Chenopodiaceae	Sarcocornia blackiana	Samphire

### Central drainage wetland commencing at Vietnam sign

<u>Family</u>	<u>Botanical Name</u>	<u>Common Name</u>
Chenopodiaceae	Halosarcia halecnomoides	
Chenopodiaceae	Sarcocornia quinqueflora	Beaded samphire
Chenopodiaceae	Sarcocornia blackiana	Samphire
Poaceae	Sporobolus virginicus	
Cyperaceae	Gahnia Trifida	Coast sword sedge
Restionaceae	Juncus kraussii	Shore rush
Poaceae	Stipa flavescens	Tussock grass
Dasypogonaceae	Acanthocarpus preissii	Prickle lily
Pittosporaceae	Pittosporum phylliraeoides	Weeping pittosporum
Chenopodiaceae	Rhagodia baccata	Berry salt bush
Aizoaceae	Tetragonia implexicoma	Bower spinach
Cyperaceae	Baumea juncea	Twig rush

### Drainage wetland survey ended at wooden bridge nearest to and below wind turbine. Commencing again at 2<sup>nd</sup> Fairway (par 5) sign continuing to Brennan's View

<u>Family</u>	<u>Botanical Name</u>	<u>Family Name</u>
Chenopodiaceae	Sarcocornia quinqueflora	Beaded samphire
Chenopodiaceae	Sarcocornia blackiana	Samphire
Myrtaceae	Melaleuca lanceolata	Rottnest Is. Teatree
Poaceae	Sporobolus virginicus	Marine couch
Chenopodiaceae	Enchylaena tomentosum	Barrier saltbush
Casuarinaceae	Casuarina obesa	Swamp sheoak
Chenopodiaceae	Threlkeldia diffusa	Coast bonefruit
Myrtaceae	Eucalyptus platypus var. heterophylla	Coastal mort
Poaceae	Stipa flavescens	Tussock grass
Pittosporaceae	Pittosporum phylliraeoides	Weeping pittosporum
Cyperaceae	Gahnia trifida	Coastal sword sedge
Dasypogonaceae	Acanthocarpus preissii	
Myoporaceae	Myoporum insulare	Blueberry tree

### Brennan's View 12<sup>th</sup> to 13<sup>th</sup> (par 4) Club house

<u>Family</u>	<u>Botanical Name</u>	<u>Family Name</u>
Ranunculaceae	Clematis linearifolia	Slender clematis
Myrtaceae	Melaleuca lanceolata	Rottnest Is. Teatree
Cupressaceae	Callitris preissii	Rottnest Is. Pine
Myrtaceae	Eucalyptus gomphacephala	Tuart
Myrtaceae	Agonis flexuosa	Peppermint
Casuarinaceae	Casuarina obesa	Swamp sheoak

Suggest small wetland supporting salt bush with no other vegetation could be enhanced with species such as –

*Gahnia trifida*

*Baumea juncea* (towards fresher dampland edge)

*Juncus kraussii*

*Frankenia pauciflora*

*Lobelia canescens*

*Samolus repens*

These same species may be effective along drainage wetland also.

Note: the *Eremophila* found near the sale lake (not on golf course) is *Eremophila glabra* subsp. *albicans* ms.

## Reassessment of the vascular flora of Rottnest Island

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### Abstract

A survey of the vascular flora of Rottnest Island, carried out between 1998 and 2001 with the aim of recording all native and introduced species, was compared with previous lists, and the nomenclature was reconciled and updated. A total of 246 native and introduced species have been recorded for the island, of which 196 species were found in 1998–2001. A survey in the late 1950s had recorded a similar total number of species (201) but the proportion of native species had dropped over the period between censuses from 62% in the 1950s to 58% in 1998–2001. Despite the relatively constant species total, the flora of Rottnest is dynamic, with 44 species known to have been present in the late 1950s not recorded at the end of the century, while 38 additional species were found in 1998/2001, giving a rate of turnover of 1% *pa*. In this paper, an annotated flora list of 246 recorded species is given as well as a list of 122 deleted names, with reasons for their exclusion from the flora list. Thirty-five cultivated species collected from outside of gardens, but which had not become naturalised, are listed separately.

**Keywords:** vascular flora, Rottnest Island, species turnover rate, immigration, extinction, island biogeography

### Introduction

Rottnest Island has been the subject of intensive biological research due to its diversity of marine and terrestrial habitats, and its proximity to Perth-based research centres (Hodgkin & Sheard 1959; Bradshaw 1983; Huisman & Walker 1990; Wells *et al.* 1991; Walker & Wells 1996). As a result, much of the island's biodiversity has been documented.

It was during the 1950s that the first in-depth botanical explorations took place. McArthur (1957) compared the flora of Rottnest, Carnac and Garden Islands. Storr (1962) published a more complete annotated list of the Rottnest Island flora that formed the basis for subsequent floristic lists, specifically those of O'Connor (1977) and Frewer *et al.* (1985). These latter accounts accepted much of the information reported by Storr (1962) but included some changes in nomenclature and added a few new observations. Marchant & Abbott (1981) reviewed previous surveys and listed those species recorded for Rottnest and Garden Islands, and updated the nomenclature. Also available was a list of specimens from Rottnest Island lodged with the Western Australian Herbarium prior to 21<sup>st</sup> May 2001.

There were no major disturbance events on Rottnest Island from 1955 to the end of the twentieth century. The quokka (*Setonix brachyurus*) population remained at saturation level, fires were prevented or rapidly controlled, and the island was run as a conservation reserve for recreation and tourism. Under this regime

tree species have been unable to regenerate naturally and a depauperate, sclerophyllous grassy heath has become the most widespread community on the island. This consists mainly of *Acanthocarpus preissii* and *Austrostipa flavescens* (Hesp *et al.* 1983), although the exotic geophyte *Trachyandra divaricata* has become an important constituent, having spread since the 1950s when it seldom occurred away from coastal dunes (Storr 1962).

Between 1998–2001 the Rottnest Voluntary Guides collected about 400 specimens of vascular plants, to establish the Rottnest Regional Herbarium (RRH). Identification by the Western Australian Herbarium of RRH specimens provided the basis for reconciling previously published lists, and enabled the size and composition of the flora to be re-assessed. This paper thus provides the first specimen-based list of the vascular plants of Rottnest Island.

### Methods

All native and naturalised vascular species were targeted for the Rottnest Regional Herbarium, including aquatic angiosperms from the salt lakes, freshwater swamps and surrounding ocean. The plants of two islets off Rottnest Island, Dyer and Green, and Little Island in Lake Baghdad, were included. Cultivated trees and shrubs growing outside (but not inside) fenced gardens were also collected. All major habitats including the Settlement, woodlands, salt lakes, swamps, heathlands, and coastal areas were visited several times, at different seasons. Efforts were made to include differing topographical features within these areas, such as hills, rocky outcrops, swales and headlands.

Forty volunteers took part in the earlier collecting sessions and a total of approximately 500 person hours was spent in collecting specimens. The surveys were intended to cover as much of the island as was feasible in the time available. There was no formal grid survey pattern established nor were quadrats or transects included in the survey. All previously listed species were targeted, and recorded source areas were searched. At the time of collecting, details of each plant and its provisional identification, habitat, and locality were noted. Latitude and longitude were estimated from a photocopied aerial photograph on which a grid had been superimposed. The soil type and the nature of the vegetation in which the collected plant was growing were also recorded.

Each collection consisted of two specimens, one of which was submitted to the WA Herbarium for identification. These specimens were retained, apart from those of cultivated species that had not become naturalised. The Rottnest Regional Herbarium retained the duplicate specimens of all species collected. Where the size of the specimens made collection impracticable (e.g. palm trees) photographs were used. This collection, including photographs, is lodged with the Rottnest Island Authority. A colour photocopy was taken of one pressed specimen (or photograph) for each species in the collection and these are held by the Rottnest Island Authority for public reference.

We compiled a comprehensive list with current nomenclature of all species recorded for Rottnest Island, and attempted to reconcile it with all previous floristic lists. Our list included cultivated species that had become naturalised. We use the term 'naturalised' in a broad sense to include species in the colonisation phase that are starting to multiply on Rottnest without human intervention, and those in the naturalisation phase that have reproduced for several generations (Groves 1986).

Nomenclature was based on the WA Herbarium identifications of the specimens collected in the recent survey, supported by details in Paczkowska & Chapman (2000) or occasionally 'FloraBase' (Western Australian Herbarium, <http://www.calm.wa.gov.au/science/florabase.html>) and, in the case of some exotic taxa, by Bodkin (1993). Authors were not included but are available from the above references. Common names are taken from Paczkowska & Chapman (2000), and for orchids from Hoffman & Brown (1992). A second list was compiled for deleted names, annotated with reasons for their deletion from the Rottnest list or change in taxonomic status. Another list was compiled for species that had been cultivated outside gardens but had not become naturalised. These species are of historical and aesthetic importance on the island, and some may naturalise in the future.

Turnover of species between the two censuses (late 1950s, and 1998–2001) was investigated. It is difficult to assess turnover, because of the problems of measuring actual immigration and extinction rates, as noted by Sauer (1969) and Abbott (1983), because collections cannot be considered complete. Nilsson & Nilsson (1985) examined census efficiency and turnover when recording vascular plants on islands, and concluded that efficiency correlates positively with the time spent in taking the census, and negatively with island area. Even

standardised searches by professional botanists recorded only 79% of the best estimate and the authors concluded that at most only 1% of the vascular plant species present on an island becomes extinct annually (Nilsson & Nilsson 1985). Whittaker (1998) noted that most turnover studies are in fact merely rates of changes in lists (as is this survey), and that turnover figures can be distorted by 'crypto-turnover' (exclusion of species that both immigrated and became extinct between surveys), and 'pseudo-turnover' (incomplete censuses).

Nevertheless, an assessment is made here using the available information. Turnover is taken as a combined effect of species 'extinction' and 'immigration'. A species was listed as extinct if it had been recorded previously, but was not listed in the latest census. Similarly the term 'immigrated' is applied to species recorded in the recent survey, but not previously. Turnover, immigration and extinction rates are calculated as suggested by Abbott (1977) and Abbott & Black (1980); rate of turnover =  $200(I+E)/[(S_1+S_2) \cdot (t_2-t_1)]$ ; extinction rate =  $200(E)/[(S_1+S_2) \cdot (t_2-t_1)]$ ; and immigration rate =  $200(I)/[(S_1+S_2) \cdot (t_2-t_1)]$ ; where E is the number of species that were presumed extinct, I is the number of species that immigrated,  $(S_1+S_2)$  is the sum of the number of species recorded at the two censuses, and  $(t_2-t_1)$  is the time elapsed between the two censuses. For the purposes of this survey, we assumed that 42 years elapsed ( $t_1 = 1958$  and  $t_2 = 2000$ ).

Some nomenclatural problems could not be resolved with certainty and these are addressed under 'taxonomic issues' in Appendix 1.

