# A Floristic Survey of the southern Swan Coastal Plain

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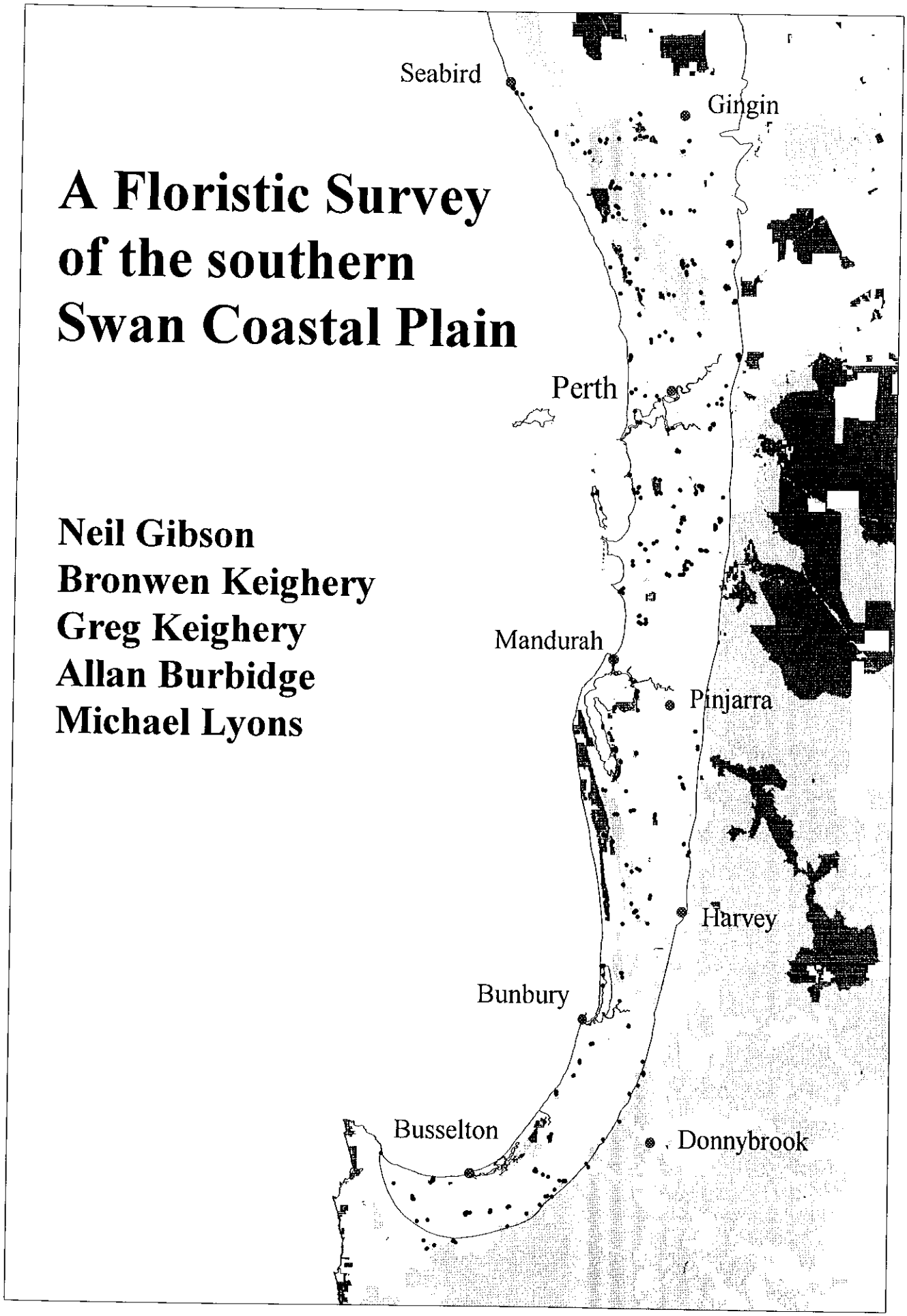


A report prepared by the Western Australian Department of Conservation and Land Manangement
and the Western Australian Conservation Council for the
Australian Heritage Commission.

# *A Floristic Survey of the Southern Swan Coastal Plain*

*by*

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July 1994

This report should be quoted in the following way:

Gibson, N., Keighery, B.J., Keighery, G.J., Burbidge, A.H. and Lyons, M.N. (1994)
*A Floristic survey of the southern Swan Coastal Plain.*
Unpublished Report for the Australian Heritage Commission
prepared by
Department of Conservation and Land Management
and the Conservation Council of Western Australia (Inc.).

This project was funded under the National Estate Program, a Commonwealth - financed grants scheme administered by the Australian Heritage Commission (Federal Government) and the Heritage Council of W. A. (State Government).

**ACKNOWLEDGEMENTS**

This study was supported by a volunteer participation programme and we thank the participants for their hard work, companionship and encouragement throughout the survey (see the next page for a list of all recorded participants). Participants were predominantly from the Wildflower Society of WA (Inc.) but other groups such as the Busselton Naturalists' Club, Quinns Rocks Environmental Research Group and Friends of Forrestdale Lake participated in their areas of interest and we thank these groups for their participation. Particular thanks to Helen Frederiksen, Pauline Fairall, Diana Corbyn, Margaret Langley and Mike Hislop for regularly leading groups in the field, and to the Murdoch Branch of the Wildflower Society for access to their data on Ken Hurst Park.

The use of aerial photographs in the study was made possible by the generous assistance of Greg Beeston of the Department of Agriculture and the Western Australian Water Authority.

Many colleagues are thanked for assistance with identifications in their particular areas of expertise: Paul Wilson, Barbara Rye, Bruce Maslin, Andrew Brown, Judy Wheeler and Ray Cranfield from the Department of Conservation and Land Management; Stephen Hopper, Kingsley Dixon, Kathy Meeney and Eleanor Bennett from Kings Park and Botanic Garden; Phillip Short, National Botanic Garden, Melbourne; Michael Crisp, Australian National University, Canberra; Lyn Craven, CSIRO, Canberra; Karen Wilson, Royal Botanic Gardens, Sydney; Allen Lowrie, Alex George, Elizabeth George, Ted Griffin and Malcolm Trudgen, Perth. Neville Marchant kindly gave us access to his annotated copy of the Perth Flora.

Mike Choo and Paul Gioia from the Department of Conservation and Land Management provided advice on database management and analysis and provided data entry software while Nich Hall did most of the data entry and data-basing staff at the Western Australian Herbarium assisted with searching the WAHERB database and transfer of information into this database. Matt Williams provided statistical advice. The Department of Planning and Urban Development provided spatial data relating to our sites.

P. Mawson, M. Robinson, M. Stafford and R. McNeish assisted in the location of some plots.

The majority of our work was on public lands and we thank the various managing bodies for their co-operation: Local Government, Agricultural Protection Board, District Offices of the Department of Conservation and Land Management, Kings Park Board and Botanic Garden, Department of Land Administration, Department of Planning and Urban Development, Western Australian Water Authority and the Botany and Zoology Departments of the University of Western Australia. One area of private land was included in this study and we thank Midge Richardson for inviting us to work at her property, Lowlands, and for her generous hospitality during our visits.

*Volunteers who made a substantial contribution to the floristic survey of the southern Swan Coastal Plain (Keighery 1993).*

Barbara Backhouse
Bob Backhouse
Anne Bellman
Sue Birney
Lorinne Boyce
Mary Bremner
Ruth Brookes
Kate Brown
Margaret Brims
Ann Cochrane
Robin Campbell
Billie Carter
Karen Clarke
Dennis Cooper
Diana Corbyn
Ellen Coy
Neil Coy
Jeanette Della-Bonner
Lyn Dunstan
Jocelyn Elphick
Barbara Evans
Meg Evans
Pauline Fairall
Jeff Faulkener
Lee Fernie
Helen Frederiksen
Keld Frederiksen
David Garlick
Sylvia Garlick
Dorrie Gibbs
Howard Gibbs
Rhonda Giraudo
John Goldsmith
Jan Gordon
Rosemary Graham
Helen Green
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Brian Green
Linley Hann
Graham Harris
Jennifer Hawkes
Alison Hearne
Michael Hislop
Brian Hume
David James
Andrew Keighery
Kristin Keighery
Sarah Keighery
Keren Keys
Margaret Langley
Deirdre Lebbon
Angie Lensik
Liz Mason
Bernie Masters
Diane Matthews
Gary Matthews
Elaine Miller
Brian Moyle
Norm Moyle
Pat Moyle
Bill Muir
Kath Napier
Constance O'Brien
Rae Papenfus
Rod Papenfus
Dot Parker
Dorothy Perret
Frank Phillips
Joy Phillips
Margaret Phillips
Cynthia Playford
Midge Richardson
Jenny Richardson
John Robertson
Margaret Robertson
Nicky Robinson
Jan Rodda
Leah Segal
Dick Shore
Alice Stubber
Ron Swetman
Kate Tauss
Ray Tauss
Joan Telfer
Rodney Van Proctor
David Wake
Eve Wignall
Don Wignall
Jill Williams
Sue Wooller
Ron Wooller
Jennifer Young

# ABSTRACT

A study was undertaken of the plant communities of remnant bushland on the southern Swan Coastal Plain (between Seabird and the foothills of the Whicher Range). Five hundred and nine sites were established and the floristic data were used to define the major regional community types.

A total of 1485 flowering plant taxa (species, subspecies and varieties) were found in the 509 quadrats or in adjacent areas. Of these taxa 1313 were natives and 172 were weeds. Sixty one taxa appear to be endemic to the study area. Most of the endemics are restricted to the eastern side of the coastal plain (28 taxa) or to areas of ironstone (13 taxa). Seventy seven taxa appear to have their southern range end and 48 taxa to have their northern range end in the study area. Ten species of Declared Rare Flora (DRF) were found during the survey. Two of these taxa (*Schoenus natans* and *Tetraria australiensis*) were previously believed to be extinct. In all, 19 new populations of DRF were recorded and a further 75 priority species were encountered. Eleven species are proposed for listing as Declared Rare Flora (eight of these species are from the very restricted southern ironstone communities) and changes to the priority listing are recommended for another 13 taxa. At least seven taxa appear to have become locally extinct on the southern Swan Coastal Plain.

The floristic analysis defined 30 communities types. It was possible to further subdivide some of these groups and, in all, a total of 43 types and subtypes were recognised. The major environmental correlates with this classification were seasonal moisture regime and geomorphology. Of the 30 major community types, three are found on the heavy soils of the eastern coastal plain, 16 in seasonal wetlands, four are centred on the Bassendean Dunes and seven are largely restricted to Spearwood and Quindalup systems.

The floristic classification showed very poor correlation to vegetation structure and, while geomorphology was a major environmental correlate, floristic community types were poorly correlated to individual mapped units. Similarly the floristic classification was poorly correlated with previously mapped vegetation complexes.

Of the 43 recognised community types or subtypes, ten are unreserved and a further 11 are only known from a single National Park or Nature Reserve. One community type (southern ironstones) is considered critically threatened, two communities are considered endangered, 15 are considered vulnerable and 11 are considered susceptible should any change in management or land use occur. Twelve communities are considered at low risk from any present threat and two communities could not be assessed due to insufficient information. Reserve recommendations are made to protect the three most threatened community types.

## RECOMMENDATIONS

This study of the plant communities of the Swan Coastal Plain between Seabird and the foothills of the Whicher Range has lead to the following recommendations:

1) Eleven taxa should be proposed for listing as Declared Rare Flora and the priority listing for 13 taxa should be changed as detailed (Table 6).

2) The three most threatened community types need urgent reservation. The following areas should be declared as A class Nature Reserves for the protection of flora and fauna:

a) the southern ironstone communities from the five small areas of State Forest and the road and rail reserve east of Ruabon Nature Reserve. (This road and rail reserve is also of regional significance as it is one of the last two remaining continuous vegetated transects in the study area showing the catena of original vegetation types on the eastern side of the plain.)

b) the sedgeland in Holocene dune swales in the Point Becher area (M106) and the north west corner of Lake Walyungup (M103).

c) the eastern *Banksia attenuata* woodlands over species rich dense shrublands from Koondoola open space, Landsdale Rd, M12, and M 53.

3) Final selection of areas for reservation of the 10 poorly reserved community types should be made in conjunction with species reservation data currently being collected.

4) The road and drain reserve on the southern side of Mundijong Road be declared as an A class Nature Reserve. (This area is of regional significance being the second catena of vegetation types across the eastern side of the plain).

5) As a consequence of the small amount of remnant vegetation on the eastern side of the plain, all such remnants in the study area with the basic vegetation intact or able to be regenerated are of high conservation value.

6) A further analysis of reservation status is needed since the present definition does not consider the area of communities reserved.

7) A similar analysis needs to be undertaken to determine conservation values of remnants not covered in this study since floristic community types are not well correlated to presently available geomorphological or vegetation mapping.

8) Additional work on the Swan Coastal Plain is required to determine, more precisely, the nature of floristic variation in the seasonal wetlands (because of their high levels of heterogeneity).

# INTRODUCTION

The Swan Coastal Plain is a narrow belt of aeolian, alluvial and colluvial deposits generally of Holocene or Pleistocene age on which is found the city of Perth and most of the population of Western Australia. It extends from Dunsborough (33°45"S) north to Jurien (30°06"S). Beard (1980, 1981, 1990) included both the plain and the adjacent Dandaragan Plateau in the Drummond Botanical Subdistrict. Over most of its length the plain itself is less than 30 km wide and bounded on the west by the Indian Ocean and to the east by the faulted Yilgarn block (McArthur and Bettenay 1960). Ninety-seven percent of the alluvial soils on the eastern side of the plain in this area has already been cleared for agriculture or urban developments (A.H. Burbidge and J.K. Rolfe, unpublished data). Over the last 20 years there has also been a rapid expansion of major population centres. It is on the southern Swan Coastal Plain where most of the urban development will occur over the next 20 years (Department of Planning and Urban Development 1990). Despite the proximity of a major urban centre there still remains significant gaps in our knowledge of the distribution of flora and floristic communities of this area. Availability of such knowledge is vital if conservation of our unique flora and plant communities is to be integrated with urban and industrial growth.