## Results

A total of 196 vascular plant species was recorded for Rottnest Island between 1998 and 2001 (Table 1). The majority, 113 (58% of the total), were native species and 83 (42%) were introduced. The total comprised the 184 species collected for the RRH, five species recorded by other researchers since 1980 (*Avellinia michelii*, *Cerastium glomeratum*, *Drosera ramellosa*, *Oxalis pes-caprae* and *Ruppia tuberosa*), one seagrass (*Heterozostera tasmanica*) and six orchid species (*Eriochilus dilatatus*, *Leporella fimbriata*, *Microtis media*, *Prasophyllum giganteum*, *Pterostylis aspera* and *Pterostylis sanguinea*). Nine seagrass and eight orchid species are known for Rottnest (D I Walker, School of Plant Biology, University of Western Australia, personal communication; A Brown, Science and Information Branch, WA Dept of Conservation and Land Management, personal communication); only eight seagrasses and two orchids were collected for the RRH. Seagrasses and orchids can be difficult to collect, and were under-represented in both the RRH collection and Storr's (1962) census of Rottnest Island flora in the 1950s.

The comparable total number of species on the island in the late 1950s was 201 of which 124 (62%) were native species and 77 (38%) were introduced. This total consisted of 180 species recorded by Storr (1962), and 7 other species lodged with the WA Herbarium at the time of his survey (*Bromus madritensis*, a second *Comesperma* species, *Heliotropium curassavicum*, *Hydrocotyle blepharocarpa*, *Polypogon tenellus*, *Sarcocornia blackiana* and *Zygophyllum billardierei*). *Ricinus communis*, *Agave sisalana*, *Drosera ramellosa* and *Lobelia alata*, which were known to

**Table 1**

Native and introduced species, annual and perennial, recorded on Rottneest Island in the late 1950s and between 1998 and 2001.

	Late 1950s <sup>1</sup>			1998–2001 <sup>2</sup>		
	Native	Introduced	Total	Native	Introduced	Total
Annual	29	54	83	22	50	72
Perennial	89	18	107	83	30	113
Annual or Perennial	6	5	11	8	3	11
Total	124	77	201	113	83	196

<sup>1</sup> *Centaurium*, *Comesperma*, *Conostylis*, *Rhagodia* and *Senecio* were counted as one species each.

<sup>2</sup> *Anagallis* and *Senecio* for which two varieties or subspecies were collected were counted as one species each.

be present before and after Storr's (1962) census, were assumed present, as were 4 orchid and 6 seagrass species that were not recorded in the 1950s.

The cumulative total number of vascular plant species recorded for Rottneest Island, including those

that have become extinct, was 246 (*Anagallis*, *Eremophila*, *Rhagodia* and *Senecio* counting as one species each). One hundred and thirty-five were native species (55%) and 111 (45%) were introduced. These species are listed in Appendix 2.

**Table 2**

Species that became extinct or immigrated between the two censuses. (We acknowledge that some species listed could have been overlooked, misidentified or were dormant at the time of one or other census. Native species are perhaps less likely to have immigrated than aliens, and annuals less likely to have become extinct than perennials. *Geranium molle*, for example, was rediscovered in 2002).

Extinctions		
<b>Exotics</b>		
<i>Agave sisalana</i>	<i>Diploptaxis muralis</i>	<i>Orobanche minor</i>
<i>Arctotheca populifolia</i>	<i>Ehrharta brevifolia</i>	<i>Parentucellia latifolia</i>
<i>Bromus madritensis</i>	<i>Geranium molle</i>	<i>Pennisetum clandestinum</i>
<i>Carduus pycnocephalus</i>	<i>Juncus bufonius</i>	<i>Reseda luteola</i>
<i>Centaurium pulchellum</i>	<i>Leucosium aestivum</i>	<i>Silene nocturna</i>
<i>Chenopodium murale</i>	<i>Lolium rigidum</i>	<i>Sisymbrium orientale</i>
<i>Crassula natans</i>	<i>Malva parviflora</i>	<i>Tetragonia decumbens</i>
<i>Desmazeria rigida</i>	<i>Medicago polymorpha</i>	<i>Trifolium suffocatum</i>
<i>Heliophila pusilla</i>		
<b>Natives</b>		
<i>Bulbine semibarbata</i>	<i>Hemichroa pentandra</i>	<i>Phyllangium paradoxum</i>
<i>Centrolepis polygyna</i>	<i>Hydrilla verticillata</i>	<i>Polypogon tenellus</i>
<i>Comesperma confertum</i>	<i>Juncus kraussii</i> ssp. <i>australiensis</i>	<i>Poranthera drummondii</i>
<i>Comesperma integerrimum</i>	<i>Malva australiana</i>	<i>Portulaca oleracea</i>
<i>Dodonea aptera</i>	<i>Myosotis australis</i>	<i>Trachymene pilosa</i>
<i>Heliotropium curassavicum</i>	<i>Pelargonium littorale</i> ssp. <i>littorale</i>	<i>Wurmbea monantha</i>
		<i>Zygophyllum billardiieri</i>
<b>Immigrations</b>		
<b>Exotics (including species that naturalised)</b>		
<i>Agave attenuata</i>	<i>Eragrostis curvula</i>	<i>Moraea flaccida</i>
<i>Avellinia michelii</i>	<i>Eucalyptus utilis</i>	<i>Narcissus tazetta</i>
<i>Caesalpinia gilliesii</i>	<i>Euphorbia paralias</i>	<i>Nerium oleander</i>
<i>Callitriche stagnalis</i>	<i>Ficus rubiginosa</i>	<i>Oxalis pes-caprae</i>
<i>Casuarina glauca</i>	<i>Hedypnois rhagadioloides</i>	<i>Raphanus raphanistrum</i>
<i>Cerastium balearicum</i>	<i>Iris</i> sp.	<i>Rhamnus alaternus</i>
<i>Cirsium vulgare</i>	<i>Lycopersicon esculentum</i>	<i>Romulea rosea</i> var. <i>australis</i>
<i>Crassula glomerata</i>	<i>Malva dendromorpha</i>	<i>Solanum nigrum</i>
<i>Crassula thunbergiana</i> ssp. <i>thunbergiana</i>	<i>Melia azedarach</i>	<i>Vulpia fasciculata</i>
<i>Cymbalaria muralis</i>	<i>Minuartia mediterranea</i>	<i>Vulpia muralis</i>
<b>Natives</b>		
<i>Angianthus preissianus</i>	<i>Calandrinia</i> aff. <i>eremaea</i>	<i>Ruppia tuberosa</i>
<i>Anthocercis littorea</i>	<i>Centaurium spicatum</i>	<i>Schoenus nitens</i>
<i>Austrostipa elegantissima</i>	<i>Lachnagrostis filiformis</i>	

## Immigrations and extinctions

A few species had become extinct before the first flora list was published (Storr 1962). Two species were recorded by Preiss in 1839 but not since, *Amyema melaleuca* (see Frewer *et al.* 1985) and *Acacia truncata* (WA Herbarium specimen). *Heliophila pusilla*, *Reseda alba* and *Waitzia nitida* were only collected in about 1928, and *Sorghum bicolor* only in 1946–47 (WA Herbarium specimens).

There was a comparatively rapid turnover of species on the island between the late 1950s and late 1990s. Forty-four of the total 201 species (22%) known to have been present in the late 1950s were not recorded at the end of the century, while 38 additional species were found. The 82 species that either became extinct or immigrated are listed in Table 2.

The overall rate of turnover (immigrations plus extinctions) was almost 2 species per annum over the 42 years between the surveys, or 1% *pa*. Exotics had a turnover rate twice that of native species (0.7% species *pa* compared with 0.3% *pa*). The number of extinctions and immigrations was significantly higher for exotics than for native species ( $\chi_1^2 = 4.06$ ,  $P < 0.05$ ).

Overall, there was a tendency for native species to give way to exotics and for annuals to give way to perennials. The proportion of native species dropped from 62% to 58%, and the proportion of annuals dropped from 41% to 37%. The majority of native species recorded were perennial (73%, or 83 in a total 113 native species in the recent survey) but only a minority of the introduced species (36% or 30/83) were perennial.

The difference between the number of annuals that immigrated/became extinct compared with perennials was not statistically significant ( $\chi_1^2 = 2.86$ ,  $P > 0.05$ ). Annuals had an extinction rate higher than the immigration rate (0.3% *pa* compared with 0.2% *pa*), while perennials had a higher immigration than extinction rate (again 0.3% *pa* compared with 0.2% *pa*).

*Argyranthemum frutescens* (marguerite) was recorded for the first time in 1986. This garden escape was eradicated at that time (Keighery 1986) and is a good example of successful eradication following rapid response to a naturalisation event. This species was the only recognised example of crypto-turnover in this study, being present between the two censuses but not recorded at either.

Deleted species names are provided in Appendix 3. Appendix 4 lists 35 exotic species cultivated outside gardens, which have not become naturalised.

## Discussion

The revision necessary to achieve our Rottneest flora list involved the deletion of 122 species names, which are given in Appendix 3 together with explanatory notes. Half of the discarded names reflected simple taxonomic changes, with the older lists particularly requiring updating. Some of the revisions were complicated by two name changes. Others involved the splitting of one taxon into two; in cases where no material from Rottneest Island had been preserved by earlier collectors it was not possible to determine which of the two new categories had been recorded. A number of species listed by Storr (1962) and others who drew on his work appeared to have been misidentified. These were species that were not supported by herbarium specimens; where a species was not re-collected in the recent survey but a similar species was found, often in the location recorded previously, we assumed that the two species were the same. Nomenclatural problems that could not be resolved are addressed in Appendix 1.

The total number of extant species recorded changed little between the late 1950s and the end of the century, with 201 and 196 species respectively. The stability in the total number of species found on Rottneest Island over the past half century supports MacArthur & Wilson's (1967) theory of island biogeography, which states that the number of terrestrial species on islands tends to remain in equilibrium, with immigrations balancing extinctions. The total species number, according to their theory, is determined by the size of the island, the time since isolation and the distance from the nearest landmass. Comparable flora studies (Table 3) carried out on seven neighbouring, albeit much smaller islands, in the late 1950s showed that total species number did reflect the area of each island, as predicted by MacArthur & Wilson (1967). However, by the late 1990s most of the smaller islands had experienced drastic declines in biodiversity. This loss of species was associated with increasing numbers of nesting seabirds and invasion by *Malva dendromorpha* and other coprophilic alien plant species (Rippey *et al.* 2002). These influences were very restricted on Rottneest Island itself, but important on its satellite

Table 3

Number of plant species on islands off Perth in the late 1950s and the late 1990s (Garden Island is excluded from this comparison because no recent figures are available). Isolation is distance to mainland or nearest island.

	Area (ha)	Isolation (kilometres)	Species in late 1950s	Species in late 1990s	% change
Rottneest Island	1 900	17	201	196	-2
Carnac Island	16	8	82 a	62 b	-24
Penguin Island	12	0.7	74 a	76 c	+3
Seal Island	1.2	1	41 a	17 c	-59
Bird Island	0.9	0.3	31 a	14 c	-55
Dyer Island	0.6	1	18 a	17	-6
Shag Island	0.4	1.1	24 a	16 c	-33
Green Island	0.1	0.1	18 a	14	-20

<sup>a</sup> for 1959 (Abbott 1977); <sup>b</sup> for 1995 (Abbott *et al.* 2000); <sup>c</sup> for 1998 (Rippey *et al.* 1998)

islets, Dyer and Green Islands. A criticism of the theory of island biogeography (Sauer 1969) is the implication that equilibrium in the total number of species represents stability and characterises the community structure of an island. On Rottneest Island, the equilibrium between immigrations and extinctions masked the dynamic nature of the flora and considerable change in terms of species composition.