## *CLIMATE*

The coastal plain has a warm mediterranean climate with warm dry summers of five to six months and winter precipitation of 700 to 1000 mm (Table 1, Bureau of Meteorology 1988). Most of the plain receives 800 - 900 mm this drops off to 700 mm north of Yanchep and rises to over a 1000 mm at the base of the Scarp south of Pinjarra. There are similar gradients in mean temperatures across the study area (Table 1). The whole coast is under the influence of west to south westerly winds during winter but experiences strong diurnal wind patterns in summer with afternoon sea breezes reaching 20 - 30 knots. These winds occur throughout the summer months except when blocking high pressure systems result in dry hot easterlies.

*Table 1. Annual rainfall, number of rain days, annual mean maximum temperature, annual mean minimum for five centres. Note Lancelin occurs on the coast just north of the study area. Data from Bureau of Meteorology (1988).*

| | Rainfall (mm) | Rain days | Mean Max. Temp (°C) | Mean Min. Temp. (°C) |
|---|---|---|---|---|
| Lancelin | 627 | 112 | 24.0 | 13.3 |
| Perth | 869 | 119 | 23.6 | 13.5 |
| Mandurah | 888 | 118 | 23.4 | 13.4 |
| Dwellingup | 1279 | 131 | 21.7 | 9.7 |
| Bunbury | 871 | 119 | 21.9 | 12.4 |

## *GEOLOGY AND LANDFORMS*

The Darling Fault forms the eastern boundary of the study area south to near Dardanup. The coastal plain then swings southwest bounded by the Whicher Range. The plain itself is made up of five major geomorphological elements (McArthur and Bettenay 1960, Churchward and McArthur 1980) (Table 2). These elements lie more or less parallel to the coast with the narrow Ridge Hill Shelf (Pleistocene age) of colluvial and alluvial deposits and old beach sands occurring at the base of the Darling Scarp. The Pinjarra Plain abuts the Ridge Hill Shelf, this alluvial plain is of Pleistocene to Holocene age, originating from the river systems flowing down from the Scarp. This is the most fertile land system and has been extensively cleared for agriculture. Dominating the central section of the plain are the Pleistocene aged Bassendean and Spearwood Dune systems. To the east are the low lying Bassendean dunes, falling from 40-80 m relief in the north of the study area to almost sea level in the south. The younger Spearwood Dunes lie to the west. These have a less leached profile with a similar relief of 50-80 m in both the north and south of the study area (Semeniuk and Glassford 1989). Churchward and McArthur (1980) recognise two subdivisions within the Spearwood Dunes: the Karrakatta unit of deep

yellow sands and the Cottesloe unit of thinner sands on Tamala limestone closer to the coast. The Quindalup Dunes on the western margin of the plain are calcareous coastal Holocene dunes. Overlaying the Quindalup, Spearwood and Bassendean Systems are a series of Holocene swamp and estuarine deposits. The geology of the area is tightly tied to these geomorphological units as is the vegetation (Briggs and Wilde 1980, Heddle *et al.* 1980).

*Table 2. Geomorphological classifications of the lower Swan Coastal Plain. The McArthur and Bettenay (1960) classification was further refined by Churchward and McArthur (1980). Land forms are subparallel to coastline. The broader classification is used in the text except where otherwise indicated.*

| **Major geomorphological systems (McArthur and Bettenay 1960)** | **More detailed geomorphological units (Churchward and McArthur 1980)** |
|---|---|
| Quindalup Dunes | Quindalup unit |
| Spearwood Dunes | Cottesloe unit<br>Karrakatta unit<br>Herdsman unit |
| Bassendean Dunes | Bassendean unit<br>Southern Rivers unit<br>Caladenia unit<br>Yoongarillup unit<br>Herdsman unit |
| Pinjarra Plain | Guildford unit<br>Abba unit<br>Beermullah unit<br>Bootine unit<br>Yanga unit<br>Cannington unit<br>Serpentine unit<br>Swan unit<br>Dardanup unit<br>Vasse unit |
| Ridge Hill Shelf<br>(and similar units along the flanks of the Dandaragan Plateau and Whicher Scarp) | Forrestfield unit<br>Regan unit (Dandaragan Plateau)<br>Coonambidgee unit (Dandaragan Plateau)<br>Cartis unit (Whicher Scarp) |

Recent mapping of the permanent and seasonal wetlands of the coastal plain between Moore River and Mandurah has shown over 3000 wetlands on this section of the plain (Water Authority of Western Australia 1992). Semeniuk (1987) proposed a geomorphological classification of these wetlands based on basin shape and period of inundation. In addition to creeks, rivers and lakes, Semeniuk (1987) recognised the following units:

1. Seasonally inundated basins — Sumplands
2. Seasonally waterlogged basins — Damplands
3. Seasonally inundated flats — Floodplains
4. Seasonally waterlogged flats — Palusplain

All these wetland types are widespread across the study area.

## *SOILS*

Fine scale geomorphological and soils mapping have not used a consistent methodology across the study area. Information on the soils of the study area can be obtained from a series of maps at 1:50 000 scale. These maps have been produced to supply information for planners concerned with aspects of urban, rural, industrial, transport or raw material and water supply development. The

Urban Geology and Environmental Geology Series prepared and published by the Geological Survey section of the Department of Minerals and Energy (Anon 1976, 1977a,b, 1978, 1981, 1982; Belford 1987a,b; Gozzard 1982a,b, 1983a,b, 1986, 1987; Jordan 1986a,b; Leonard 1991; Smurthwaite 1986a,b) used comparable mapping units throughout the study area, while the various land resources and land capability studies (King and Wells 1990; McArthur 1986; McArthur and Bartle 1980; Tille and Lantzke 1991; van Gool 1990; Wells and Hesp 1989) produced by various agencies, have generally not used directly comparable mapping units. While both types of maps cover most of the study area, the information available from these maps are not easily integrated, either with each other or with the broader scale mapping units of Churchward and McArthur (1980). As a consequence, only the series using comparable mapping units, the Urban Geology and Environmental Geology Series, can be used across the entire study area. Also, the units from this series can be directly compared with the major geomorphological systems (McArthur and Bettenay 1960) and, to a lesser extent, to the units identified by Churchward and McArthur (1980).

The general soil boundaries of Churchward and McArthur (1980), although used widely in vegetation mapping on the Swan Coastal Plain, are often quite different from those of the 1:50 000 maps referred to above. While the detailed mapping of the 1:50 000 maps is a better predictor of vegetation than the general maps, it is not possible to use standard soil maps reliably to predict vegetation patterning. For example, the Cardup Nature Reserve was considered to be an area representative of the Pinjarra Plain vegetation (Department of Conservation and Environment 1983) as on the broad scale maps of Churchward and McArthur (1980) it is entirely located on alluvial soils. However, in more detailed mapping van Gool (1990) maps Bassendean sands of aeolian origin on the sandy valleys and rises. To the west is mapped alluvium of the Pinjarra Plain and to the east colluvium of the Ridge Hill Shelf. Only small intrusions of these soils are mapped as being in the reserve. By contrast Jordan (1986a) maps much greater areas of colluvium and alluvium in the reserve. The rises are mapped as Bassendean sands. Further examples of inconsistencies in soil mapping are discussed by Semeniuk and Glassford (1989) and Semeniuk(1990).

*VEGETATION*

The early work of Speck (1952, 1958) was the first systematic attempt to map the major plant communities of this area. He described six major associations based on commonly occurring dominants and soil associations. Later more detailed structural mapping was undertaken by Smith (1973, 1974) and Beard (1979a, b), with both authors again recognising the importance of soil type. Beard (1980) used these maps as a basis for defining the Swan Coastal Plain as a subregion of the Darling Botanical District which encompasses the forest regions of south west Western Australia.

Heddle *et al.* (1980) produced a vegetation map at 1:250 000 scale based on vegetation complexes correlated to the major geomorphological units of Churchward and McArthur (1980). These were broader units than defined by Beard and Smith and were based on the concept of a series of vegetation communities forming regularly repeating vegetation complexes. The basis of this type of mapping was earlier quadrat based studies undertaken by Havel (1968) where he showed floristic site types in the Bassendean and Spearwood Dunes systems north of Perth were largely determined by degree of soil leaching and soil moisture. His work showed that the *Banksia* woodland of that area was made up of seven different floristic community types. Later work by Cresswell and Bridgewater (1985) suggests that at least 49 floristic community types are found on the dune systems around Perth with additional factors of seasonality of soil moisture, topographic position and historical factors being highlighted as important in determining vegetation pattern. Griffin and Keighery (1989) in a study of the northern sand plain vegetation showed strong geographical patterning and high levels of heterogeneity especially in wet heath communities. A survey of remnant vegetation on the eastern side of the plain from GinGin to Pinjarra found ephemeral wetlands were major centres of endemism on the eastern side of the plain (Keighery and Trudgen 1992). Again the wetlands were found to be highly heterogenous. Recent work by Griffin (1993) has shown significant regional variation in vegetation of Quindalup Dunes between Swan and Irwin Rivers. He suggests that foredune and beach communities are less variable than those found a short distance inland. Landform, proximity to coast, age, geology and soil type had major influence on floristic community types. Reports by Keighery (1990) and Keighery and Keighery (1992) list known endemics and communities believed to be rare in the study area.

*PURPOSE OF THE SURVEY*

A survey of remnant vegetation of the southern half of the Swan Coastal Plain (as defined by Beard 1980, 1990) was undertaken to provide a more detailed knowledge of the conservation status of species and communities that occur in this area. The study area extended from Seabird 31° 15"S south to Dunsborough and east to include the colluvial deposits of the Darling and Whicher Ranges (Figure 1). The map shows Beard's (1990) boundary of the Swan Coastal Plain; our study included a few colluvial surfaces south of this boundary.

Due to limits on both time and resources the study was restricted to remnant bushland areas on public lands and one area of private property ('Lowlands' property).

Previous ecological studies on the coastal plain have been at local scales and are of limited use in gaining an understanding of the major floristic gradients across the study area. No regional floristic based vegetation survey for the southern Swan Coastal Plain has been published. Given the need to assess conservation significance of vegetation at a finer scale than present data allow, a quadrat based survey was undertaken to delimit floristic community types.

## METHODS

Five hundred and nine 10 m x 10 m quadrats (plots, sites) were established in remnant vegetation in the study area (Figure 1). These sites were located on public land and on the 'Lowlands' property. As a result, not all the geographical or geomorphological variation could be covered. In particular the Ridge Hill Shelf, Pinjarra Plain and Quindalup land systems were under sampled. In the case of the former two they have largely been cleared (and hence the chance to study them lost) while few reserves occur on the latter land system. The 509 sites established attempted to cover the major geographical, geomorphological and floristic variation found on Crown lands. Previous studies by Keighery and Trudgen (1992) and Keighery and Keighery (1992) were used to identify areas to be sampled. Care was taken to locate sites in the least disturbed vegetation available in the area being sampled. It was not possible to cover fully the estuarine and riverine vegetation in the time available for this study; these restricted habitat types have been documented elsewhere (Pen 1980, 1993; Siemon *et al.* 1993). Some 190 of the sites were established with the aid of volunteers (See Acknowledgments). These sites were more aggregated but were located in areas containing a high degree of habitat diversity. Replication was somewhat greater in the volunteer sites than elsewhere.

Within each site all vascular plants were recorded. Most sites (>95%) were visited on at least two occasions. The seasonally wet clay pans were visited up to four times to ensure that the extended period of recruitment of annual and geophytic taxa that occurs as these pools dry was fully covered. Data on slope, aspect, vegetation structure and condition were collected from each site. Slope was scored on a one to three scale from flat to steep. Aspect was recorded as one of 16 cardinal directions. Vegetation structure was recorded using Muir's (1977) classification. Vegetation condition was scored on a five point scale with a score of one indicating vegetation in near natural condition and five indicating highly disturbed sites with significant weed invasion (after Trudgen 1991). Cause of disturbance varied but included grazing, disease, logging, high frequency fires, tracks, etc. Geomorphology and vegetation complex were derived from Heddle *et al.* (1980) and Churchward and McArthur (1980). Soil / geomorphology unit was derived from the Environmental and Urban Geology Series (Gozzard 1982a,b, 1983a,b, 1986, 1987; Smurthwaite 1986a,b; Jordan 1986a,b; Belford 1987a,b; Leonard 1991; Anon 1976, 1977a,b, 1978, 1981, 1982). Equivalent units to the Environmental Geology Series were derived from the Urban Geology Series based on map classification and field notes. The seven sites not covered by these map series were allocated to an appropriate unit based on field observation. It should be noted that as discussed earlier the units defined by these series are at times at variance with other soil / geomorphological classifications. This series was used because it gave the only complete uniform coverage of the study area. All sites were permanently marked with four steel fence droppers and most had their position fixed using a GPS unit. Estimates of mean annual rainfall and mean annual temperature were derived from the BIOCLIM model of Busby (1986).