The vegetation of Rottneest Island contained a large proportion of exotic species, comprising 42% or 83 of a total 196 species in 1998–2001. The comparable figure for the Perth region was 27%, or 547 aliens in a total 2057 species (Marchant *et al.* 1987), and for Western Australia as a whole 11%, or 1052 in a total of 9640 (Paczkowska & Chapman 2000). The turnover rate of 2 species per annum (1.0% *pa*) between the two surveys was high, with exotic species proving particularly mobile.

Rottneest Island is fairly large (1900 ha) with varied habitats, but its flora is depauperate compared with the adjacent mainland. A grassy *Acanthocarpus* heath of low diversity is now the most widespread of the vegetation communities on the island, a situation not recorded before the 1950s. The greatest changes to the island's flora probably took place over the first 100 years of human settlement, when there was clearing, burning, tree cutting, and farming with the introduction of crop species and their attendant weeds and grazing by farm animals. The quokka population was suppressed by hunting. Storr's (1962) survey recorded the plant species on the island after this time, when farming had ceased, the quokka population had recovered, and the island had roads and a reliable water supply. Major disturbance factors had been absent for a decade, with the notable exception of the widespread fire of 1955.

Very few of the species introduced with the farming enterprises survived to the late 1950s. Storr (1962) recorded no agricultural annuals (their palatability and lack of dormancy presumably ensured their early demise) but the perennials *Ricinus* (Ferguson 1986) and *Agave* (Keighery 1988) persisted, as well as some long-lived fruit trees planted beside Garden Lake. Agricultural weeds presumably were abundant during farming operations, but few of these survived the harsh climate and quokka grazing. Some, such as *Avena barbata*, *Arctotheca calendula* and *Centaurea melitensis*, were recorded by Storr (1962), and were still present on the island in our survey but were rare. The tendency for annuals to give way to perennials is classic succession, following disturbance. However the present low prevalence of annuals may be due to their greater vulnerability to quokka grazing.

The vegetation of Rottneest Island has not had the same intensity of disturbance since Storr's (1962) census but conditions have not returned to the pre-European situation. First, there has been increasingly heavy traffic between the island and the mainland, attendant upon thousands of visitors each year (currently around 500 000 *pa*), which provided many opportunities for the introduction of new weed species. Secondly, wildfires that could revitalise the vegetation and temporarily reduce grazing by quokkas, have been infrequent and quickly controlled. Thirdly, the quokka population presumably has become so large that it dominates the makeup of the flora, in effect preventing the regeneration

of palatable species, including the tree species (Pen & Green 1983).

Many of the plant extinctions on Rottneest Island may have taken place shortly after Storr's (1962) census in the aftermath of more recent fires and disturbance events. Certainly 29 of the 44 species that became extinct were known to have been rare in the late 1950s. Storr (1962) recorded 25 as such, mentioning that two of them (*Dodonaea aptera* and *Portulaca oleracea*) were known from only one specimen. A further 4 species were not recorded by Storr (1962) at all, but were known to have been on Rottneest Island from single WA Herbarium specimens collected in the late 1950s (*Bromus madritensis*, *Heliotropium curassavicum*, *Polypogon tenellus* and *Zygophyllum billardierei*). Significantly the majority of the species that became extinct were noted by Storr (1962) as being grazed or heavily grazed by quokkas.

Exotics made up an increasing proportion of the flora, and showed a particularly rapid turnover. These introduced species were concentrated in the developed areas, where they dominated the flora, but some were widespread across the island. The 35 exotic trees and shrubs listed in Appendix 4 include relics of nineteenth century market gardens and orchards, shading ornamentals for the benefit of twentieth-century tourists, and reforestation species. These are of historic and landscaping or ornamental significance, as well as being potential sources for future naturalisations. Nine of the species that had been cultivated on the island became naturalised between the late 1950s and 1998–2001; specifically *Agave attenuata*, *Caesalpinia gilliesii*, *Casuarina glauca*, *Eucalyptus utilis*, *Ficus rubiginosa*, *Iris* sp., *Melia azedarach*, *Narcissus tazetta* and *Nerium oleander*. These are included in the comprehensive list of Rottneest flora (Appendix 2).

A number of introduced species were considered a threat to the vegetation of the island and have been targeted for eradication, including *Zantedeschia aethiopica*, *Euphorbia paralias*, *Ricinus communis*, *Rhamnus alaternus* and *Nicotiana glauca*. *Gomphocarpus fruticosus* is a noxious weed that was eradicated from all but one site, where it was retained because it was the only food plant on the island for the Wanderer butterfly (*Danaus plexippus*) and the native Lesser Wanderer (*Danaus chrysippus*) (Hay *et al.* undated).

Some of the species that immigrated or became extinct merit comment. *Pelargonium littorale* ssp. *littorale* was 'widespread and abundant' in the 1950s according to Storr (1962), although subject to heavy grazing. This was not collected in 1998–2001; possibly it had been eaten out by quokkas. *Malva australiana*, which was recorded by Storr (1962) as common on the islets, could not be found, and has apparently been supplanted by the European tree mallow, *Malva dendromorpha*. *M. australiana* is now rare on the islands off Perth, persisting only on Carnac (Abbott *et al.* 2000) and Middle Shag Islands (Rippey *et al.* 2002). *M. australiana* and *M. dendromorpha* are palatable to quokkas and so do not occur on Rottneest itself, except for a clump of *M. dendromorpha* on the islet in Lake Baghdad. *M. dendromorpha* occasionally hybridises with *M. australiana*, an example of genetic pollution. The native *Hydrilla verticillata* was collected in 1955 from a small pool on the south east edge of Government House Lake and was identified by Storr (1962) as *Elodea canadensis*, an



alien species that does not occur in Western Australia (Hussey *et al.* 1997). The habitat still exists, but *H. verticillata* has disappeared, and it is likely that it was eradicated because of its resemblance to *Elodea*, an declared alien species. One recent introduction of interest was *Euphorbia paralias* along beaches. This was probably introduced on boats, an inevitable event in view of its widespread distribution along the mainland coast south of Perth (Keighery & Dodd 1997).

The native *Anthocercis littorea* was recorded on Rottneest Island for the first time after a fire in 1997. Its seeds are hardcoated and can remain dormant until fire or disturbance of the soil cause germination (Powell & Emberson 1981; Haegi *et al.* 1982), yet this very conspicuous perennial species was not recorded during the botanical surveys after the 1955 fire, which included the site of the present specimen (500 m west of Barker Swamp). Birds are probably not responsible for bringing its seeds to the island, as the capsules are dry and the seeds are small, making them more suited to insect dispersal (L Haegi, Royal Botanic Gardens, Sydney, personal communication). It is possible that the seeds of this species have remained viable in the soil for many decades. Whatever its origin, this one plant is a true 'first record' for Rottneest of a coastal species that is common on the mainland (Rippey & Rowland 1995).

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APPENDIX 1  
TAXONOMIC ISSUES

1. *Erythraea centaurium*  
*E. centaurium* as used by Storr and O'Connor was a misapplied name for *Centaurium erythraea* (Paczkowska & Chapman, 2000)  
*C. erythraea* has long been confused with *C. tenuiflorum* and *C. pulchellum*, both recorded for Rottnest Island.  
*Centaurium* is a very difficult genus and differences between closely related species are often very slight, making identification difficult.
2. *Lepidosperma* spp  
The taxonomy of the genus *Lepidosperma* is particularly complex and the boundaries between related taxa are not always clear. Such is the case between *L. squamatum* and *L. pubisquamatum*. Only *L. gladiatum* and *L. pubisquamatum* are included in the definitive list (Appendix 2).
3. *Didiscus pusillus* was listed by Storr (1962). Marchant & Abbott (1981) mention that *Trachymene pilosa* was previously known as *Didiscus pilosus*. In the absence of WA Herbarium vouchers, perhaps this could have been a pale *Trachymene coerulea*. Plants with white flowers certainly occur, and can be stunted in marginal sites. However *T. pilosa* certainly occurs on Garden Island, and could well have occurred on Rottnest Island. It is presumed extinct.
4. Names applied to samphires on Rottnest Island since 1962

Storr (1962)	O'Connor (1977)	Frewer (1985)	Rottnest Regional Herbarium
<i>Arthrocnemum halocnemoides</i> <sup>1</sup>	→ <i>A. halocnemoides</i>	→ <i>Halosarcia halocnemoides</i>	→ <i>H. halocnemoides</i>
<i>Arthrocnemum arbuscula</i> <sup>1,2</sup>	→ <i>A. arbuscula</i>	→ <i>Halosarcia indica</i>	→ <i>Halosarcia indica</i>
<i>Salicornia australis</i>	→ <i>Salicornia quinqueflora</i>	→ <i>Salicornia quinqueflora</i>	→ <i>Sarcocornia quinqueflora</i>
		→ <i>Sarcocornia blackiana</i>	→ <i>Sarcocornia blackiana</i>

<sup>1</sup> Storr's descriptions possibly transposed.

<sup>2</sup> This is a synonym of *Sclerostegia arbuscula* which is only known from the south coast. Probably an incorrect identification of *Halosarcia indica*.

## Appendix 2

Flora list for Rottnest Island. The authority for nomenclature was Paczkowska & Chapman (2000) unless otherwise stated.

## Explanatory notes:

- 1: listed by Storr (1962) or mentioned in Storr et al. (1959). This column represents the first flora census, late 1950s.  
 2: Listed O'Connor (1977)  
 3: Listed Marchant & Abbott (1981)  
 4: Listed Frewer et al. (1985)  
 5: Rottnest Regional Herbarium. This column represents the current flora census, 1998-2001  
 6: Vouchered specimens with the Western Australian Herbarium at 21.5.2001  
 \*denotes introduced species; [...] signifies name/s used by previous author/s; () authorities and general notes; X denotes a species not recorded by Storr or RRH but for which a specimen was lodged at the WA Herbarium at about the time of the census, or seagrasses or orchids (these can be difficult to collect so were poorly represented in censuses but were believed to be present on the island), or species recorded before and after the 1950s census or shortly before the 1998-2001 census and thus considered present at the time of the relevant census; ? denotes species recorded by Storr (1962) but not supported by a WA Herbarium voucher, which now may be either one of two species.