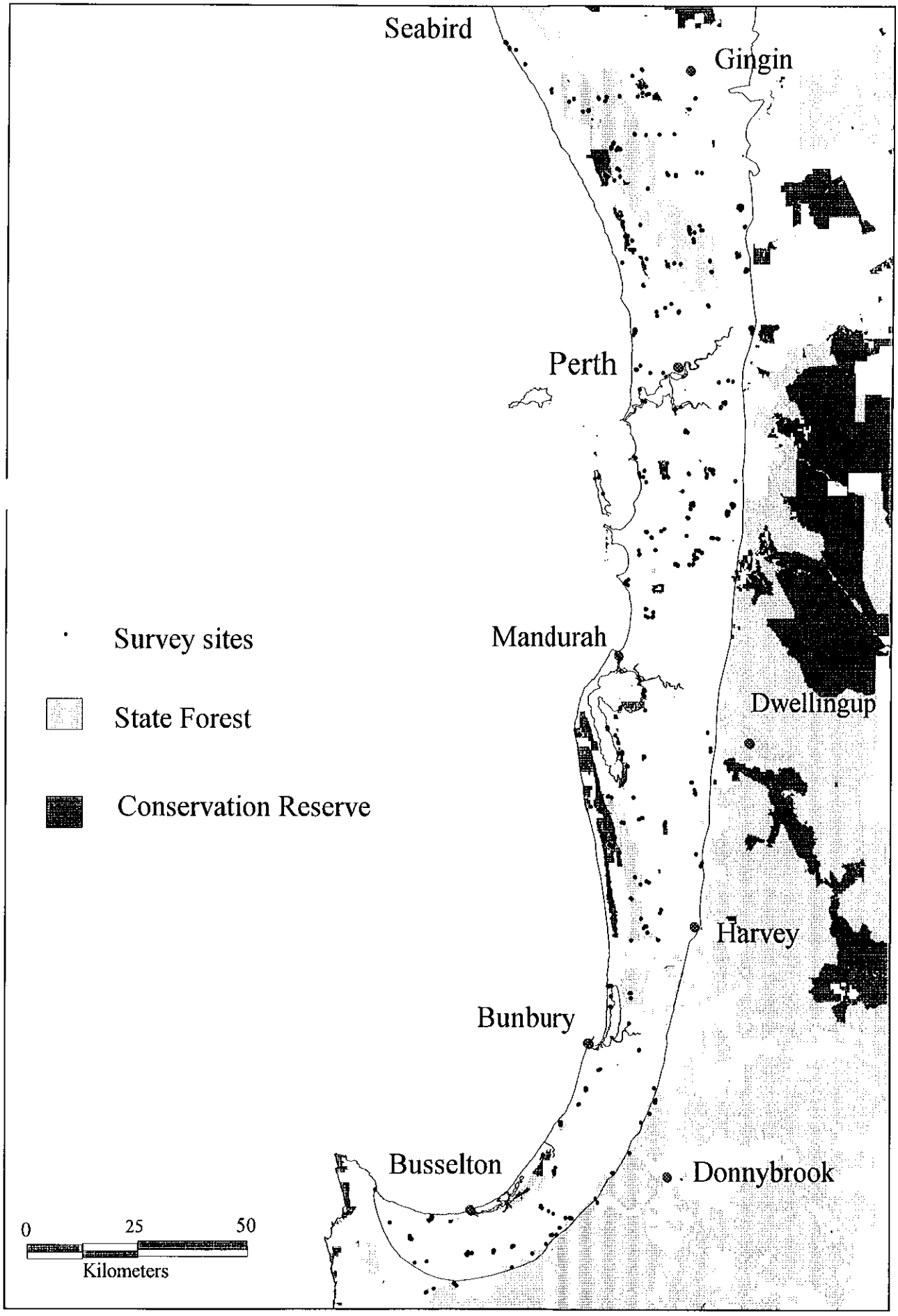



*Figure 1. Location of survey sites in the study area. Conservation reserves include those managed by CALM with conservation in their purpose. The eastern boundary of the area is Beards' (1990) Swan Coastal Plain boundary.*

Sites were classified according to similarities in species composition using the Czekanowski coefficient and "unweighted pair-group mean average" fusion method (UPGMA, Sneath and Sokal 1973). Species were classified into groups according to their occurrence at the same sites by using the TWOSTEP similarity algorithm (Austin and Belbin 1982) followed by UPGMA fusion. Alternate classifications were tried using the ALOC algorithm (Belbin 1987) and with replicate volunteer sites removed. The resulting classifications were largely similar and only the former will be discussed in detail.

Semi-strong hybrid (SSH) ordination of the sites data was undertaken to show spatial relationships between groups and to elucidate possible environmental correlates with the classification (Belbin 1991). Statistical relationship between site groups for such factors as species richness, weed frequency, percentage weed frequency, mean annual rainfall and mean annual temperature and slope class were tested using one way analysis of variance (ANOVA) and pairwise comparison of means made using least significant difference (Sneath and Sokal 1973). It was necessary to use square root transformation on weed frequency and square root and arcsine transformation on percentage weed frequency data to ensure normal distribution. Values reported have been back transformed.

Species nomenclature follows Green (1985) and current usage at the Western Australian Herbarium. Selected voucher specimens will be lodged in PERTH. Vegetation nomenclature is highly variable between different studies. In this report we present classifications based solely on floristic composition at two scales, a four group classification ('super groups') which reflect landscape scale pattern, and a finer 30 group classification. These 30 groups are called 'community types'. Finer subdivision of our community types is likely in the future as more detailed data become available. We use 'vegetation type' to refer to structural vegetation units. In south-western Australia it is well established that structural units generally encompass a range of floristic communities (Havel 1968, Griffin *et al.* 1983, Cresswell and Bridgewater 1985, Keighery and Trudgen 1992).

## RESULTS AND DISCUSSION

### *FLORA*

A total of 1485 flowering plant taxa (species, subspecies and varieties) were found in the 509 quadrats or in adjacent areas (Appendices 2, 3). Of these taxa 1313 were natives and 172 were weeds. In all 433 genera from 109 families were recorded with the Proteaceae (111 taxa), Papilionaceae (109 taxa), Myrtaceae (107 taxa), Cyperaceae (94 taxa), Orchidaceae (91 taxa), Asteraceae (87 taxa), and Poaceae (74 taxa) being the most common families. Of the 1313 native taxa at least 130 are undescribed representing a significant proportion of the taxa recorded (8.7%) (Appendix 2). Thirty of these taxa are newly recognised, reflecting the lack of previous systematic survey across the study area.

Weeds were most abundant in the Poaceae (34 taxa), Asteraceae (20 taxa), Iridaceae (16 taxa), Papilionaceae (15 taxa), Caryophyllaceae (12 taxa) and Scrophulariaceae (7 taxa). Weed frequency in the 509 quadrats ranged from zero to a maximum of 28 taxa per plot. The highest percentage weed frequencies were encountered in seasonal wetlands and in the Quindalup and Spearwood Dune systems.

#### Endemics

Of the 1485 taxa 61 appear to be endemic to the study area (Table 3). Most of the endemics are restricted to the eastern side of the coastal plain (28 taxa) or to areas of ironstone (13 taxa). A further five taxa (*Calothamnus* aff. *crassus* (Royce 84), *Dryandra* aff. *nivea* (GJK 6622), *Lepyrodia* aff. *macra* (GJK 9848), *Loxocarya magna* Ms) appear to be endemic to the ironstones of both the Swan and Scott Coastal Plains. None of the ironstone endemics from the Swan Coastal Plain are known from any conservation reserve. A further 13 taxa not encountered during the present survey also appear to be endemic to the study area (Table 4).

*Table 3. List of taxa endemic to the southern Swan Coastal Plain and recorded during the present survey.*

*Coastal Dunes*
Carpobrotus sp. (Hepburn Heights, GJK 11518)
Veronica aff. calycina (BJK & NG 235)

*Coastal Limestone*
Astroloma microcalyx
Billardiera aff. ringens (GJK 12977)
Hakea aff. undulata (BJK & NG 237)
Melaleuca aff. acerosa (GJK 11242)

*Pinjarra Plain*
Acacia lasiocarpa var. bracteolata (long peduncle form)
Aponogeton hexatepalus
Blennospora aff. drummondii (Golden bracts, BJK & NG 20)
Caesia micrantha (Large swamp form, BJK & NG 094)
Chamaescilla aff. spiralis (GJK 12501)
Conospermum pedunculatum Ms
Drosera bulbigena
Drosera macrantha (Swan coastal plain form, BJK & NG 228)
Drosera tubaestylis
Eleocharis sp. Kenwick (GJK 5180)
Eryngium pinnatifidum subsp. palustre Ms
Eryngium subdecumbens Ms
Grevillea brachystylis subsp. brachystylis
Hydatella dioica
Isotropis cuneifolia subsp. glabra Ms
Kunzea littericola Ms
Myriocephalus helichrysoides
Myriophyllum echinatum
Pimelea imbricata var. major
Rhodanthe pyrethrum
Schoenus aff. tenellus (BJK & NG 110)
Schoenus capillifolius
Schoenus natans
Stylidium mimeticum
Trichocline sp. (GJK 6382-glabrous)
Verticordia lindleyi subsp. lindleyi
Verticordia plumosa var. pleiobotrya
Verticordia plumosa var. vassensis

*Foothills*
Conospermum undulatum
Eremaea asterocarpa subsp. brachyclada
Eucalyptus marginata subsp. elegantella

*Ironstone*
Andersonia aff. latifolia (Ironstone, BJK & NG 227)
Brachysema sp. (Treeton, BJK & NG 001)
Brachysema sp. (Williamson. GJK 12719.)
Calothamnus aff. quadrifidus (Ironstone, BJK & NG 230)
Chamelaucium roycei Ms
Darwinia sp. (Williamson Rd, GJK 12839)
Dryandra sp. 30 (aff. squarrosa, ASG 11657)
Grevillea elongata
Grevillea mccutcheonii Ms
Hakea varia (Yellow flowered ironstone form BJK & NG 226)
Opercularia vaginata (Ironstone form, BJK & NG 238)
Petrophile latericola Ms
Synaphea sp. (Ironstone, wedge leaves GJK sn)

*Coastal Plain*
Caladenia huegelii
Dillwynia dillwynioides
Diuris micrantha
Dodonaea hackettiana
Jacksonia aff. sericea (swamp form)
Jacksonia sericea
Johnsonia aff. pubescens (GJK 5249)
Macarthuria aff. australis (Capel)
Tetraria australiensis
Tripterococcus sp. Cannington (A.S. George 16201)

The Pinjarra Plain endemics are all restricted to the heavy soils of the eastern side of the plain and the alluvial soils near the Peel-Harvey Estuary. Species such as *Aponogeton hexatepalus, Schoenus capillifolius, Schoenus natans,* and *Eleocharis* sp. Kenwick (GJK 5180) are restricted to clay pans which are seasonally inundated. Others such as *Rhodanthe pyrethrum, Myriocephalus helichrysoides,* and *Blennospora* aff. *drummondii* (Golden bracts, BJK & NG 20) form carpets of colour on the clay flats as they dry.

**Range ends**

The southern range end of 77 taxa and the northern range end of 48 taxa occur in the study area (Appendix 2). Eight taxa (*Acacia littorea, Calothamnus* aff. *crassus* (Royce 84), *Lambertia propinqua, Persoonia graminea, Pseudoloxocarya grossa* Ms, *Restio serialis* Ms, *Stylidium imbricatum, Stylidium preissii*) represent significant northern disjunctions, while a further 16 taxa (*Acacia barbinervis subsp. barbinervis, Actinostrobus acuminatus, Banksia incana, Beaufortia squarrosa, Calectasia grandiflora, Calytrix angulata, Calytrix leschenaultii, Conothamnus trinervis, Cryptandra humilis, Dasypogon obliquifolius, Eremaea fimbriata, Haemodorum loratum, Pityrodia*

*bartlingii, Schoenus* aff. *obtusifolia* (EAG 3841), *Schoenus latitans, Scholtzia ciliata*) represent significant southern disjunctions (Appendix 2).

*Table 4. Taxa apparently endemic to the southern Swan Coastal Plain but not recorded in the present study.*

| Taxon | Priority Listing (02/02/94) |
|---|---|
| Acacia benthamii | 2 |
| Calandrinia sp. Kenwick (aff. composita) | 1 |
| Calytrix breviseta subsp. breviseta | R |
| Chamelaucium sp. GinGin (N. Marchant sn. 4.11.88) [aff. pauciflorum] | 1 |
| Conostylis aculeata subsp. cygnorum | - |
| Conostylis pauciflora subsp. pauciflora | 4 |
| Cryptandra glabrata | 1 |
| Diuris purdiei | R |
| Drakaea elastica | R |
| Epiblema grandiflorum var. cyanea Ms | R |
| Grevillea sp. Yanchep (P. Olde 91/240) [aff. obtusifolia] | 1 |
| Lasiopetalum membranaceum | 2 |
| Lepidosperma rostratum | 1 |

**New records for the study area**

In addition to the 30 newly recognised taxa found in the course of this survey another 51 taxa were found that had apparently not previously been recorded for the study area (Table 5). For many of these taxa this represents the first definitive record of Darling Scarp and Plateau species on the coastal plain.

*Table 5. New records for the southern Swan Coastal Plain based on Western Australian Herbarium collections and field observation.*

Acacia browniana
Acacia dentifera
Acacia divergens
Acacia ericifolia
Acacia lateriticola
Acacia urophylla
Amperea ericoides
Amperea volubilis
Aristida contorta
Aristida ramosa
Beaufortia sparsa
Callitriche hamulata
Calothamnus aff. crassus (Royce 84)
Calothamnus graniticus subsp. leptophyllus
Calothamnus pallidifolius
Cassytha micrantha
Chamaexeros serra
Chorizandra cymbaria
Conospermum teretifolium
Conostylis setosa
Cyathochaeta clandestina
Darwinia thymoides
Evandra aristata
Gyrostemon subnudus
Hakea cristata
Hovea elliptica
Hyalosperma demissum
Ixiolaena viscosa
Kennedia stirlingii
Lambertia propinqua
Laxmannia grandiflora
Leptomeria ericoides
Leptomeria scrobiculata
Lomandra drummondii
Lomandra nutans
Lomandra spartea
Nemcia dilatata
Opercularia apiciflora
Patersonia rudis
Persoonia graminea
Petrophile shuttleworthiana
Platysace haplosciadia
Ptilotus humilis subsp. humilis
Restio seralis
Scholtzia ciliata
Stylidium imbricatum
Stylidium roseonanum
Stylidium spathulatum
Xanthorrhoea drummondii

## Rare and Priority taxa found during the survey

Ten species of Declared Rare Flora (DRF, Department of Conservation and Land Management 1994) were found during the survey (Table 6). Two of these taxa (*Schoenus natans* and *Tetraria australiensis*) were previously believed to be extinct. Another species *Centrolepis caespitosa* is currently listed as extinct although it has been recently collected from the South Stirlings. In all, 20 new populations of DRF were recorded in the course of the survey. In addition to the DRF a further 75 priority species were encountered (Table 6).