FAMILY	BOTANICAL NAME	1	2	3	4	5	6	NOTES	COMMON NAME
Agavaceae	*Agave americana	y	y		y	y	1986	(Authority: Bodkin 1993)	century plant
Agavaceae	*Agave attenuata	X			y	y	1986-87	Present since at least 1940s, and eradicated 1987 (Keighery, 1988)	
Agavaceae	*Agave sisalana				y	y	1998-99	[C aequilaterus - Storr, O'Connor]	coastal pigface
Alzooaceae	Carpobrotus virescens		y	y	y	y			
Alzooaceae	*Mesembryanthemum crystallinum	y	y		y	y	1998-99	[Cryophytum crystallinum - Storr, Gasoul crystallinum - O'Connor]	common iceplant
Aizoaceae	*Tetragonia decumbens	y	y	y	y	y		[T. zeyheri - Storr, O'Connor]. Possibly extinct	sea spinach
Aizoaceae	Tetragonia implexicoma	y	y	y	y	y	1839-1998	[Tetragonia amplexicoma - M&A, WA Herb]	bower spinach
Amaranthaceae	Hemichroa pentandra	y	y		y		1956	Collected only in 1956. Probably extinct	trailing joint weed
Amaryllidaceae	*Leucojum aestivum	y	y		y			Naturalised at Bathurst Point from cultivated specimens. Apparently extinct	snowflake
Amaryllidaceae	*Narcissus tazetta					y	1981-2000	First collected 1981	jonquil
Anthericaceae	Thysanotus patersonii	y	y	y	y	y	1920s-2000		twining fringe lily
Apiaceae	Apium annuum	y	y	y	y	y	1956-99	[Apium australe - Storr, O'Connor. Apium prostratum - M&A, Frewer]	
Apiaceae	Daucus glochidiatus	y	y	y	y	y	1956-99		Aust. carrot
Apiaceae	Hydrocotyle blepharocarpa	X			y	y	1956-2000		
Apiaceae	Hydrocotyle diantha	y	y		y	y	1999		
Apiaceae	Hydrocotyle hamelinensis	y	y	y	y	y	2000		
Apiaceae	Hydrocotyle hispidula	y	y	y	y	y	1999	[H. tetragonacarpa - Storr, O'Connor, M&A, Frewer, WA Herb]	
Apiaceae	Trachymene coerulea	y	y	y	y	y	1972-98	[Didiscus caeruleus - Storr, T. coerulea - O'Connor, M&A, Frewer]. See taxonomic issues - appendix 1	Rottnest Island daisy
Apiaceae	subsp coerulea							[Didiscus pusillus - Storr]. See taxonomic issues	native parsnip
Apiaceae	Trachymene pilosa	y		y	y	y	1956-98		dysentery bush
Apocynaceae	Alyxia buxifolia	y	y	y	y	y	1998	Naturalised from cultivated specimen	oleander
Apocynaceae	*Nerium oleander	y	y	y	y	y	1987-98	Eradication target	arum lily
Araceae	*Zantedeschia aethiopica	y	y	y	y	y	1986-98	[Asclepias fruticosa - Storr, O'Connor]	narrowleaf cottonbush
Asclepiadaceae	*Gomphocarpus fruticosus	y	y		y	y			onion weed
Asphodelaceae	*Asphodelus fistulosus	y	y	y	y	y	1950-1998		leek lily
Asphodelaceae	Bulbine semibarbata	y	y	y	y	y		[Bulbinopsis semibarbata - O'Connor]	S.A. onion weed
Asphodelaceae	*Trachyantra divaricata	y	y	y	y	y	1995-99	[Anthericum divaricatum - Storr]	
Asteraceae	Millotia myosotidifolia	y	y	y	y	y	2000	[M. tenuifolia - Storr, O'Connor, Frewer]. Only collection 2000	capeweed
Asteraceae	*Arctotheca calendula	y	y	y	y	y	1999		dune arctotheca
Asteraceae	*Arctotheca populifolia	y	y	y	y	y		[A. nivea - Storr]. Presumed extinct	

Asteraceae	*Argyranthemum frutescens								Recorded 1986 (G. Keighery 1986) and eradicated	marguerite
Asteraceae	*Carduus pycnocephalus	y	y	y	y	1956-2000			[C. tenuiflorus - Storr, O'Connor, Frewer]. Presumed extinct	slender thistle
Asteraceae	*Centaurea melitensis	y	y	y	y	2000				maltese cockspar
Asteraceae	*Cirsium vulgare	y	y	y	y	1999			One collection 2000	spear thistle
Asteraceae	*Conyza alba	y	y	y	y	1990-99			[Erigeron canadensis - Storr, O'Connor, Conyza bonariensis - M&A, Conyza canadensis - Frewer]	tall fleabane
Asteraceae	Cotula australis	y	y	y	y	1998-99				carrot weed,
Asteraceae	Cotula coronopifolia	y	y	y	y	1998-99				common cotula
Asteraceae	*Dittrichia graveolens	y	y	y	y	1976-99			[Inula graveolens - Storr]	water buttons
Asteraceae	*Hedynois rhagadioloides	y	y	y	y	1998				stinkwort
Asteraceae	*Hypochoeris glabra	y	y	y	y					cretan weed
cat's ear	Leucophyta brownii	y	y	y	y	1998-99			[Calocephalus brownii - Storr, O'Connor, M&A, Frewer]	flatweed, smooth
Asteraceae	Olearia axillaris	y	y	y	y	1998-99				cushion bush
Asteraceae	Podotheca angustifolia	y	y	y	y	1920s-99			[Podosperma angustifolium - Storr]	native rosemary,
Asteraceae	Senecio latus	?X	y	?	y	1956-2000			[Senecio latus - Storr, M&A, Frewer, RRH, WA Herb]. Where unvouchered, cannot determine which taxon was recorded	coastal daisy bush
Asteraceae	Senecio dissectifolius	?X	y	?	y	1956-99			[Senecio latus - Storr, M&A, Frewer, RRH, WA Herb]. Where unvouchered, cannot determine which taxon was recorded	sticky longheads
Asteraceae	Senecio latus		y	?	y					variable groundsel
Asteraceae	subsp. maritimus	y	y	y	y	1999			Collected approx. 1920s. Presumed extinct	coastal groundsel
Asteraceae	*Sonchus oleraceus	y	y	y	y	1920s			First collected 1999	common sowthistle
Asteraceae	Waitzia nitida					1999-2000			Collected 1959. Presumed extinct	
Asteraceae	Angianthus preissianus	X				1959			Only collected 1956. Presumed extinct	
Boraginaceae	Heliotropium curassavicum	y	y	y	y	1956				smooth heliotrope
Boraginaceae	Myosotis australis	y	y	y	y	1920s-99				southern
Brassicaceae	*Cakile maritima	y	y	y	y	1987-99				forget-me-not
Brassicaceae	*Coronopus didymus	y	y	y	y	1956			One specimen 1956. Presumed extinct	sea rocket
Brassicaceae	*Diplotaxis muralis	y	y	y	y	1920s			One collection late 1920s. Presumed extinct	lesser swinecress
Brassicaceae	*Heliophila pusilla	y	y	y	y	1956-99			[Hymenolobus procumbens - Storr, O'Connor, M&A, Frewer]	wall rocket
Brassicaceae	Homungia procumbens	y	y	y	y	1999			Offshore islets only	oval pursue
Brassicaceae	Lepidium foliosum	y	y	y	y				One specimen collected 1999	leafy pepper cress
Brassicaceae	*Raphanus raphanistrum	y	y	y	y				Presumed extinct	wild radish
Brassicaceae	*Sisymbrium orientale	y	y	y	y	1996-98			Naturalised from a cultivated specimen. Eradication target	Indian hedge
Caesalpinaceae	*Caesalpinia gilliesii					1999				mustard
Callitrichaceae	*Callitriche stagnalis	y	y	y	y				[A. serpyllifolia - Storr, O'Connor]	common starwort
Caryophyllaceae	*Arenaria leptoclados	y	y	X	y	1987			[Cerastium viscosum - Storr, O'Connor]	chickweed
Caryophyllaceae	*Cerastium glomeratum	y	y	y	y	1995-99			First collected 1995	four leaf allseed
Caryophyllaceae	*Cerastium balaericum	y	y	y	y	1999			[S. apetala - Storr, O'Connor, M&A, Frewer]	Mediterranean
Caryophyllaceae	*Minuartia mediterranea	y	y	y	y	1987-99			Presumed extinct	catchfly
Caryophyllaceae	*Polycarpon tetraphyllum	y	y	y	y				[Stellaria media: Storr, O'Connor, M&H, Frewer, RRH, WA Herb]	chickweed
Caryophyllaceae	*Sagina maritima	y	y	y	y	1987-99			Naturalised from a cultivated specimen	wiry centrolepis
Caryophyllaceae	*Silene nocturna	y	y	y	y	2000			One collection 1956. Presumed extinct	grey saltbush
Caryophyllaceae	*Stellaria pallida	y	y	y	y	1956			[A. paludosa - Storr, O'Connor]	coast saltbush
Casuarinaceae	*Casuarina glauca	y	y	y	y	1920s-1998				
Centropodiaceae	Centrolepis polygyna	y	y	y	y	1839-1999				
Chenopodiaceae	Atriplex cinerea	y	y	y	y					
Chenopodiaceae	Atriplex isadita	y	y	y	y					

FAMILY	BOTANICAL NAME	1	2	3	4	5	6	NOTES	COMMON NAME
Chenopodiaceae	*Chenopodium murale	y	y	y	y	y	1998-99	Presumed extinct	nettle-leaf goosefoot
Chenopodiaceae	Enchylaena tomentosa var tomentosa	y	y	y	y	y	1998-99	[E. tomentosa - Storr, O'Connor, M&A, Frewer]	barrier saltbush
Chenopodiaceae	Halosarcia halocnemoides subsp halocnemoides	y	y	y	y	y	1978-98	[Arthrocnemum halocnemoides - Storr, O'Connor; Halosarcia halocnemoides - Frewer]. See taxonomic issues	shrubby samphire
Chenopodiaceae	Halosarcia indica subsp bidens	y	y	?	y	y	1956-98	[Arthrocnemum arbuscula - Storr, O'Connor] See taxonomic issues	sea berry saltbush
Chenopodiaceae	Rhagodia baccata subsp baccata	?	?	?	?	y	1998-99	[R. baccata - Storr, O'Connor, M&A, Frewer, RRH, WA Herb]; Where unvouchered, cannot determine which taxon was recorded	berry saltbush
Chenopodiaceae	Rhagodia baccata subsp dioica	?	?	?	?	?	1976	[R. baccata - Storr, O'Connor, M&A, Frewer, RRH, WA Herb]. Where unvouchered, cannot determine which taxon was recorded	berry saltbush
Chenopodiaceae	Sarcocornia blackiana	X	y	y	y	y	1956-99	[Sarcocornia sp - RRH, WA Herb]	samphire
Chenopodiaceae	Sarcocornia quinqueflora	y	y	y	y	y	1979-99	[Salicornia australis - Storr; Salicornia quinqueflora - O'Connor; Sarcocornia sp - RRH, WA Herb]	beaded samphire
Chenopodiaceae	Suaeda australis	y	y	y	y	y	1981-99		seablite
Chenopodiaceae	Threlkeldia diffusa	y	y	y	y	y	1998-99		coast bonefruit
Colchicaceae	Wurmbea monantha	y	y	y	y	y	1920s	[Anguillaria dioica - Storr; W. dioica - O'Connor, Frewer]. One collection about 1920s. Presumed extinct	
Convolvulaceae	Dichondra repens	y	y	y	y	y	1956-98		kidney weed
Convolvulaceae	Wilsonia humilis	y	y	y	y	y	1947-1999	[W. backhousei - Frewer]	silky wilsonia
Crassulaceae	Crassula colorata var. colorata	y	y	y	y	y	1956-1999	[C. colorata - Storr, O'Connor, M&A, Frewer, WA Herb]	dense stoncrop
Crassulaceae	Crassula decumbens var decumbens	y	y	y	y	y	1999	[C. macrantha - Storr, O'Connor, C. decumbens - Frewer]	rufous stoncrop
Crassulaceae	*Crassula glomerata	y	y	y	y	y	1971-99		
Crassulaceae	*Crassula natans var. minus	y	y	y	y	y	1956	[Crassula natans - Storr, O'Connor, Frewer]. Presumed extinct	
Crassulaceae	*Crassula thunbergiana subsp thunbergiana	y	y	y	y	y	1999		
Cupressaceae	Callitris preissii	y	y	y	y	y	1998-99		Rottnest Island pine
Cymodocaceae	Amphibolis antarctica	y	y	y	y	y			seagrass, sea nymph
Cymodocaceae	Amphibolis griffithii	X	y	y	y	y		[Cymodocea antarctica - Storr]	seagrass
Cymodocaceae	Syringodium isoetifolium	X	y	y	y	y			seagrass
Cymodocaceae	Thalassodendron pachyrhizum	X	y	y	y	y			seagrass
Cyperaceae.	Carex preissii	y	y	y	y	y	2000		sedge
Cyperaceae.	Gahnia trifida	y	y	y	y	y	1954-98		coast saw sedge
Cyperaceae.	*Isoplepis marginata	y	y	y	y	y	1998-99	[Scirpus antarcticus - Storr, O'Connor; S. marginatus - Frewer]	coarse club rush
Cyperaceae.	Ficinia nodosa	y	y	y	y	y	1999	[Scirpus nodosus - Storr, O'Connor, M&A, Frewer; Isoplepis nodosa - RRH, WA Herb]	knotted club rush
Cyperaceae.	Lepidosperma gladiatum	y	y	y	y	y	1956-98		coastal sword sedge
Cyperaceae.	Lepidosperma pubisquamum	y	y	y	y	y	1956-99	[L. resinosum - Storr, O'Connor; L. squamatum - WA Herb; L. angustatum - Storr, O'Connor, M&A, Frewer; L. sp - WA Herb]. See taxonomic issues - appendix 1	
Cyperaceae.	Schoenus nitens	y	y	y	y	y	1999	One collection only, 1999	shiny bog rush
Cyperaceae.	Baumea juncea	y	y	y	y	y	1956-98	[Hypolaena sp - Storr, O'Connor, Frewer]	bare twig rush
Dasygongonaceae	Acanthocarpus preissii	y	y	y	y	y	1998-99		prickle lily
Droseraceae	Drosera ramellosa	X	y	y	y	X	1839	Collected Preiss 1839. Recorded A. Weston about 1983 and G. Keighery 1995 near Bickley Swamp	branched sundew
Epacridaceae	Acrotiche cordata	y	y	y	y	y	1999-2000		coast ground berry
Epacridaceae	Leucopogon insularis	y	y	y	y	y	1956-99	Type collection of this species made at Rottnest	coast beard-heath
Epacridaceae	Leucopogon parviflorus	y	y	y	y	y	1920s-1999		