*Table 6. List of Declared Rare and Priority Flora encountered during the survey. Recommendations for listing as DRF and other changes to the Priority list (02/02/94) are also shown where relevant.*

| Taxon | Current Listing | Suggested Listing |
|---|---|---|
| Acacia flagelliformis | 4 | |
| Acacia lasiocarpa var. bracteolata (Long peduncle form) | 1 | |
| Acacia mooreana | 2 | |
| Acacia semitrullata | 3 | |
| Andersonia aff. latifolia (Ironstone BJK & NG 227) | - | 1 |
| Angianthus micropodioides | 3 | |
| Anthotium junciforme | 4 | |
| Aponogeton hexatepalus | R | |
| Aristida ramosa | 1 | - |
| Baeckea tenuifolia | - | 1 |
| Banksia meisneri var. ascendens | 4 | |
| Billardiera aff. ringens (GJK 12977) | - | 1 |
| Blennospora aff. drummondii (golden bracts BJK & NG 20) | - | 3 |
| Brachysema sp. (Treeton BJK & NG 001) | 1 | R |
| Brachysema sp. (Williamson GJK 12719) | 1 | R |
| Caladenia huegelii | R | |
| Calothamnus aff. crassus (Royce 84) | 1 | |
| Calothamnus aff. quadrifidus (Ironstone BJK & NG 230) | - | 1 |
| Calothamnus graniticus subsp. leptophyllus | 2 | |
| Carpobrotus modestus | 1 | |
| Centrolepis caespitosa | R | |
| Chamaescilla aff. spiralis (GJK 12501) | - | 1 |
| Chamelaucium erythrochlorum Ms | R | |
| Chamelaucium roycei Ms | R | |
| Chorizema varium | R | |
| Conospermum undulatum | 4 | R |
| Conostephium minus | 4 | |
| Conostylis pauciflora subsp. euryrhipis | 1 | |
| Darwinia sp. (Williamson Rd GJK 12839) | 1 | R |
| Dillwynia dillwynioides | - | 2 |
| Diuris micrantha | R | |
| Dodonaea hackettiana | 4 | |
| Drosera marchantii subsp. marchantii | 4 | |
| Drosera occidentalis subsp. occidentalis | 4 | |
| Dryandra aff. nivea (GJK 6622) | - | R |
| Dryandra sp. 30 (aff. squarrosa ASG 11657) | 1 | R |
| Eleocharis sp. Kenwick (GJK 5180) | 1 | |
| Eremaea asterocarpa subsp. brachyclada | - | 1 |
| Eryngium pinnatifidum subsp. palustre Ms | 1 | |
| Eryngium subdecumbens Ms | 1 | |
| Eucalyptus argutifolia | R | |
| Eucalyptus marginata subsp. elegantella | 1 | R |
| Franklandia triaristata | 4 | |
| Grevillea althoferorum | 1 | |
| Grevillea brachystylis subsp. brachystylis | 2 | |
| Grevillea elongata | 2 | R |
| Grevillea mccutcheonii Ms | 1 | |
| Haemodorum loratum | 3 | |
| Hakea aff. undulata (BJK & NG 237) | 2 | 4 |
| Hakea myrtoides | 3 | |
| Hakea varia (Yellow flowered ironstone form BJK & NG 226) | | R |
| Haloragis aculeolata | 2 | |
| Haloragis tenuifolia | 1 | |
| Hibbertia spicata subsp. leptotheca | 3 | |
| Hydatella dioica | 2 | |

(Table 6 continued on next page)

Table 6 continued.

| | | |
|---|---|---|
| Isopogon drummondii | 3 | |
| Isopogon scaber | 1 | |
| Isotropis cuneifolia subsp. glabra Ms | - | R |
| Jacksonia sericea | 3 | |
| Jacksonia sp. Busselton (GJK 4482) PN | 3 | |
| Lambertia multiflora | 3 | |
| Lambertia propinqua | 2 | |
| Lepidium puberulum | 4 | |
| Leptomeria ericoides | 1 | |
| Leptomeria lehmannii | 2 | |
| Lepyrodia heleocharoides | 3 | |
| Loxocarya magna Ms | 3 | |
| Lysinema elegans | 2 | |
| Melaleuca aff. acerosa (GJK 11242) | 2 | |
| Mitrasacme palustris | 1 | |
| Mitrasacme sp. Southwest (GJK 343) | 2 | |
| Myriocephalus appendiculatus | 3 | |
| Myriophyllum echinatum | 1 | 2 |
| Parsonsia diaphanophleba | 2 | - |
| Petrophile latericola Ms | 1 | R |
| Pithocarpa achilleoides | 2 | |
| Pultenaea skinneri | 4 | |
| Restio gracilior | 3 | |
| Rhodanthe pyrethrum | 3 | |
| Schoenus benthamii | 3 | |
| Schoenus capillifolius | 2 | |
| Schoenus natans | R | |
| Schoenus pennisetis | 1 | |
| Stachystemon axillaris | 4 | |
| Stylidium aff. bulbiferum (Ironstone) | - | 2 |
| Stylidium longitubum | 1 | |
| Stylidium mimeticum | 1 | |
| Stylidium rigidifolium | 2 | |
| Synaphea acutiloba | 3 | |
| Synaphea pinnata | 4 | |
| Tetraria australiensis | R | |
| Thysanotus glaucus | 4 | |
| Trichocline sp. (Glabrous - GJK 6328) | - | 1 |
| Triglochin stowardii | 2 | |
| Tripterococcus sp. Cannington (A.S. George 16201) PN | 1 | |
| Verticordia lindleyi subsp. lindleyi | 4 | |
| Verticordia plumosa var. pleiobotrya | 1 | |
| Verticordia plumosa var. vassensis | 1 | |
| Villarsia submersa | 4 | |

## Taxa Subject to Recommendations for Gazettal as Declared Rare Flora or for Priority Listing

Sufficient survey was done in the course of this study and in earlier surveys (Whicher Range - G.J. Keighery, unpublished; the Scott Plain - Keighery and Robinson 1992; eastern Swan Coastal Plain - Keighery and Trudgen 1992; the south coast - N. Gibson and M. Lyons, unpublished; metropolitan region - Kelly *et al.* 1993) to make the following recommendations for changes to the schedule of Declared Rare Flora and to the Priority List. A site record indicates the taxon was found in one or more of the 509 quadrats, an area record indicates the taxon was found in bushland remnants in which the quadrats were located.

*Andersonia* aff. *latifolia* (Ironstone BJK & NG 227)
Record type: site records, 4 populations from community type 10b.
Taxonomic status: previously unrecognised taxon.
Related taxa: distinguished from *Andersonia latifolia* by its larger leaves, low dense habit and occurrence on ironstones on the plain rather than on the laterites of the adjacent plateaus.
Comment: from community type 10b ranked as critical (Table 23); probably highly susceptible to *Phytophthora spp.*
Recommendation: Priority 1.

*Baeckea tenuifolia*
Record type: area record, one population from community type 8.
Comment: the only known population of this species in the study area (also occurs at several other localities to Moora in the north), from community type 8 ranked as vulnerable (Table 23).
Recommendation: Priority 1.

*Billardiera* aff. *ringens* (GJK 12977)
Record type: site record, one population from community type 29a.
Taxonomic status: previously unrecognised subspecies (E. Bennett pers. comm.).
Related taxa: *Billardiera ringens* which is found in the Geraldton area.
Comment: the only currently known population of this taxon, from a community type ranked as susceptible (Table 23).
Recommendation: Priority 1.

*Blennospora* aff. *drummondii* (golden bracts BJK & NG 20)
Record type: site records, eight populations from community types 7, 10a and 18.
Taxonomic Status: previously unrecognised taxon.
Related taxa: distinguished from *Blennospora drummondii* by the golden corolla lobes; typical *Blennospora drummondii* was only found in the north of the study area.
Comment: these community types are ranked as vulnerable (Table 23).
Recommendation: Priority 3.

*Brachysema* sp. (Treeton BJK & NG 001)
Record type: area record, one population from the interface between community types 10b and 1a.
Taxonomic status: previously unrecognised taxon, being described by M. Crisp (pers. comm.).
Related taxa: distinguished from *Brachysema minor* in having cream flowers (sometimes blushed with pink) grouped in diffuse prostrate terminal racemes.
Comment: confined to a single locality on the interface between community types 10b and 1a.
Recommendation: gazettal as Declared Rare Flora (current listing, Priority 1).

*Brachysema* sp. (Williamson GJK 12719)
Record type: area record, one population from community type 10b.
Taxonomic status: previously unrecognised taxon, being described by M. Crisp (pers. comm.).
Related taxa: distinguished from *Brachysema sericea* by its distinctive upright habit, V-shaped apex to the leaves, terminal racemes of smaller cream or pale red flowers.
Comment: a reseeder confined to a single small population on the southern ironstone shrublands (community type 10b); this community type is ranked as critical (Table 23).
Recommendation: gazettal as Declared Rare Flora (current listing, Priority 1).

*Calothamnus* aff. *quadrifidus* (Ironstone BJK & NG 230)
Record type: site and area records, community type 10b.
Taxonomic status: previously unrecognised taxon.
Related taxa: distinguished from *C. quadrifidus* in being 2.5 metres tall, with glabrous leaves and brighter, light red flowers, reseeder.
Comment: confined to community type 10b which is ranked as critical (Table 23).
Recommendation: Priority 1.

*Chamaescilla* aff. *spiralis* (GJK 12501)
Record type: site records, 3 populations from community type 8.
Taxonomic status: previously unrecognised taxon.
Related taxa: differs from *C. spiralis* in having straight not spirally twisted leaves, pale blue flowers and plants grow and flower in pools up to 5 cm deep rather than in sands.
Comment: confined to community type 8 which is ranked as vulnerable (Table 23).
Recommendation: Priority 1.

*Conospermum undulatum*
Record type: site records, 2 populations from community type 20a.
Comment: this taxon has been well surveyed (Kelly *et al.* 1993, Keighery and Trudgen 1992) and is confined to community type 20a which is ranked as endangered (Table 23); probably highly susceptible to *Phytophthora.*
Recommendation: gazettal as Declared Rare Flora (current listing, Priority 4).

*Darwinia* sp. (Williamson Rd GJK 12839)
Record type: site record, individual from community type 10b.
Taxonomic status: previously unrecognised taxon.
Related taxa: distinguished from *Darwinia apiculata* in having recurved leaves, fringed floral bracts, which are red-green in colour and fewer flowers in the inflorescence.
Comment: represented currently by a single adult individual, and numerous seedlings, on the southern ironstone shrublands (community type 10b) which is ranked as critical (Table 23), reseeder.
Recommendation: gazettal as Declared Rare Flora (current listing, Priority 1).

*Dillwynia dillwynioides*
Comment: an uncommon species found on seasonally inundated flats, generally alongside rivers or deeper swamps, between Harvey and north of Yanchep on the Plain, eight populations were identified in this study and there are eight collections in the WA Herbarium.
Recommendation: Priority 2.

*Dryandra* aff. *nivea* (GJK 6622)
Record type: site and area records, community type 10b.
Taxonomic status: recently recognised taxon.
Related taxa: one of the many 'mound' forms of *Dryandra nivea* , to be recognised as a distinct species (A.S. George pers. comm.).
Comment: confined to the southern ironstone shrublands (community type 10b) and ironstones in the Scott River area, community type 10b is ranked as critical (Table 23), highly susceptible to *Phytophthora*, reseeder.
Recommendation: gazettal as Declared Rare Flora (current listing, Priority 1).

*Dryandra* sp. 30 (aff. *squarrosa* ASG 11657)
Record type: site and area records, community type 10b.
Taxonomic status: a recently recognised taxon.
Related taxa: related to *Dryandra squarrosa* (A.S. George pers. comm.).
Comment: confined to the southern ironstone shrublands (community type 10b), community type 10b is ranked as critical (Table 23), highly susceptible to *Phytophthora*, reseeder.
Recommendation: gazettal as Declared Rare Flora (current listing, Priority 1).

*Eremaea asterocarpa* subsp. *brachyclada*
Record type: area record, community type 21b.
Taxonomic status: a recently recognised taxon.
Related taxa: related to *Eremaea asterocarpa* subsp. *asterocarpa.*
Comment: A very restricted taxa with very few collections.
Recommendation: Priority 1 (Hnatiuk 1993).

*Eucalyptus marginata* subsp. *elegantella*
Record type: 2 area records.
Taxonomic status: recently described taxon (Brooker and Hopper 1993).
Comment: confined to the Ridge Hill Shelf between Byford and Coolup, no populations are known from a conservation reserve.
Recommendation: gazettal as Declared Rare Flora.

*Grevillea elongata*
Record type: single area record, community type 10b.
Comment: all specimens of this species are from a single population on the southern ironstone shrublands (community type 10b), community type 10b is ranked as critical (Table 23).

Recommendation: gazettal as Declared Rare Flora.

*Gnephosis angianthoides*
Record type: a single large population of this taxon was found in the study growing on a sandy bank beside the Serpentine River.
Comment: the majority of collections in the Herbarium are from the wheatbelt with only three old collections (1910, 1917 and undated) from the plain around Perth. Indumentum patterns on these specimens indicate that can be separated from the wheatbelt populations (E.A. Griffin pers. comm.).
Recommendation: Priority 2.

*Hakea* aff. *undulata* (BJK & NG 237)
Record type: site and area from a single population on a limestone ridge in Yalgorup National Park, community type 26b and 28.
Taxonomic status: a recently recognised taxon (M. Trudgen pers. comm.).
Related taxa: distinguished from *Hakea undulata* by its generally smaller leaves, flowers and fruit and habitat, *Hakea undulata* being confined to isolated occurrences on the eastern side of the Plain and the Plateau in the study area, reseeder.
Recommendation: Priority 4.

*Hakea* aff. *varia* (Yellow flowered ironstone form BJK & NG 226)
Record type: site and area records, community type 10b.
Taxonomic status: a previously unrecognised taxon.
Related taxa: distinguished from the widespread *Hakea varia* in being up to 2.5 metres tall with bright lemon yellow flowers, flowering in spring not summer-autumn and terete leaves.
Comment: confined to the southern ironstone shrublands (community type 10b), community type 10b is ranked as critical (Table 23) , reseeder.
Recommendation: gazettal as Declared Rare Flora.