Euphorbiaceae	<i>Beyeria viscosa</i>	y	y	y	y	1951-99	Recorded Storr 1959, not Storr 1962	pinkwood
Euphorbiaceae	* <i>Euphorbia paralias</i>	y	y	y	1996-1999	1996-1999	Eradication target	sea spurge
Euphorbiaceae	* <i>Euphorbia peplus</i>	y	y	y	1995-98	1995-98		petty spurge
Euphorbiaceae	<i>Phyllanthus calycinus</i>	y	y	y	1920s-2000	1920s-2000		false boronia
Euphorbiaceae	<i>Poranthera drummondii</i>	y	y	y	1920s-1956	1920s-1956	[P. microphylla - Storr, O'Connor, M&A, Frewer]. Presumed extinct	small poranthera
Euphorbiaceae	* <i>Ricinus communis</i>	X	y	y	1986-98	1986-98	Cultivated 1884 (Ferguson, 1986). First collected 1886. Eradication target	castor oil plant
Frankeniaceae	<i>Frankenia pauciflora</i>	X	y	y	1998	1998		common sea heath
Gentianaceae	* <i>Centaureum pulchellum</i>	?X	?	?	1956	1956	See taxonomic issues - appendix 1	spike centaury
Gentianaceae	<i>Centaureum spicatum</i>	?	?	?	1998	1998	See taxonomic issues - appendix 1	common storksbill
Gentianaceae	* <i>Centaureum tenuiflorum</i>	?	y	y	1998	1998		dove's foot
Geraniaceae	* <i>Erodium cicutarium</i>	y	y	y	1999	1999	Presumed extinct in 1998-2001, but collected again in 2002	crane's bill
Geraniaceae	* <i>Geranium molle</i>	y	y	y				
Geraniaceae	<i>Pelargonium littorale</i>	y	y	y	1956	1956	[P. australe - Storr, O'Connor. P. capitatum - M&A, Frewer]. Only collected 1956, presumed extinct	fan flower
Geraniaceae	subsp littorale							grey cottonhead
Goodeniaceae	<i>Scaevola crassifolia</i>	y	y	y	1920s-99	1920s-99		
Haemodoridae	<i>Conostylis candicans</i>	y	y	y	1896-1998	1896-1998	[C. candicans - Storr, O'Connor, M&A, Frewer, WA Herb]	sea wrack, paddle weed
Hydrocharitaceae	subsp calcicola	X						
Hydrocharitaceae	<i>Halophila ovalis</i>	X						
Hydrocharitaceae	<i>Hydrilla verticillata</i>	y	y	y	1957	1957	[ <i>Elodea canadensis</i> - Storr, O'Connor]. Collected 1957 only. Possibly eradicated due to mistaken identification as noxious weed	water thyme
Iridaceae	* <i>Ferraria crispa</i> subsp. <i>crispa</i>	y	y	y	1987-99	1987-99	[F. undulata - Storr, O'Connor. F. crispa - Frewer.]	black flag
Iridaceae	* <i>Iris sp</i>	y	y	y			Naturalised from cultivated specimens	flag iris
Iridaceae	* <i>Moraea flaccida</i>	y	y	y	1994-99	1994-99	First collected 1994	one-leaf Cape tulip
Iridaceae	* <i>Moraea miniata</i>	y	y	y	1999	1999	[ <i>Homeria miniata</i> - Storr, O'Connor, M&A, Frewer]	two-leaf Cape tulip
Iridaceae	* <i>Romulea rosea</i> var. <i>australis</i>	y	y	y	1999	1999		Guildford grass
Juncaceae	<i>Juncus bufonius</i>	y	y	y			Presumed extinct	toad rush
Juncaceae	<i>Juncus kraussii</i>	y	y	y	1956	1956	[ <i>Juncus maritimus</i> - Storr, O'Connor. J. pallidus - M&A, J. kraussii - Frewer]. Collected only 1956. Presumed extinct	shore rush, sea rush
Juncaceae	subsp australiensis							
Juncaginaceae	<i>Triglochin mucronata</i>	y	y	y	1956-99	1956-99	[ <i>Cycnogeton procerum</i> - Storr, O'Connor. <i>Triglochin procerum</i> - Frewer]	prickly arrowgrass
Juncaginaceae	<i>Triglochin trichophora</i>	y	y	y	1956-99	1956-99	[T. centrocarpum var. <i>brevicarpa</i> - Storr, O'Connor. T. centrocarpum - Frewer]	westringia
Lamiaceae	<i>Westringia dampieri</i>	y	y	y	1920s-1998	1920s-1998	[W. rigida - O'Connor]	angled lobelia
Lobeliaceae	<i>Lobelia alata</i>	X			1929, '98, '99	1929, '98, '99		wiry mitrewort
Loganiaceae	<i>Phyllanthum paradoxum</i>	y	y	y			[ <i>Mitrasacme paradoxa</i> - Storr, O'Connor, Frewer]. Possibly extinct	mistletoe
Loranthaceae	<i>Amymma melaleuca</i>	y	y	y	1956	1956	Only collected 1839. Presumed extinct	Australian
Malvaceae	<i>Malva australiana</i>	y	y	y			[ <i>Lavatera plebeia</i> - Storr, O'Connor, Frewer]. Offshore islets only	hollyhock
Malvaceae	* <i>Malva dendromorpha</i>				1994-99	1994-99	Presumed extinct Only from offshore islets and Little Is. in L. Bagdad	European tree mallo
Malvaceae	* <i>Malva parviflora</i>	y	y	y			Presumed extinct	marshmallow
Meliaceae	* <i>Melia azedarach</i>	y	y	y	1999	1999	Naturalised from cultivated specimens	Cape lilac
Mimosaceae	<i>Acacia cyclops</i>	y	y	y	1998	1998	[A. cyclops - Storr, O'Connor]	coastal wattle
Mimosaceae	<i>Acacia littorea</i>	y	y	y	1839-1999	1839-1999	[A. cuneata - Storr, O'Connor]	summer-scented wattle
Mimosaceae	<i>Acacia rostellifera</i>	y	y	y	1839-1999	1839-1999		
Mimosaceae	<i>Acacia truncata</i>				1839	1839	Collected L. Preiss 1839. Presumed extinct	
Moraceae	* <i>Ficus rubiginosa</i>	y	y	y	1903-98	1903-98	Naturalised from cultivated specimens	tar bush
Myoporaceae	<i>Eremophila glabra</i>	y	y	y			[E. glabra - Storr, O'Connor, M&A, Frewer, RRH, WA Herb]	
Myoporaceae	subsp albicans ms							
Myoporaceae	<i>Myoporum caprarioides</i>	y	y	y	1999	1999	[M. viscosum - Storr, O'Connor]	slender myoporium

FAMILY	BOTANICAL NAME	1	2	3	4	5	6	NOTES	COMMON NAME
Myoporaceae	<i>Myoporum insulare</i>	y	y	y	y	y	1945-99	[M. adscendens - M&A, M. tetrandrum - WA Herb]	boobialla, blueberry
tree									
Myrtaceae	* <i>Eucalyptus utilis</i>		y	y	y	y	1921-99	[E. platypus var. heterophylla - Frewer]. Naturalised	coastal moort
Myrtaceae	<i>Melaleuca lanceolata</i>	y	y	y	y	y		[M. pubescens - Storr]	Rottnest Island
teatree									
Orchidaceae	<i>Caladenia latifolia</i>	y	y	y	y	y	1928-99	[ <i>Acianthus reniformis</i> - Storr, O'Connor, M&A, Frewer]	pink fairies
Orchidaceae	<i>Cyrtostylis huegeli</i>	y	y	y	y	y	1999		midge orchid
Orchidaceae	<i>Eriochilus dilatatus</i>	y	y	y	y	X			white bunny orchid
Orchidaceae	<i>Leporella fimbriata</i>	X	y		y	X			hare orchid
Orchidaceae	<i>Microtis media</i>	X			X	X		Recorded on Rottnest, pers. comm. A. Brown	mignonette orchid
Orchidaceae	<i>Prasophyllum giganteum</i>	y	y		y	X	1920s	Recorded on Rottnest, pers. comm. A. Brown	bronze leek porchid
Orchidaceae	<i>Pterostylis aspera</i>	X			X	X		Recorded for Rottnest, pers. comm A. Brown	brown-veined shell orchid
Orchidaceae	<i>Pterostylis sanguinea</i>	X			X	X		Recorded for Rottnest, pers. comm A. Brown	dark banded greenhood orchid
Orchidaceae									lesser broomrape
Orobanchaceae	* <i>Orobanche minor</i>	y	y	y	y	y	1999	[ <i>Orobanche australiana</i> - Storr, O'Connor, M&A]. Presumed extinct	yellow wood sorrel
Oxalidaceae	* <i>Oxalis corniculata</i>	y	y	y	y	X	1990	One collection 1990	soursob
Oxalidaceae	* <i>Oxalis pes-caprae</i>					X			burr medic
Papilionaceae	* <i>Medicago polymorpha</i>	y	y	y	y	y	1999	[M. denticulata - Storr, O'Connor]. Presumed extinct	King Island melilot
Papilionaceae	* <i>Melilotus indicus</i>	y	y	y	y	y	1920s-98		cockies' tongues
Papilionaceae	<i>Templetonia retusa</i>	y	y	y	y	y			suffocated clover
Papilionaceae	* <i>Trifolium suffocatum</i>	y	y	y	y	y		Presumed extinct	woolly clover
Papilionaceae	* <i>Trifolium tomentosum</i>	y	y	y	y	y	1999		
Pitosporeaceae	<i>Pittosporum ligustrifolium</i>	y	y	y	y	y	1920-99	[ <i>Pittosporum phylliraeoides</i> - Storr, O'Connor, M&A, Frewer, WA Herb. <i>Pittosporum phylliraeoides</i> var. <i>phylliraeoides</i> - RRH, WA Herb. <i>Pittosporum</i> sp. - WA Herb]	
Plantaginaceae	<i>Plantago debilis</i>	y	y	y	y	y	1956-2000	[P. varia - Storr, O'Connor, P. lanceolata - Frewer]	silvery hairgrass
Poaceae	* <i>Aira cupaniana</i>	y	y	y	y	y	1998		
Poaceae	<i>Austrodanthonia occidentalis</i>	y	y	y	y	y	1956-99	[ <i>Danthonia caespitosa</i> - Storr, O'Connor, Frewer]	feather speargrass
Poaceae	<i>Austrostipa elegantissima</i>						1998	First collected 1998	tussock grass
Poaceae	<i>Austrostipa flavescens</i>	y	y	y	y	y	1950-1999	[ <i>Stipa variabilis</i> - Storr, O'Connor. <i>Stipa flavescens</i> - M&A, Frewer]	
Poaceae	* <i>Avellinia michelii</i>					X	1995	One collection 1995	
Poaceae	* <i>Avena barbata</i>	y	y	y	y	y	1998-99	[A. fatua - Storr, O'Connor]	bearded oat, wild
oat									
Poaceae	* <i>Brachypodium distachyon</i>	y	y	y	y	y	1999		false brome
Poaceae	* <i>Briza minor</i>	y	y	y	y	y	1999		shivery grass
Poaceae	<i>Bromus arenarius</i>	y	y	y	y	y	1956-99		sand brome
Poaceae	<i>Bromus diandrus</i>	y	y	y	y	y	1998	[B. gussonii - Storr, O'Connor]	great brome
Poaceae	* <i>Bromus hordeaceus</i>	y	y	y	y	y	1998-99	[B. molliformis - Storr, O'Connor]	soft brome
Poaceae	* <i>Bromus madritensis</i>	X					1956	One collection 1956. Possibly extinct	Madrid brome
Poaceae	* <i>Bromus rubens</i>	y	y	y	y	y	1999		red brome
Poaceae	* <i>Cynodon dactylon</i>	y	y	y	y	y	1998		couch
Poaceae	* <i>Desmazeria rigida</i>	y	y	y	y	y		[ <i>Catapodium rigidum</i> - M&A, Frewer]. Presumed extinct	rigid fescue
Poaceae	* <i>Ehrharta brevifolia</i>	y	y	y	y	y		[E. brevifolia var. <i>cuspidata</i> - Storr, O'Connor]. Presumed extinct	annual veldtgrass
Poaceae	* <i>Ehrharta longiflora</i>	y	y	y	y	y	1999		annual veldtgrass
Poaceae	* <i>Eragrostis curvula</i>	y	y	y	y	y	1999		African lovegrass
Poaceae	* <i>Hordeum leporinum</i>	y	y	y	y	y	1999-2000	Eradication target	barley grass
Poaceae	<i>Lachnagrostis filiformis</i>	y	y	y	y	y	1998	Specimen no: E Fox 005 22.11.1998 (Perth 055336333)	

Poaceae	*Lagurus ovatus	y	y	y	y	1956-99	[Lolium sp - M&A]. Presumed extinct	hare's tail grass
Poaceae	*Lolium rigidum	y	y	y	y	1999	Presumed extinct	annual ryegrass
Poaceae	*Parapholis incurva	y	y	y	y			coast barbgrass
Poaceae	*Pennisetum clandestinum	y	y	y	y	1998-2000		kikuyu
Poaceae	*Poa annua	y	y	y	y	1951-99	[Poa caespitosa - Storr, O'Connor]	winter grass
Poaceae	*Poa poiformis	y	y	y	y	1951-99		coastal poa
Poaceae	*Polypogon maritimus	y	y	y	y	1998-99		coast beardgrass
Poaceae	*Polypogon monspeliensis	y	y	y	y	1956	One collection 1956. Presumed extinct	annual beardgrass
Poaceae	Polypogon tenellus	X	y	y	y	1998-99	[Koeleria phleoides - Storr, O'Connor. Trisetaria cristata - Frewer]	
Poaceae	*Rostraria cristata	y	y	y	y	1946-47	Collected 1946-47. Presumed extinct	
Poaceae	*Sorghum bicolor	y	y	y	y	1999		annual cat's tail
Poaceae	Spinifex hirsutus	y	y	y	y	1998		grain sorghum
Poaceae	Spinifex longifolius	y	y	y	y	1998		hairy spinifex
Poaceae	Sporobolus virginicus	y	y	y	y	1998		beach spinifex
Poaceae	*Stenotaphrum secundatum	y	y	y	y	1986-99		marine couch
Poaceae	*Vulpia fasciculata	y	y	y	y	1998-99	First collected 1998	buffalo grass
Poaceae	*Vulpia muralis	y	y	y	y	1999	First collected 1999	one-glume fescue
Poaceae	*Vulpia myuros	?X	y	y	y	1997-98		silver grass
Polygalaceae	Comesperma confertum	?X	?	y	y	1956	[Comesperma sp - Storr, O'Connor]. Cannot determine which taxon Storr and O'Connor recorded. Presumed extinct	silver grass
Polygalaceae	Comesperma integerrimum	?X	?	y	y	1903-56	[Comesperma sp - Storr, O'Connor]. Cannot determine which taxon Storr and O'Connor observed. Presumed extinct	
Portulacaceae	Calandrinia aff eremaea	y	y	y	y	1999	Specimen no: J Dodd 753 18/09/99 (Perth 05565979). Probably an unnamed taxon	twining purslane
Portulacaceae	Calandrinia brevipedata	y	y	y	y	1994-99	[C. calyptrata - Storr, O'Connor]	short-stalked purslane
Portulacaceae	Portulaca oleracea	y	y	y	y		Presumed extinct	purslane
Portulacaceae	Posidonia australis	y	y	y	y			purslane
Posidoniaceae	Posidonia coriacea	X						seagrass, fibreball weed
Posidoniaceae	Posidonia sinuosa	X						seagrass
Potamogetonaceae	Ruppia polycarpa	y	y	y	y	1956-99	[R. maritima - Storr, O'Connor]	seagrass
Potamogetonaceae	Ruppia tuberosa	y	y	X		1980	One collection only, 1980	sea tassel
Primulaceae	*Anagallis arvensis	y	y	y	y	1999	[A. femina - Storr]	pimpernel
Primulaceae	*Anagallis arvensis var caerulea	y	y	y	y	1999	(Authority: Marchant et al. 1987)	pimpernel
Primulaceae	Samolus repens	y	y	y	y	1951-99		creeping brookweed
Ranunculaceae	Clematis linearifolia	y	y	y	y	1920s-1999	[C. microphylla - Storr, O'Connor, M&A, Frewer]	old man's beard, slender clematis
Ranunculaceae	Ranunculus pumilio var politus	y	y	y	y	1956-99	[R. parviflorus - Storr, O'Connor. R. sessiliflorus - Frewer]	small flower buttercup
Resedaceae	*Reseda alba					1920s	Collected about 1928. Presumed extinct	white mignonette
Resedaceae	*Reseda luteola	y				1951	Collected 1951. Presumed extinct	wild mignonette
Rhamnaceae	*Rhamnus alaternus	y	y	y	y	1998-99	Eradication target	buckthorn
Rhamnaceae	Spyridium globulosum	y	y	y	y	1920s-1999		basket flower
Rubiaceae	*Galium murale	y	y	y	y	1946-99		small bedstraw
Rubiaceae	Boronia alata	y	y	y	y	1918-98		winged boronia
Rutaceae	Diplolaena dampieri	y	y	y	y	1920s-1998		southern diplolaena
Sapindaceae	Dodonaea aptera	y	y	y	y	1956	Apparently extinct	coast hopbush
Scrophulariaceae	*Cymbalaria muralis							ivyleaf toadflax
Scrophulariaceae	*Parentucellia latifolia	y					Presumed extinct	common bartisia



FAMILY	BOTANICAL NAME	1	2	3	4	5	6	NOTES	COMMON NAME
Scrophulariaceae	*Dischisma arenarium	y	y	y	y	y	1951-99	First collected 1999	yellow tailflower
Solanaceae	Anthocercis littorea	y	y			y	1999		african boxthorn
Solanaceae	*Lycium ferocissimum	y				y	1996		tomato
Solanaceae	*Lycopersicon esculentum	y				y	1999	One specimen in mulch near tip 1999	tree tobacco
Solanaceae	*Nicotiana glauca	y	y	y		y	1998-99	Eradication target	black berry
Solanaceae	*Solanum nigrum	y				y	1998	First collected 1998	nightshade
Solanaceae	Solanum symonii	y	y	y	y	y	1918-98	[Solanum simile - Storr]	
Stackhousiaceae	Stackhousia monogyna	y	y	y	y	y	1951-99	[S. pubescens - Storr (recorded Storr: 1959), O'Connor, Frewer]	
Sterculiaceae	Guichenotia ledifolia	y	y	y	y	y	1918-99		
Sterculiaceae	Thomasia cognata	y	y	y	y	y	1900-99		
Urticaceae	Parietaria cardiostegia	y	y	y	y	y	1974-99		forest pellitory
Urticaceae	*Urtica urens	y	y	y	y	y	1986-99	[P. debilis - Storr, O'Connor, M&A, Frewer, WA Herb]	small nettle
Zannichelliaceae	Lepilaena preissii	y	y	y	y	y	1956-2000	[Althenia preissii - O'Connor]	slender water mat
Zosteraceae	Heterozostera tasmanica	y	y		y	X		[Zostera muelleri - Storr, O'Connor. Zostera mucronata - Frewer]	eelgrass
Zygophyllaceae	Nitraria billardierei	y	y	y	y	y	1956-99	[N. schoberi - Storr, O'Connor]	nitre bush
Zygophyllaceae	Zygophyllum billardierei	X					1956	One collection, 1956. Presumed extinct	coast twinleaf
Zygophyllaceae	Zygophyllum simile	y	y	y	y	y	1998-99	[Z. apiculatum - Storr, O'Connor, Frewer]	sand twinleaf

## APPENDIX 3

DELETED NAMES (see explanatory notes with Appendix 2)