*Isotropis cuneifolia* subsp. *glabra* Ms
Record type: site and area records, community type 7.
Taxonomic status: a previously unrecognised subspecies.
Related taxa: distinguished from the typical subspecies by the absence of hairs, a characteristic crescent shaped apex to the leaves and habitat as it is confined to the seasonally inundated heavy soils of the Pinjarra Plain.
Comment: confined to GinGin area in community type 7, which is ranked as vulnerable (Table 23)
Recommendation: gazettal as Declared Rare Flora.

*Lambertia propinqua*
Record type: area record, community type 10b.
Comment: the single record of this species in the study area represents a disjunct population from the other populations on the south coast east of Albany, community type 10b is ranked as critical (Table 23), highly susceptible to *Phytophthora*, reseeder.
Recommendation: Priority 2.

*Myriophyllum echinatum*
Record type: site and area records from eight populations in community types 7, 8, 9 and 10b.
Comment: a poorly collected species found on the seasonally inundated heavy soils of the Pinjarra Plain.
Recommendation: Priority 2 (presently Priority 1).

*Petrophile latericola* Ms
Record type: site and areas records from community type 10b.
Taxonomic status: a previously unrecognised species.
Related taxa: distinguished from the more widespread *Petrophile brevifolia* by its smaller inflorescences, leaves and lack of a lignotuber.
Comment: confined to community type 10b, ranked as critical (Table 23), highly susceptible to *Phytophthora*, reseeder.
Recommendation: gazettal as Declared Rare Flora (presently Priority 1).

*Stylidium* aff. *bulbiferum*
Record type: site records from community type 10b.
Taxonomic status: a recently recognised taxon (A.H. Burbidge and A. Lowrie unpubl.).
Related taxa: distinguished from *Stylidium bulbiferum* in being associated with community type 10b in the study area (also recorded at Eagle Bay in association with granitic soils) and having single terminal flowers, not a raceme.
Comment: generally confined to community type 10b, ranked as critical (Table 23).
Recommendation: Priority 2.

*Trichocline* sp.
Record type: site and area records from five populations in community types 8 and 10b.
Taxonomic status: a recently recognised species (Keighery and Keighery 1991), currently being investigated and will be described as a distinct species (R. Cranfield pers. comm.).
Related taxa: distinguished from *Trichocline spathulata* in being associated with seasonally inundated heavy soils and having short, linear leaves and shorter inflorescences that are smaller in all measurements.
Comment: not known from any conservation reserve.
Recommendation: Priority 1.

**Other unusual and recently delineated taxa**

*Acacia lasiocarpa*
Two varieties of this taxon occur in the study area. *Acacia lasiocarpa* var. *lasiocarpa* is found in near coastal areas generally on sand over Tamala limestone but is also characteristic of the Beach Ridge Plain at Becher Point. The other variety, *Acacia lasiocarpa* var. *bracteolata* (long peduncle) is endemic to the study area and confined to community types 7 and 8, on the seasonally waterlogged and inundated heavy soils of the Pinjarra Plain. This taxa was referred to by Maslin (1975) as a form of *A. lasiocarpa* var. *lasiocarpa* where he noted its affinities with var. *bracteolata.* It is presently a Priority 1 taxon under the name *Acacia lasiocarpa* var. *bracteolata* (long peduncle).

*Acacia paradoxa*
An uncommon taxon in the study area associated with riverine banks of several geomorphological systems. The vegetation of all areas where this taxon was found were so degraded that it is not possible to sample the community in which this taxon occurred in the study area.

*Angianthus drummondii - preissianus - micropodioides* Group
In this study five taxa were clearly distinguished in this group in the field: *A.* aff. *drummondii*, *A. drummondii*, green prostrate and upright forms of *A. preissianus* and *A. micropodioides.* The two forms of *A. preissianus* were combined for this study. Identifications of specimens in the herbarium are confused and this group needs to be re-examined (P.S. Short, pers. comm.).

*Aristida ramosa*
There are two known populations of this species in Western Australia (also occurs in eastern Australia), the population recorded in this survey is a new record for the study area.
It is presently a Priority 1 taxon and this listing should be maintained.

*Boronia alata*
Only two records are known for the study area: Rottnest Island and riverine cliffs at Minim Cove.

*Boronia denticulata* (Single site record)
This taxon was probably more common than study records indicate. *Boronia denticulata* is very similar to *B. spathulata* (especially around Perth) and flowering material is required to accurately determine the two taxa. A third taxon, *B. fastigiata*, also becomes very similar to *B. spathulata* around Perth and may also have been placed under *B. spathulata* in this study. Herbarium records indicate that *B. denticulata* is found in the south of the study area and replaced by *B. fastigiata* to the north .

*Bossiaea eriocarpa* (Large flowered form, BJK & NG 229)
*Bossiaea eriocarpa* is a widespread taxon with poorly understood patterns of variation. Marchant *et al.* (1987) commented that *B. eriocarpa* and *B. ornata* intergrade in the Perth region. However records from this study recognise a large flowered and leaved form of *B. eriocarpa* that is apparently confined to community type 3b. This taxon should be recognised at the specific level. These two taxa co-occurred in two areas (including one site). This taxon requires further survey, and should be considered for listing as Priority 1.

*Calothamnus* aff. *crassus* (Royce 84)
This taxon was previously considered to be confined to the south coast (Scott River and Chester Block) and this is the first record on the Plain. The community in which this taxa was found was confined to a narrow roadside remnant but it would probably group with community type 10b.

*Calothamnus graniticus* subsp. *leptophyllus*
This is the first record on the Plain and the second in the Perth Region.

*Centrolepis caespitosa*
Although listed as presumed extinct (Priority List 2/2/94) there is a recent collection from the South Stirlings (GJK collection). The two populations from the study area are from community types 8 and 10b. The current gazettal of the taxon as Declared Rare Flora is supported.

*Chorizema varium*
This presumed extinct taxon was rediscovered in 1990 just north of the study area on Tamala limestone. A further four populations have been located in community type 29a. This taxon has a very restricted geographical range and is presently not known from any conservation reserve. The current gazettal of the taxon as Declared Rare Flora is supported.

*Craspedia* species
Two species of *Craspedia* are recognised. *Craspedia* sp. as delineated by Marchant *et al.* (1987) is yet to be described. This taxon is confined to sandy soils and has a woolly indumentum and pale yellow flowers. *Craspedia* sp. nov. (Waterloo, GJK 13110) is completely glabrous with bright yellow flowers, and was found growing in water on the seasonally inundated heavy soils of the Pinjarra Plain near Waterloo. The community in which it was found was not sampled in the study as all areas located were too disturbed to be sampled. This community is closest to that represented in the study area by community type 8. Further investigation of this taxon is required for a recommendation to be made but it is apparently endemic to the study area.

*Drosera macrantha* subsp. *macrantha* (Swan Coastal Plain form, BJK & NG 228)
A tall robust densely glandular hairy form of *Drosera macrantha* from Marri Woodland on the eastern side of the Plain. Further investigation of this taxon is required for a recommendation to be made but it is apparently endemic to the study area.

*Elatine gratioloides*
A rarely collected aquatic previously known from one other location in the study area near Boyanup. The single collection from near Waroona in this study is a new record for the Perth Region (Marchant *et al.* 1987).

*Eryngium subdecumbens* Ms
A recently recognised species (Keighery and Keighery 1991) occurring in three populations in community types 7 and 8 between Kenwick and Busselton. The current priority listing (Priority 1) should be maintained.

*Gompholobium capitatum*, *G. preissii* and *G. tomentosum*
Marchant *et al.* (1987) comments on the need for further studies on the species boundaries between these three species. In the study area these three were readily distinguished in the field. *Gompholobium capitatum* has a dense corymb of relatively large bright yellow flowers, narrowly linear to terete pilose leaflets and was only found in sandy clay seasonally inundated areas south of Capel. *Gompholobium preissii* was confined to the Ridge Hill Shelf north of Bullsbrook and has

small orange flowers and narrowly ovate leaflets. *Gompholobium tomentosum* has a variety of forms which have probably been the source of the confusion between the three taxa. All forms have dull yellow flowers but these vary greatly in size.

*Gompholobium confertum*
An unusual maroon coloured form of this species was found in the study area at three widely separated localities (Burnside Road, State Forest 65 and Koondoola) in three different community types. This taxon requires further investigation to determine its taxonomic status.

*Grevillea althoferorum*
A newly described species previously known from a single locality (Olde and Marriot 1993), a new population of this species was located in the study area near Bullsbrook. The current coding as Priority 1 should be maintained as this taxon is probably susceptible to *Phytothphora* which is present in the area of the new population. It should be considered for gazettal as Declared Rare Flora.

*Hovea trisperma* var. *grandiflora*
A large flowered variety of this widespread species found on the Ridge Hill Shelf in six community types in the study area. It was placed in synonomy under *H. trisperma* in the latest revision of the genus *Hovea*. This distinctive variant co-occurs with *H. trisperma* var *trisperma*, and should be re-instated.

*Hydatella dioica*
A poorly collected inconspicuous species of inundated clay flats. A new location was found in this study and it is now known from three sites in the study area from community types 7 and 8. This community type needs to be searched at the appropriate time to locate further populations.

*Isopogon scaber*
This species was found in nine separate sites in a variety of community types on the Ridge Hill Shelf and Pinjarra Plain near Busselton. This species is also known from a single population on the Plateau near Dale.

*Johnsonia* aff. *pubescens* (GJK 5249)
This taxon is closely related to *Johnsonia pubescens* and will probably be described as a subspecies of *J. pubescens*. It is known from Cardup, Brickwood and Lowlands, all Bassendean Sands on the eastern side of the Plain. *Johnsonia pubescens* also occurs at Cardup and is here at the southern limit of its distribution.

*Kennedia coccinea*
A common species of the Plateau and to a lesser extent the Ridge Hill Shelf that also occurs less commonly on the Quindalup sands and the sand over Tamala limestone. Further studies on this species are required to establish if the coastal populations can be distinguished taxonomically.

*Lysinema elegans*
An uncommon species confined to the Bassendean Sands between Moore River and Jandakot. With the location of a new population in State Forest 65 (site record) the species is now known from two populations in the north of its range but the only other populations in the Jandakot area are threatened. The current priority listing (Priority 2) should be maintained.

*Macarthuria* aff. *australis*
A previously unrecognised taxon found between Capel and Jandakot on Bassendean Sands adjacent to seasonally inundated areas. This taxon may be *Macarthuria* sp. Harvey (Priority 1) but no collection was located in PERTH.

*Marsilea* sp. (BJK & NG 084)
A single collection of this taxon was made from community type 7 in Austin Bay Nature Reserve. Our collection is a poor match for *Marsilea drummondii*. Further studies are required to establish this taxon's taxonomic relationships.

*Melaleuca* aff. *acerosa* (GJK 11242)
Previously only recorded on thin sand Tamala limestone at Parrot Ridge, a further population may occur on a similar ridge immediately to the north. This needs to be checked in the appropriate season. The current priority listing (Priority 2) should be maintained.

*Myriocephalus* species
Four species of *Myriocephalus*; (*M. appendicularis*, *M. helichrysoides*, *M. rhizocephalus* and *M. isoetes)* were found in the study. While these species are common in community types 7 and 8 (single occurrence in community type 9) they are rarely collected. In their vegetative phase two of the species, *M rhizocephalus* and *M. isoetes*, are difficult to distinguish and both are poorly collected.

*Nemcia* sp. (Cordate leaves, BJK & NG 032)
A recently recognised species (M. Crisp pers. comm.), represented presently by a single specimen in the Herbarium and one site record in this study from Dardanup. This species should be further investigated for possible Priority listing.

*Nemcia reticulatum*
This species has a distinct broad leaved coastal form which is very common on near-coastal sands and sand over Tamala limestone on the Plain extending from Burns Beach to Northampton. This taxon is not known in any conservation reserves south of Nambung.

*Opercularia vaginata* (Ironstone form, BJK & NG 238)
A gracile form of this species consistently associated with community type 10b (area and four site records). Further studies on this form are required to establish if this form can be distinguished taxonomically.

*Parsonsia diaphanophleba*
A creeper confined to areas of relatively intact native vegetation on the riverine banks on the Murray and Serpentine Rivers extending up onto the Darling Plateau. Few intact areas remain along these rivers on the Plain. The current priority listing should be maintained but consideration should be given to gazettal of this species as DRF.

*Petrophile serruriae*
A pink variant of this species occurs on the sand over Tamala limestone on the Plain from Yalgorup to Geraldton. Further studies on this form are expected to establish this form as a distinct species.

*Podolepis gracilis* (Swamp form)
A robust glabrous form of this species with large pink or white flowers was consistently distinguished in the field on the seasonally inundated heavy soils of the Pinjarra Plain from GinGin to Busselton. Further studies on this form are required to establish if it can be distinguished taxonomically.

*Rhodanthe manglesii* and *R. spicata*
These two species were uncommon in the study area and were associated with the northern ironstones south of GinGin. It was not possible to sample this community as the only areas located in reasonable condition were on private land.

*Schoenus natans*
Previous to this study this species was considered to be extinct. Five populations were located in the study area in community types 7 and 8 in fresh water pools on clay. The current gazettal as Declared Rare Flora should be maintained.

*Schoenus* sp 2
A recently recognised species (B. L. Rye pers. comm.) found on the seasonally inundated heavy soils of the Pinjarra Plain from GinGin to Busselton in the study area.

*Scholtzia ciliata*
An isolated population of this taxon was found near Yarloop on the Ridge Hill Shelf.

*Stipa campylachne*, *S. semibarbata*, *S. hemipogon* and *S. mollis*
These four species are difficult to distinguish and are grouped in this study. *Stipa campylachne* and *S. semibarbata* are listed by Marchant *et al.* (1987) but all four may occur in the study area. *Stipa hemipogon* is recorded for the Perth Region but is not included in Marchant *et al.* (1987).