FAMILY	BOTANICAL NAME	1	2	3	4	5	6	CURRENT NAME AND NOTES
Aizoaceae	* <i>Carpobrotus aequilaterus</i>	y	y					<i>Carpobrotus virescens</i> . Misidentification
Aizoaceae	* <i>Cryophytum crystallinum</i>	y						<i>Mesembryanthemum crystallinum</i> (Marchant <i>et al.</i> 1987 p78)
Aizoaceae	* <i>Gasoul crystallinum</i>		y					<i>Mesembryanthemum crystallinum</i> (Marchant <i>et al.</i> 1987 p78)
Aizoaceae	<i>Tetragonia amplexicoma</i>			y			y	<i>Tetragonia implexicoma</i>
Aizoaceae	* <i>Tetragonia zeyheri</i>	y	y					<i>Tetragonia decumbens</i> (Paczkowska 2000 p637)
Apiaceae	<i>Apium australe</i>	y	y					<i>Apium annuum</i> . Probable misidentification, Storr described it as annual
Apiaceae	<i>Apium prostratum</i>			y	y			<i>Apium annuum</i> . Probable misidentification
Apiaceae	<i>Didiscus caeruleus</i>	y						<i>Trachymene coerulea</i> (WA Herbarium FloraBase 1998)
Apiaceae	<i>Didiscus pusillus</i>	y						<i>Trachymene pilosa</i> . See taxonomic issues - appendix 1
Apiaceae	<i>Hydrocotyle tetragonocarpa</i>	y	y	y	y		y	<i>Hydrocotyle hamelinensis</i> . Probable misidentification
Apiaceae	<i>Trachymene coerulea</i>		y	y	y			<i>Trachymene coerulea</i> subsp <i>coerulea</i>
Asclepiadaceae	* <i>Asclepias fruticosa</i>	y	y					<i>Gomphocarpus fruticosus</i> . (Marchant <i>et al.</i> 1987 p 526)
Asphodelaceae	* <i>Anthericum divaricatum</i>	y						<i>Trachyandra divaricata</i> (Marchant <i>et al.</i> 1987 p779)
Asphodelaceae	<i>Bulbinopsis semibarbata</i>		y					<i>Bulbine semibarbata</i> (Marchant <i>et al.</i> 1987 p779)
Asteraceae	* <i>Arctotheca nivea</i>	y						<i>Arctotheca populifolia</i> (Marchant <i>et al.</i> 1987 p658)
Asteraceae	<i>Calocephalus brownii</i>	y	y	y	y			<i>Leucophyta brownii</i> (Paczkowska 2000 p604)
Asteraceae	* <i>Carduus tenuiflorus</i>	y	y		y			<i>Carduus pycnocephalus</i> . Probable misidentification
Asteraceae	* <i>Conyza bonariensis</i>			y				<i>Conyza albida</i> . Probable misidentification. <i>C. albida</i> the only confirmed <i>Conyza</i> on Rottneest
Asteraceae	* <i>Conyza canadensis</i>				y			<i>Conyza albida</i> . Probable misidentification. <i>C. albida</i> the only confirmed <i>Conyza</i> on Rottneest
Asteraceae	* <i>Erigeron canadensis</i>	y	y					<i>Conyza albida</i> . Probable misidentification. <i>C. albida</i> the only confirmed <i>Conyza</i> on Rottneest
Asteraceae	* <i>Inula graveolens</i>	y						<i>Dittrichia graveolens</i> (Paczkowska 2000 p621)
Asteraceae	<i>Millotia tenuifolia</i>	y	y		y			<i>Millotia myosotidifolia</i> . Probable misidentification
Asteraceae	<i>Podosperma angustifolium</i>	y						<i>Podotrochea angustifolium</i> (Green 1985 p272)
Asteraceae	<i>Senecio lautus</i>	y		y	y	y	y	<i>Senecio lautus</i> subsp <i>dissectifolius</i> or <i>maritimus</i> . Cannot determine which taxon was recorded
Brassicaceae	* <i>Hymenolobus procumbens</i>	y	y	y	y			<i>Hornungia procumbens</i> (Paczkowska 2000 p621)
Caryophyllaceae	* <i>Cerastium viscosum</i>	y	y					<i>Cerastium glomeratum</i> . (Paczkowska 2000 p606)
Caryophyllaceae	* <i>Arenaria serpyllifolia</i>	y	y					<i>Arenaria leptoclados</i> . Misapplied name (WA Florabase 2003)
Caryophyllaceae	* <i>Sagina apetala</i>	y	y	y	y			<i>Sagina maritima</i> . Probable misidentification
Caryophyllaceae	* <i>Stellaria media</i>	y	y	y	y	y	y	<i>Stellaria pallida</i> . Misidentification
Chenopodiaceae	<i>Arthrocnemum arbuscula</i>	y	y					<i>Halosarcia indica</i> . See taxonomic issues - appendix 1
Chenopodiaceae	<i>Arthrocnemum halocnemoides</i>	y	y					<i>Halosarcia halocnemoides</i> . See taxonomic issues - appendix 1
Chenopodiaceae	<i>Atriplex paludosa</i>	y	y					<i>Atriplex cinerea</i> . Probable misidentification
Chenopodiaceae	<i>Atriplex</i> sp.						y	
Chenopodiaceae	<i>Enchylaena tomentosa</i>	y	y	y	y			<i>Enchylaena tomentosa</i> var <i>tomentosa</i>
Chenopodiaceae	<i>Halosarcia halocnemoides</i>				y			<i>Halosarcia halocnemoides</i> subsp <i>halocnemoides</i>
Chenopodiaceae	<i>Rhagodia baccata</i>	y	y	y	y	y	y	<i>Rhagodia baccata</i> subsp <i>baccata</i> and <i>dioica</i>
Chenopodiaceae	<i>Salicornia australis</i>	y						<i>Sarcocornia quinqueflora</i> . (Paczkowska 2000 p632). See taxonomic issues - appendix 1
Chenopodiaceae	<i>Salicornia quinqueflora</i>		y					<i>Sarcocornia quinqueflora</i> (Marchant <i>et al.</i> 1987 p90). See taxonomic issues - appendix 1
Chenopodiaceae	<i>Sarcocornia</i> sp.					y	y	Either <i>Sarcocornia blackiana</i> or <i>S. quinqueflora</i> . Cannot determine which taxon was recorded. See taxonomic issues - appendix 1
Colchicaceae	<i>Anguillaria dioica</i>	y						<i>Wurmbea monantha</i> . Probable misidentification. (Marchant <i>et al.</i> 1987 p788)
Colchicaceae	<i>Wurmbea dioica</i>		y		y			<i>Wurmbea monantha</i> . Possible misidentification
Convolvulaceae	<i>Wilsonia backhousei</i>				y			<i>Wilsonia humilis</i> . Possible misidentification
Crassulaceae	<i>Crassula colorata</i>	y	y	y	y		y	<i>Crassula colorata</i> var <i>colorata</i>
Crassulaceae	<i>Crassula decumbens</i>				y			<i>Crassula decumbens</i> var <i>decumbens</i>
Crassulaceae	<i>Crassula macrantha</i>	y	y					<i>Crassula decumbens</i> (Paczkowska 2000 p608)
Crassulaceae	* <i>Crassula natans</i>	y	y		y			<i>Crassula natans</i> var <i>minus</i>
Cymodocaceae	<i>Cymodocea antarctica</i>	y						<i>Amphibolis antarctica</i> (Marchant <i>et al.</i> p730)
Cyperaceae	<i>Isolepis nodosa</i>					y	y	<i>Ficinia nodosa</i> (WA Herbarium FloraBase)
Cyperaceae	<i>Lepidosperma angustatum</i>	y	y	y	y			<i>Lepidosperma pubisquameum</i> . See taxonomic issues - appendix 1
Cyperaceae	<i>Lepidosperma resinsum</i>	y	y					<i>Lepidosperma pubisquameum</i> . See taxonomic issues - appendix 1
Cyperaceae	<i>Lepidosperma squamatum</i>						y	<i>Lepidosperma pubisquameum</i> . See taxonomic issues - appendix 1

FAMILY	BOTANICAL NAME	1	2	3	4	5	6	CURRENT NAME AND NOTES
Cyperaceae	<i>Lepidosperma</i> sp						y	<i>Lepidosperma pubisquameum</i>
Cyperaceae	* <i>Scirpus antarcticus</i>	y	y					<i>Isolepis marginata</i> (Paczkowska 2000 p633)
Cyperaceae	* <i>Scirpus marginatus</i>				y			<i>Isolepis marginata</i> (Paczkowska 2000 p633)
Cyperaceae	<i>Scirpus nodosus</i>	y	y	y	y			<i>Ficinia nodosa</i> (WA Herbarium FloraBase)
Euphorbiaceae	<i>Poranthera microphylla</i>	y	y	y	y			<i>Poranthera drummondii</i> . (Paczkowska p630 <i>P. drummondii</i> = <i>P. microphylla</i> . However revision in progress by D A Halford for Flora of Australia)
Gentianaceae	* <i>Centaurium erythraea</i>			y	y		y	<i>Centaurium pulchellum</i> or <i>tenuiflorum</i> . Probable misidentification. See taxonomic issues - appendix 1
Gentianaceae	* <i>Erythraea centaurium</i>	y	y					<i>Centaurium pulchellum</i> or <i>tenuiflorum</i> . Probable misidentification. See taxonomic issues - appendix 1
Geraniaceae	<i>Pelargonium australe</i>	y	y					<i>Pelargonium littorale</i> subsp <i>littorale</i> . Possible misidentification
Geraniaceae	* <i>Pelargonium capitatum</i>			y	y			<i>Pelargonium littorale</i> subsp <i>littorale</i> . Possible misidentification
Haemodoraceae	<i>Conostylis candicans</i>	y	y	y	y		y	<i>Conostylis candicans</i> subsp <i>calcicola</i> . Misidentification
Hydrocharitaceae	* <i>Elodea canadensis</i>	y	y					<i>Hydrilla verticillata</i> . Misidentification
Iridaceae	* <i>Ferraria crispa</i>				y			<i>Ferraria crispa</i> subsp <i>crispa</i>
Iridaceae	* <i>Ferraria undulata</i>	y	y					<i>Ferraria crispa</i> subsp <i>crispa</i> (Paczkowska 2000 p615)
Juncaceae	<i>Juncus maritimus</i>	y	y					<i>Juncus kraussii</i> subsp <i>australiensis</i> . (Paczkowska 2000 p622: <i>J. maritimus</i> = <i>J. kraussii</i> )
Juncaceae	<i>Juncus kraussii</i>				y			<i>Juncus kraussii</i> subsp <i>australiensis</i>
Juncaceae	<i>Juncus pallidus</i>			y				<i>Juncus kraussii</i> subsp <i>australiensis</i> . Possible misidentification
Juncaginaceae	<i>Cynogeton procerum</i>	y	y					<i>Triglochin mucronata</i> . Probable misidentification. Marchant 1987 p722: <i>C procerum</i> - <i>Triglochin procerum</i> . Paczkowska p638: - <i>Triglochin procerum</i> not found in WA)
Juncaginaceae	<i>Triglochin centrocarpum</i>				y			<i>Triglochin trichophora</i> . Probable misidentification
Juncaginaceae	<i>Triglochin centrocarpum</i> var <i>brevicarpa</i>	y	y					<i>Triglochin trichophora</i> . Probable misidentification
Juncaginaceae	<i>Triglochin procerum</i>				y			<i>Triglochin mucronata</i> . Probable misidentification. (Paczkowska 2000 p638: <i>T. procerum</i> not found in WA)
Lamiaceae	<i>Westringia rigida</i>		y					<i>Westringia dampieri</i> (Paczkowska 2000 p640)
Loganiaceae	<i>Mitrasacme paradoxa</i>	y	y		y			<i>Phyllangium paradoxum</i> (Paczkowska 2000 p625)
Iridaceae	* <i>Homeria miniata</i>	y	y	y	y			<i>Moraea miniata</i> (Paczkowska 2000 p621)
Malvaceae	<i>Lavatera plebeia</i>	y	y		y			<i>Malva australiana</i> (Paczkowska 2000 p622)
Mimosaceae	<i>Acacia cuneata</i>	y	y					<i>Acacia littorea</i> . Misidentification
Mimosaceae	<i>Acacia cyclops</i>	y	y					<i>Acacia cyclops</i>
Myoporaceae	<i>Myoporum adscendens</i>			y				<i>Myoporum insulare</i> (Paczkowska 2000 p626)
Myoporaceae	<i>Myoporum tetrandrum</i>						y	<i>Myoporum insulare</i> . Probable misidentification
Myoporaceae	<i>Myoporum viscosum</i>	y	y					<i>Myoporum caprarioides</i>
Myrtaceae	<i>Melaleuca pubescens</i>	y						<i>Melaleuca lanceolata</i> (Marchant <i>et al.</i> 1987 p415)
Myrtaceae	* <i>Eucalyptus platypus</i> var <i>heterophylla</i>				y			<i>Eucalyptus utilis</i> (WA Herbarium FloraBase). Cultivated tree that has naturalised
Orchidaceae	<i>Acianthus reniformis</i>	y	y	y	y			<i>Cyrtostylis huegelii</i> (Hoffman & Brown 1992, pp225 to 227)
Orchidaceae	<i>Prasophyllum</i> sp	y	y		y			<i>Prasophyllum giganteum</i>
Orobanchaceae	<i>Orobanche australiana</i>	y	y	y				<i>Orobanche minor</i> . Misidentification
Papilionaceae	* <i>Medicago denticulata</i>	y	y					<i>Medicago polymorpha</i> (Paczkowska 2000 p624)
Pittosporaceae	<i>Pittosporum phylliraeoides</i>	y	y	y	y		y	<i>Pittosporum ligustrifolium</i> (Cayzer <i>et al.</i> 2000)
Pittosporaceae	<i>Pittosporum phylliraeoides</i> var <i>phylliraeoides</i>					y	y	<i>Pittosporum ligustrifolium</i> (Cayzer <i>et al.</i> 2000)
Pittosporaceae	<i>Pittosporum</i> sp						y	<i>Pittosporum ligustrifolium</i>
Plantaginaceae	* <i>Plantago lanceolata</i>				y			<i>Plantago debilis</i> . Probable misidentification
Plantaginaceae	* <i>Plantago varia</i>	y	y					<i>Plantago debilis</i> . Probable misidentification. (Paczkowska 2000 p629: <i>P. varia</i> has not occurred in WA)
Poaceae	* <i>Koeleria phleoides</i>	y	y					<i>Rostraria cristata</i> (Paczkowska p622: <i>K. phleoides</i> - <i>Trisetaria cristata</i> , which is <i>Rostraria cristata</i> Paczkowska p638)
Poaceae	* <i>Aira caryophylla</i>	y	y					<i>Aira cupaniana</i> . Probable misidentification
Poaceae	* <i>Avena fatua</i>	y	y					<i>Avena barbata</i> . Possible misidentification
Poaceae	* <i>Bromus gussonii</i>	y	y					<i>Bromus diandrus</i> (Paczkowska 2000 p603)
Poaceae	* <i>Bromus molliformis</i>	y	y					<i>Bromus hordeaceus</i> (Paczkowska 2000 p603)
Poaceae	* <i>Catapodium rigidum</i>			y	y			<i>Desmazeria rigida</i> (WA Herbarium FloraBase)
Poaceae	<i>Danthonia caespitosa</i>	y	y		y			<i>Austrodanthonia occidentalis</i> . Probable misidentification
Poaceae	* <i>Ehrharta brevifolia</i> var <i>cuspidata</i>	y	y					<i>Ehrharta brevifolia</i>
Poaceae	* <i>Lolium</i> sp			y				<i>Lolium rigidum</i>
Poaceae	<i>Poa caespitosa</i>	y	y					<i>Poa poiformis</i> (Marchant & Abbott, 1981 p57)
Poaceae	<i>Stipa flavescens</i>			y	y			<i>Austrostipa flavescens</i> (Paczkowska 2000 p635)

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FAMILY	BOTANICAL NAME	1	2	3	4	5	6	CURRENT NAME AND NOTES
Poaceae	<i>Stipa variabilis</i>	y	y					<i>Austrostipa flavescens</i> . Misidentification (Paczkowska p636: <i>S. variabilis</i> = <i>Austrostipa variabilis</i> , but this is unlikely to occur on Rottneest)
Poaceae	* <i>Trisetaria cristata</i>				y			<i>Rostraria cristata</i> (Paczkowska 2000 p638)
Polygalaceae	<i>Comesperma</i> sp	y	y					Either <i>Comesperma confertum</i> or <i>Comesperma integerrimum</i> . Cannot determine which taxon was observed
Portulacaceae	<i>Calandrinia calyptata</i>	y	y					<i>Calandrinia brevipedata</i> . Probable misidentification
Potamogetonaceae	<i>Ruppia maritima</i>	y	y					<i>Ruppia polycarpa</i> . Misidentification
Primulaceae	* <i>Anagallis femina</i>	y						<i>Anagallis arvensis</i> var <i>caerulea</i> (Marchant <i>et al.</i> 1987 p196)
Ranunculaceae	<i>Clematis microphylla</i>	y	y	y	y			<i>Clematis linearifolia</i> (Paczkowska 2000 p607)
Ranunculaceae	<i>Ranunculus parviflorus</i>	y	y					<i>Ranunculus pumilio</i> var <i>politus</i> (Paczkowska 2000 p631)
Ranunculaceae	<i>Ranunculus sessiliflorus</i>				y			<i>Ranunculus pumilio</i> var <i>politus</i> . Probable misidentification
Restionaceae	<i>Hypolaena</i> sp	y	y		y			<i>Baumea juncea</i> . Probable misidentification
Solanaceae	<i>Solanum simile</i>	y						<i>Solanum symonii</i> . Misidentification
Stackhousiaceae	<i>Stackhousia pubescens</i>	Y	y		y			<i>Stackhousia monogyna</i> (Paczkowska 2000 p635). Storr's record: Storr 1959, not 1962
Urticaceae	<i>Parietaria debilis</i>	y	y	y	y		y	<i>Parietaria cardiostegia</i> . Misidentification
Zannichelliaceae	<i>Althenia preissii</i>		y					<i>Lepilaena preissii</i> (Marchant <i>et al.</i> 1987 p732)
Zosteraceae	<i>Zostera mucronata</i>				y			<i>Heterozostera tasmanica</i> . Misidentification
Zosteraceae	<i>Zostera muelleri</i>	y	y					<i>Heterozostera tasmanica</i> . Misidentification
Zygophyllaceae	<i>Nitraria schoberi</i>	y	y					<i>Nitraria billardierei</i> (Paczkowska 2000 p626)
Zygophyllaceae	<i>Zygophyllum apiculatum</i>	y	y		y			<i>Zygophyllum simile</i> . Probable misidentification

APPENDIX 4

CULTIVATED SPECIES (see explanatory notes with Appendix 2)

FAMILY	BOTANICAL NAME	1	2	3	4	5	6	NOTES	COMMON NAME
Anacardiaceae	* <i>Schinus terebinthifolius</i>					y	y		Japanese pepper tree
Araucariaceae	* <i>Araucaria heterophylla</i>					y	y	Authority: Bodkin 1993	Norfolk Island Pine
Arecaceae	* <i>Phoenix canariensis</i>					y	y	Authority: Bodkin 1993	Canary Island date palm
Arecaceae	* <i>Phoenix dactylifera</i>						y		date palm
Arecaceae	* <i>Washingtonia filifera</i>					y	y		cotton palm
Arecaceae	* <i>Washingtonia robusta</i>						y	Authority: Bodkin 1993	cotton palm
Bignoniaceae	* <i>Tecoma stans</i>						y		
Caesalpiniaceae	* <i>Ceratonia siliqua</i>					y	y	Authority: Bodkin 1993	carob
Casuarinaceae	* <i>Casuarina obesa</i>					y			swamp sheoak
Casuarinaceae	* <i>Casuarina equisetifolia</i>						y	Authority: Bodkin 1993	sheoak
Cupressaceae	* <i>Cupressus</i> sp						y		cypress
Malvaceae	* <i>Lagunaria patersoniana</i>						y		Norfolk Island hibiscus
Melanthaceae	* <i>Melianthus major</i>						y	y	honey flower
Moraceae	* <i>Morus alba</i>						y	Probably <i>Morus alba</i>	mulberry
Moraceae	* <i>Ficus carica</i>		y				y	y	common fig
Moraceae	* <i>Ficus elastica</i>						y	Authority: Bodkin 1993	rubber tree
Moraceae	* <i>Ficus macrophylla</i>					y	y	Authority: Bodkin 1993	Moreton Bay Fig
Moraceae	* <i>Ficus microcarpa</i> var <i>hillii</i>						y	Possibly <i>Ficus microcarpa</i> var <i>hillii</i>	
Myrtaceae	* <i>Agonis flexuosa</i> var <i>flexuosa</i>					y	y	[ <i>A. flexuosa</i> - Frewer]	peppermint tree
Myrtaceae	* <i>Melaleuca armillaris</i>						y	Authority: Bodkin 1993	crepe honeymyrtle
Myrtaceae	* <i>Melaleuca huegelii</i>						y		chenille honeymyrtle
Myrtaceae	* <i>Melaleuca nesophila</i>						y		mindiyed
Myrtaceae	* <i>Callistemon</i> sp						y	Probably hybrid	bottlebrush
Myrtaceae	* <i>Eucalyptus camaldulensis</i>					y	y		river gum
Myrtaceae	* <i>Eucalyptus decipiens</i>					y			spearwood mallee
Myrtaceae	* <i>Eucalyptus erythrocorys</i>						y		illyarrie
Myrtaceae	* <i>Eucalyptus gomphocephala</i>					y	y		tuart
Myrtaceae	* <i>Eucalyptus camaldulensis</i> var <i>obtusata</i>						y		
Myrtaceae	* <i>Eucalyptus spathulata</i>						y		
Oleaceae	* <i>Olea europaea</i>					y	y	y	olive
Phormiaceae	* <i>Phormium tenax</i>						y	Authority: Bodkin 1993	New Zealand flax
Pinaceae	* <i>Pinus halepensis</i>					y	y		Aleppo pine
Pinaceae	* <i>Pinus radiata</i>						y		radiata pine
Salicaceae	* <i>Salix</i> sp						y	Authority: Bodkin 1993	willow
Tamaricaceae	* <i>Tamarix aphylla</i>						y		tamarisk, athel tree