*Stylidium bulbiferum*
A variant of this species occurs on the thin sand over Tamala limestone on the Plain from Yalgorup to Yanchep. Further studies on this form are expected to establish it at the subspecific level and possibly at species level.

*Stylidium preissii*
Although previously recorded on the Plain it is presently known in the study area from only one locality in the Jandakot area (A. Lowrie, pers. comm.). Otherwise this species is known from the south coast between Esperance and Mt Manypeaks. The Jandakot population is in need of detailed study to establish its relationship to the south coast populations.

*Stylidium roseonanum*
A large population of this species occurred at Austin Bay in community type 7. This is an inconspicuous and poorly collected species and it should be considered for Priority listing.

*Synaphea* species
Eight recently recognised undescribed taxa are distinguished in the study area. While each of these taxa are considered to be locally common they are of restricted distribution (A.S. George pers. comm.) and should be considered for Priority listing on completion of the current taxonomic revision.

*Tetraria australiensis*
Prior to this study this species was considered to be extinct. Two populations were located in the study area on sandy soils associated with heavy soils on the Pinjarra Plain. The current gazettal as Declared Rare Flora should be maintained.

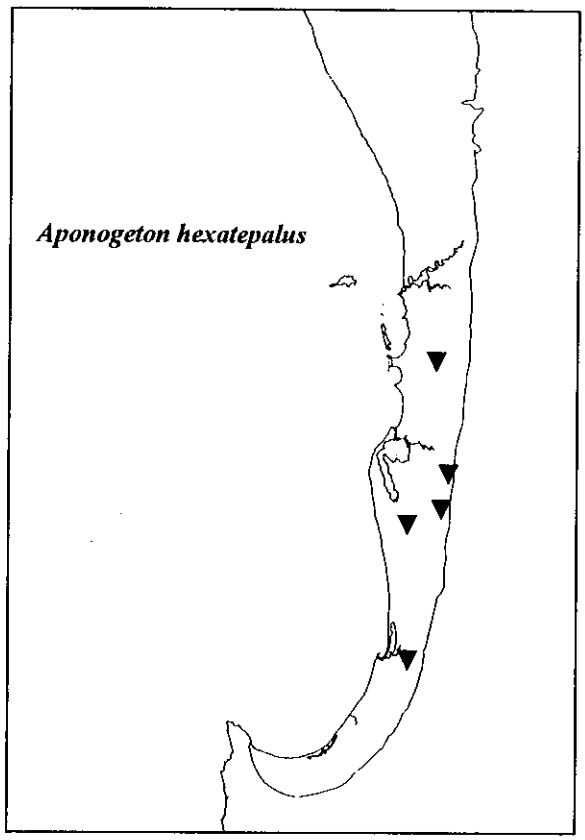
*Themeda triandrus*
Roadside populations of this species were observed in the study area associated with Wandoo Woodlands from GinGin to Dardanup. It was not possible to sample this community as all locations were in a very disturbed condition, generally being reduced to scattered trees over exotics.

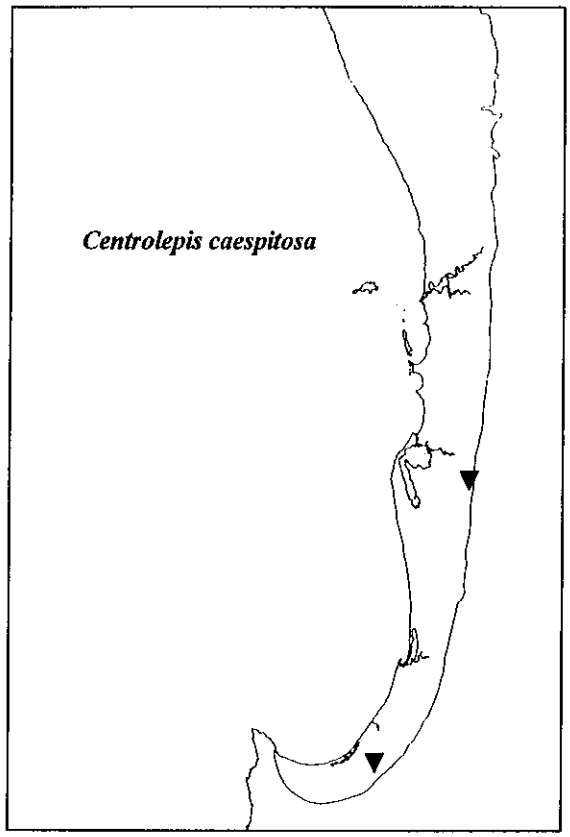
*Tribonanthes* aff. *violacea*
A tall robust pale purple flowered form of *Tribonanthes violacea* confined to community type 7 in this study (also found at Alfred Cove in a community which is floristically similar to community type 7). Further studies on this form are expected to establish this form as a distinct species.

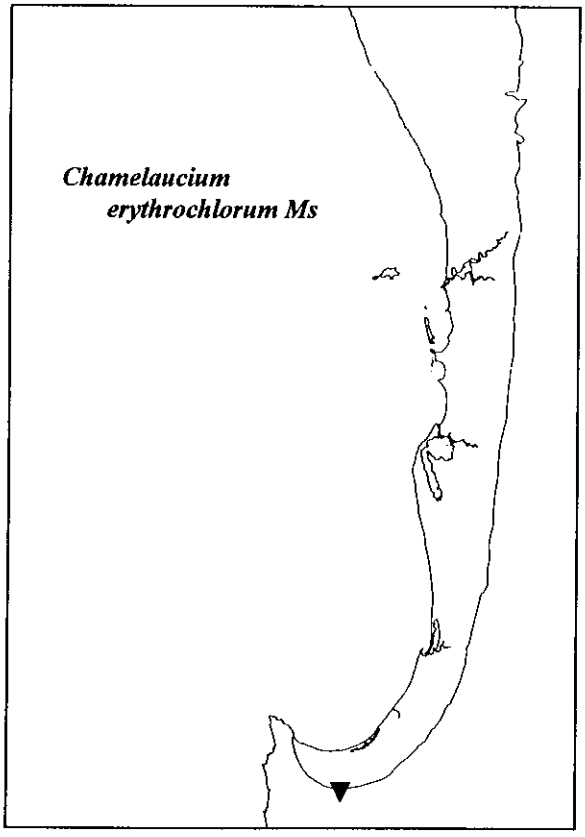
*Veronica* aff. *calycina* (BJK & NG 235)
This taxon is related to *V. calycina* but is more robust and less densely pubescent and is currently known from less than five records on the Quindalup Dunes at Yalgorup and Alkimos (Trudgen and Keighery 1990). Most of the habitat type that it occurs in between Yalgorup and Yanchep has been cleared or degraded by grazing and it appears to be rare or at least very uncommon. This is probably *V. stolonifera* described from Fremantle.

*Wurmbea dioica* subsp. aff. *alba* (GJK 12803)
A robust large flowered form of this taxon found growing in water up to half a metre deep in community types 7,8 and 10b.

*Wilsonia humilis*
An uncommon species in the study area confined to highly saline communities near Coogee, Mandurah and Rottnest. This species is not listed in Marchant *et al.* (1987).



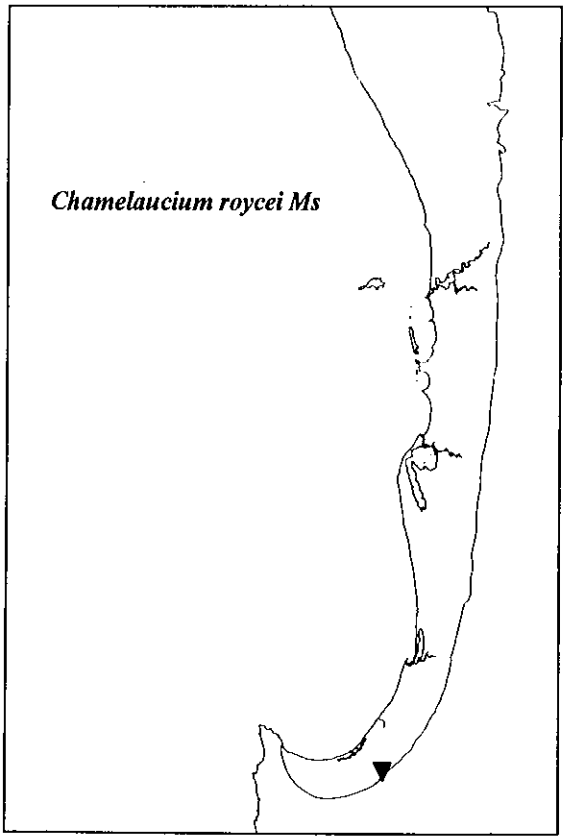
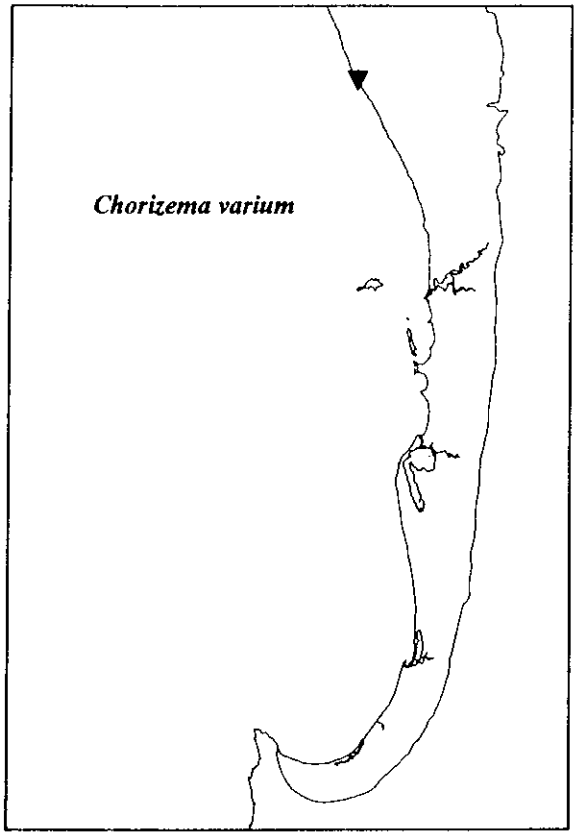
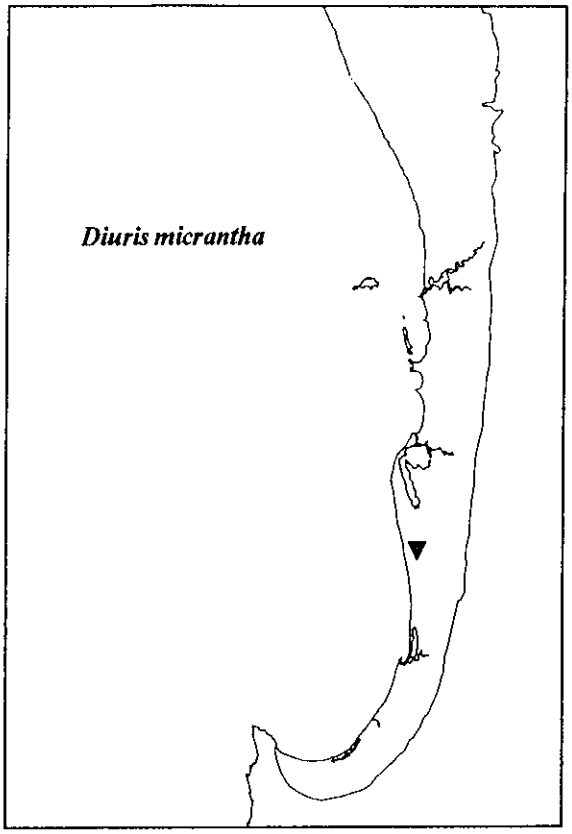
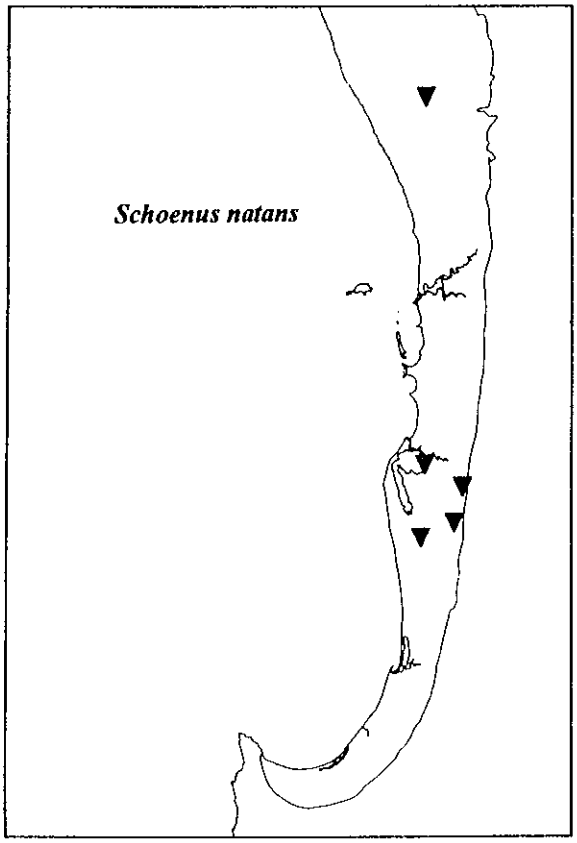




*Figure 2. New populations of Declared Rare Flora in the study area.*



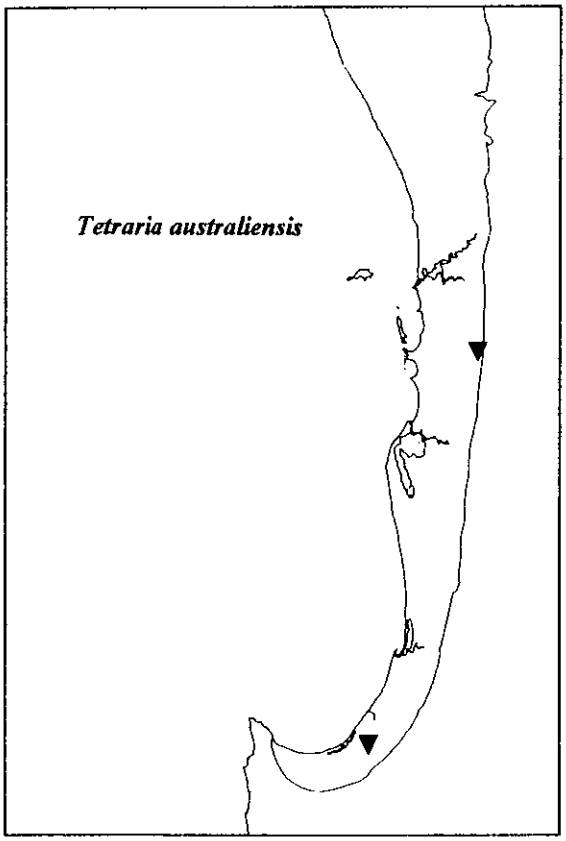




*Figure 2 (cont.). New populations of Decared Rare Flora in the study area.*

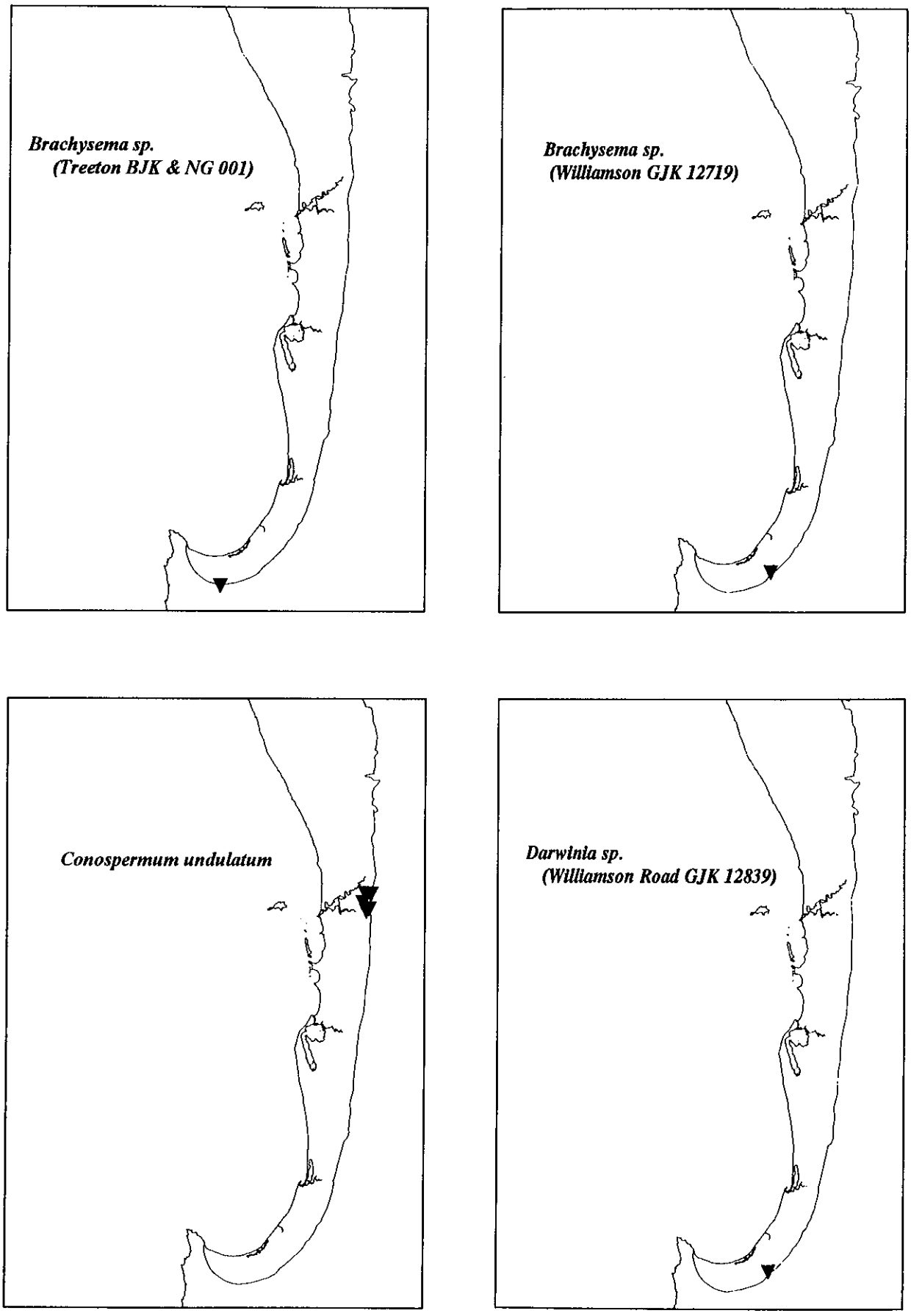
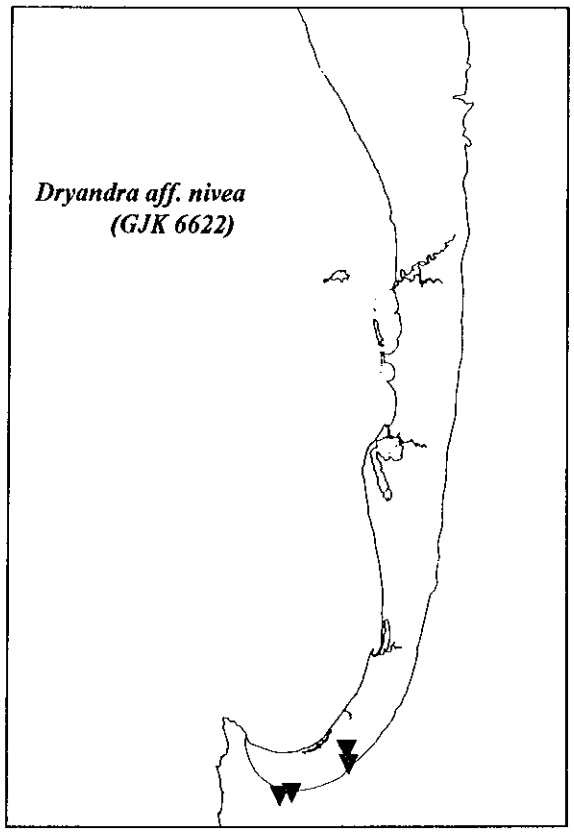
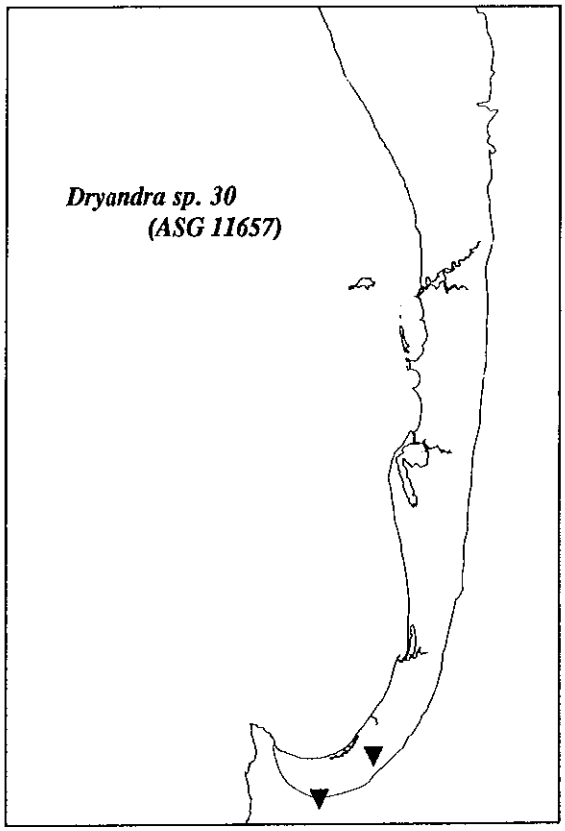
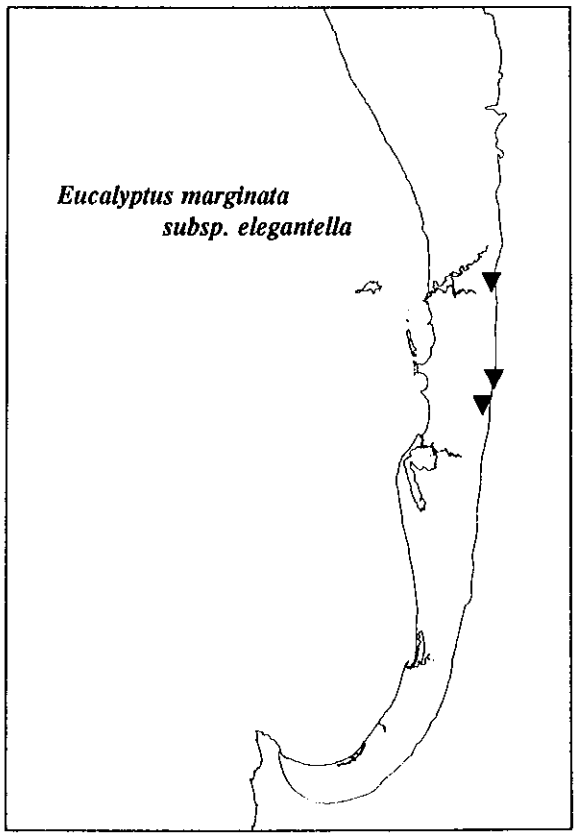



*Figure 3. Location of proposed Declared Rare Flora in the study area.*



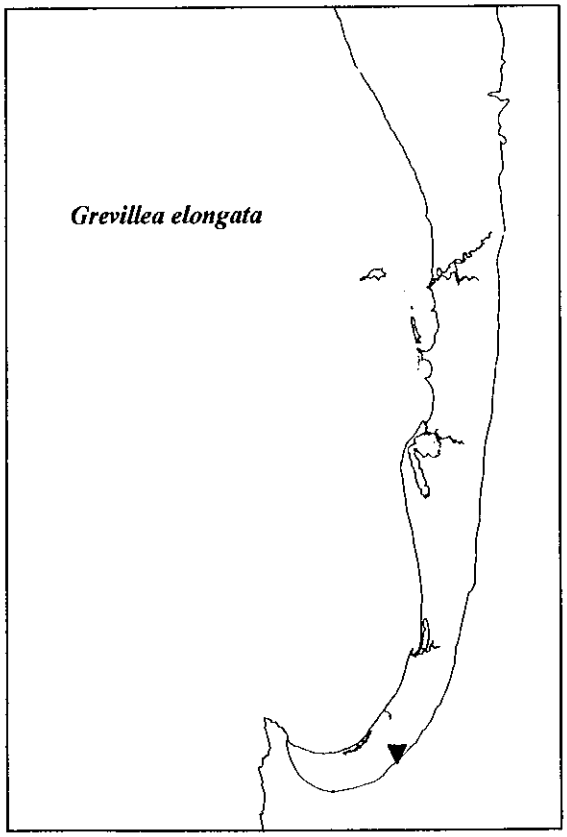
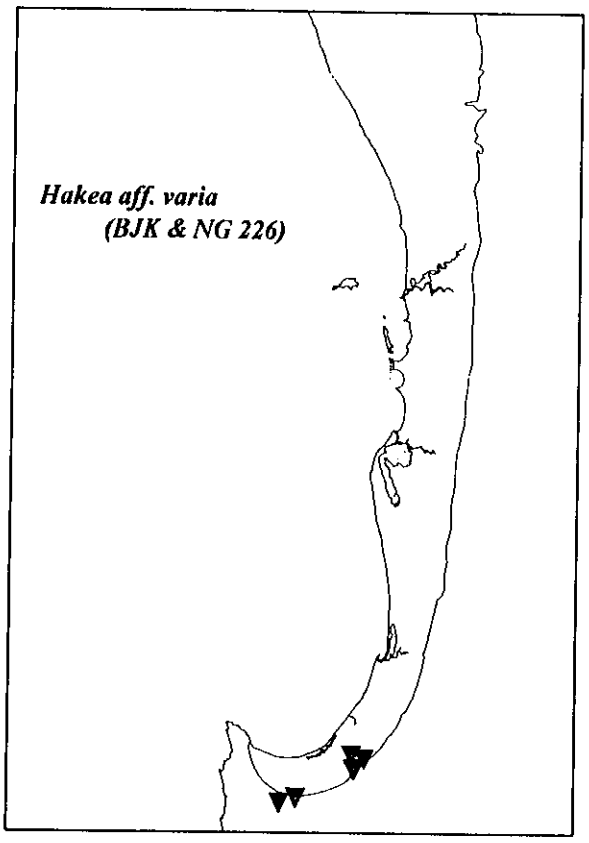
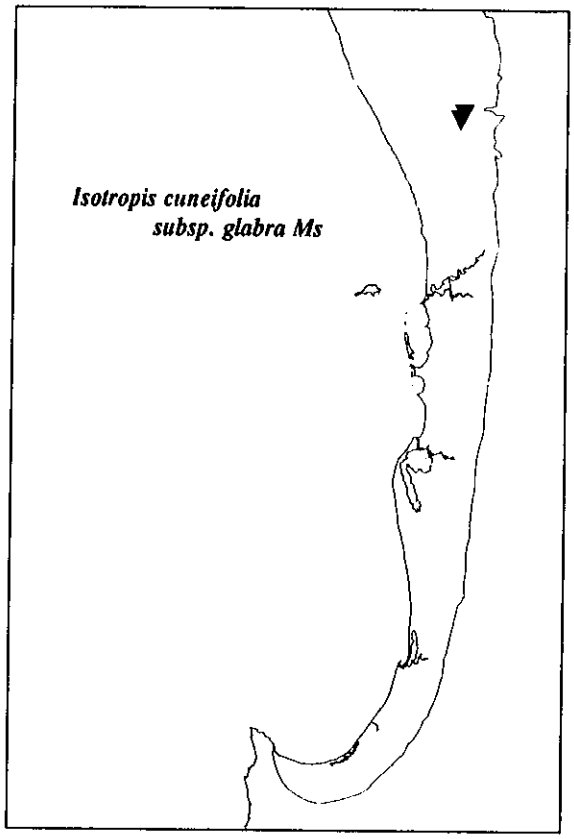




*Figure 3 (cont.). Location of proposed Declared Rare Flora in the study area.*



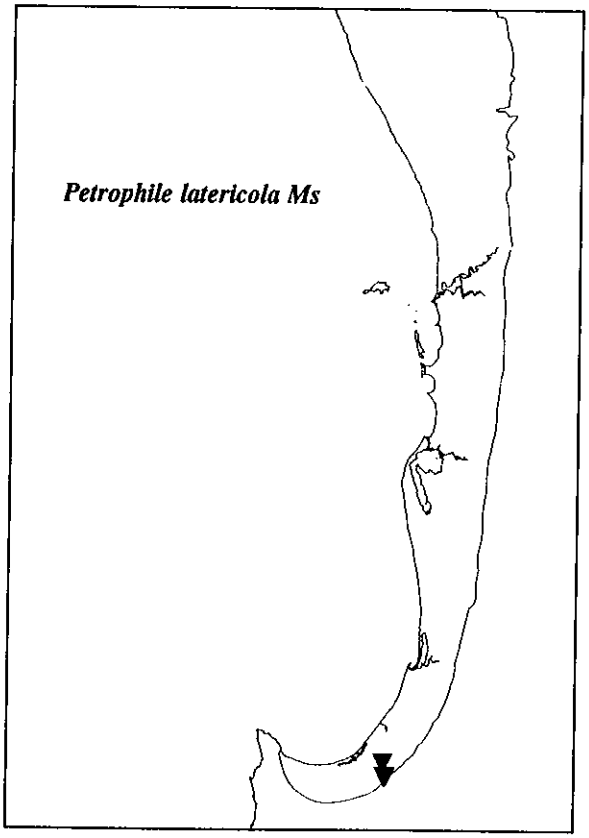




*Figure 3 (cont.). Location of proposed Declared Rare Flora in the study area.*

**Areas of importance for conservation of Declared Rare Flora and proposed Declared Rare Flora**

Most of the populations of Declared Rare Flora and proposed Declared Rare Flora encountered in the present survey lie outside the current reserve network. All of these areas are considered of high conservation value. More detailed analysis of the conservation and reservation status of species occurring on the coastal plain will be the subject of a future report. General areas in which DRF and proposed DRF occur are shown in Table 7 and Figures 2 and 3.

*Table 7. General areas in which DRF and proposed DRF was located in the present survey and their present vesting.*

| Area | Current Vesting |
|---|---|
| Austin Bay Nature Reserve | A-class Nature Reserve |
| Agriculture Protection Board Reserve | Vested in APB for conservation of flora |
| Brixton Street Wetlands | Homeswest |
| C53 (Coolup Reserves) | Local Government and Road Reserve |
| C58 (Reserve A23172) | Local Government |
| GinGin Road Reserve | Road Reserve |
| Ken Hurst Park | Local Government |
| Lake Bambun (Reserve 22831) | Local Government |
| Lake Muckenburra (Reserve 25431) | Local Government |
| M53 (Reserve C29880) | SECWA, Fires Board, Main Roads, WAWA |
| Meelon Nature Reserve | Proposed A-class Nature Res (vested in CALM) |
| Mundijong Road | Road and Drain Reserves |
| Southern Ironstones | State Forest |
| Talbot Road Reserve | Local Government |
| VCL South of Seabird (part Red Book 5.24) | Vacant Crown Land |
| Waterloo School Site | Local Government |
| Wonnerup Road Reserve | Road and Rail Reserve |
| Yalgorup National Park | A-class National Park |
| Yoongarillup Nature Reserve | A-class Nature Reserve |

**Comparison with the Flora of the Perth Region**

The *Flora of the Perth Region* (Marchant *et al.* 1987) records some 2057 species (almost 2200 taxa in all) from an area of 10,500 square kilometres stretching from Guilderton to Boyanup and inland to cover the Darling Scarp and part of the Plateau (see Map 1 in Marchant *et al.* 1987). This area covers 80-90% of our study area and it is useful to compare our data with that of the Flora.

*Table 8. Geographic occurrence of 792 taxa recorded in the Flora of the Perth Region but not encountered in the present survey.*

| Habitat | Number of Taxa |
|---|---|
| Restricted to Coastal Plain | 525 |
| Restricted to Scarp or Plateau | 222 |
| Largely restricted to Scarp and Plateau | 18 |
| Taxonomic revisions (no longer in FPR area) | 27 |
| **Total** | 792 |

Some 792 taxa recorded in the *Flora of the Perth Region* were not encountered during the current survey (Table 8). Of these taxa 222 are restricted to the Darling Scarp and Plateau (areas not sampled). The present survey may have been expected to encounter the 525 taxa recorded as occurring on the coastal plain. Of these 525 taxa 183 were native and 342 were introduced. The most important

families are the Poaceae, Papilionaceae, Asteraceae, Cyperaceae, Brassicaceae, Orchidaceae, Solanaceae and Iridaceae (Table 9).

The significant number of weed species not encountered in the present survey suggests that either our sampling of vegetation in the best condition missed a large number of weed species or that a large number of agricultural weeds do not invade bushland remnants. Given the large number of species involved it appears there is a suite of weed species poorly adapted to survival in bushland remnants.

*Table 9. Native and introduced taxa for the most important families recorded for the Swan Coastal Plain but not encountered in the present survey.*

| Family | Native taxa | Introduced taxa | Total |
|---|---|---|---|
| Poaceae | 6 | 81 | 87 |
| Papilionaceae | 7 | 36 | 43 |
| Asteraceae | 6 | 34 | 40 |
| Cyperaceae | 16 | 6 | 22 |
| Brassicaceae | 3 | 17 | 20 |
| Orchidaceae | 19 | - | 19 |
| Solanaceae | 2 | 17 | 19 |
| Iridaceae | - | 17 | 17 |

The two families for which significant numbers of non-weed species were missed were the Cyperaceae and the Orchidaceae. The Cyperaceae are common components of riverine and estuarine habitats which were under sampled in the present survey while the Orchidaceae are easily missed ephemeral taxa for which sampling time is critical, because flowers are crucial for identification and many species flower sporadically or only after summer fires.

Given that our total area of sampling was 5.01 ha (509 x 100 $m^2$) the absence of only 183 native taxa indicates adequate coverage of most habitat types. Some 102 of these taxa have a riverine distribution and this habitat type was not sampled in the present survey . Of the remaining 80 odd taxa some are naturally rare (as indicated by low number of herbarium collections and field knowledge). As discussed above the survey has recorded a further 51 taxa not previously recorded from the plain (approximately 30% of these are new records for the area covered by the Perth Flora).

A synthesis of data from collections of Coastal Plain taxa lodged in the Western Australian Herbarium (PERTH) and taxonomic revisions indicate that there are at least seven or possibly eight taxa that are presumably extinct on the Coastal Plain. These taxa have not been collected for at least 50 years despite thorough searching (Table 10).

*Table 10. Taxa likely to be extinct in the study area.*

| Taxon | Last Collections in the Study Area |
|---|---|
| *Dampiera triloba* | Gnangara Oct. 1945 (49 years ago) |
| *Empodisma gracillimum* | Bunbury 1870, Bayswater 1935 |
| *Euphrasia scabra* | Harvey 1860, Fremantle 1874 |
| *Gahnia decomposita* | Bayswater 1902 |
| *Glyceria australis* | Harvey 1940 |
| *Isopogon attenuatus* | Waterloo 1920 |
| *Polygonum hydropiper* | Harvey 1940 |
| *Ptilotus divaricatus* | Pinjarra 1904 |

The contemporary absence of taxa such as *Empodisma gracillimum* and *Gahnia decomposita* from Bayswater and Bunbury strongly suggests that some wetland types originally in these areas have been lost. Both these taxa are very conspicuous and it is unlikely that further searching will rediscover them in these areas.

*VEGETATION*

For the floristic analysis some species had to be amalgamated into complexes due to difficulty of differentiating between closely related taxa without good flowering material (eg. *Thysanotus patersonii* and *Thysanotus manglesianus*, see Appendix 3) As a result the data were reduced to 1369 taxa. Of these 272 taxa occurred at only one site. Singletons (taxa recorded from only one plot) were recorded in 166 plots at frequency of one to seven singletons per plot. Preliminary analyses of the floristic dataset showed that singletons had no effect (ie. contained little information) on the community classification so they were excluded. The final data set consisted of 1097 taxa in 509 sites. Species richness ranged from seven to 86 per site ($100^2$ m), with individual taxa occurring in between two and 306 sites (Figure 4).

Multivariate analysis can assist in sorting both sites and species data such that patterns in species composition are more easily seen. The decision as to the number of site and species groups defined is subjective and related to the scale of pattern of interest (Kent and Coker 1992). In this analysis site groups are discussed at two scales: the four group level ('super groups'), roughly corresponding to major geomorphological patterning and the 30 group level which best reflected the scale of pattern seen in the field. Within some of the 30 groups finer subdivisions could be made and our final classification was of 43 individual groups and subgroups. This classification will not be definitive and as more data becomes available new floristic communities will emerge and a better understanding of inter and intra group relationships will be possible. This will be particularly true for the seasonal wetlands which are our most heterogenous group.

**Four group classification**

The four group classification ('super groups') broadly reflects the major geomorphological elements with the exception of one group made up of all the seasonal wetlands (Figure 5). Group 1 in this classification comprises sites almost entirely restricted to the Pinjarra Plain and Ridge Hill Shelf. The second major grouping are the almost entirely seasonal wetlands which occur across all geomorphological groups. The third major group is centred on but not exclusive to Bassendean Dunes. There are also significant occurrences on Pinjarra Plain and Spearwood Dunes systems. Group 4 is almost exclusively a Spearwood and Quindalup Dunes group. It can be seen from the dendrogram that group 2 (seasonal wetlands) is the most variable group, having by far the largest number of community types and lowest average number of sites / community type (Figure 6).

At the four group level there are significant differences between species frequency, weed frequency, slope, mean annual rainfall, and mean annual temperature (Table 11). Sites classified into group 1 are concentrated on the eastern side of the plain and the alluvial soils bordering the Peel - Harvey estuary (Figure 5a). The wide spread clearance of this land system is readily apparent (as blank areas) on this map. This group had significantly higher species richness than all other groups except group 3 and a lower number of weed species than any group other than group 3 (centred on Bassendean Dunes) (Table 11). Rainfall was also significantly higher reflecting it position at the base of the Scarp and concentration in the south.

The seasonal wetland group (group 2) are more or less uniformly spread across the plain, except in the north west of the study area where the decrease in rainfall and steeper nature of the Spearwood Dunes exclude them (Figure 5b). These wetlands have significantly lower species richness than all other groups. Weed frequency was also moderately high, with the percentage of weeds as a proportion of total species richness being very high, comparable only with Spearwood / Quindalup Dune groups (group 4) (Table 11). The lack of correlation with major geomorphological elements contrasts markedly with the other three super groups. The high level of heterogeneity within this group is consistent with patterns found by Griffin and Keighery (1990) on the northern sandplain.

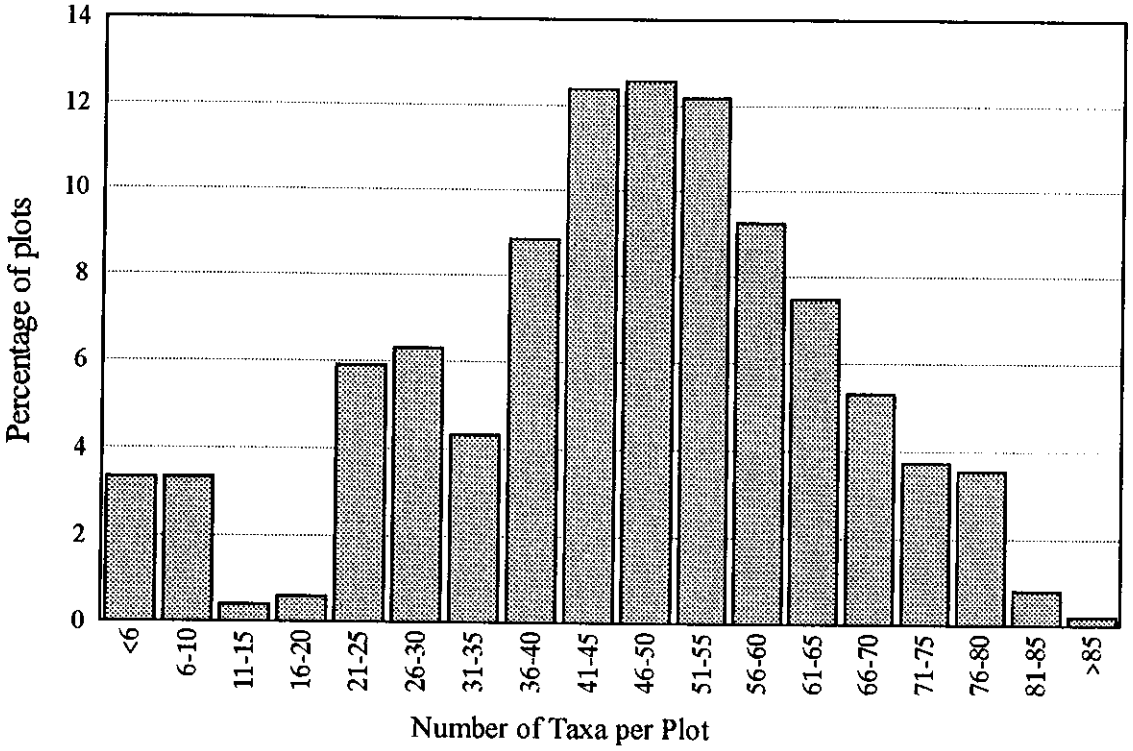



*Figure 4. Histogram showing percentage of plots with different species richness. Note the group of species poor wetlands at one end and the very high species richness of some woodlands and shrublands at the other.*

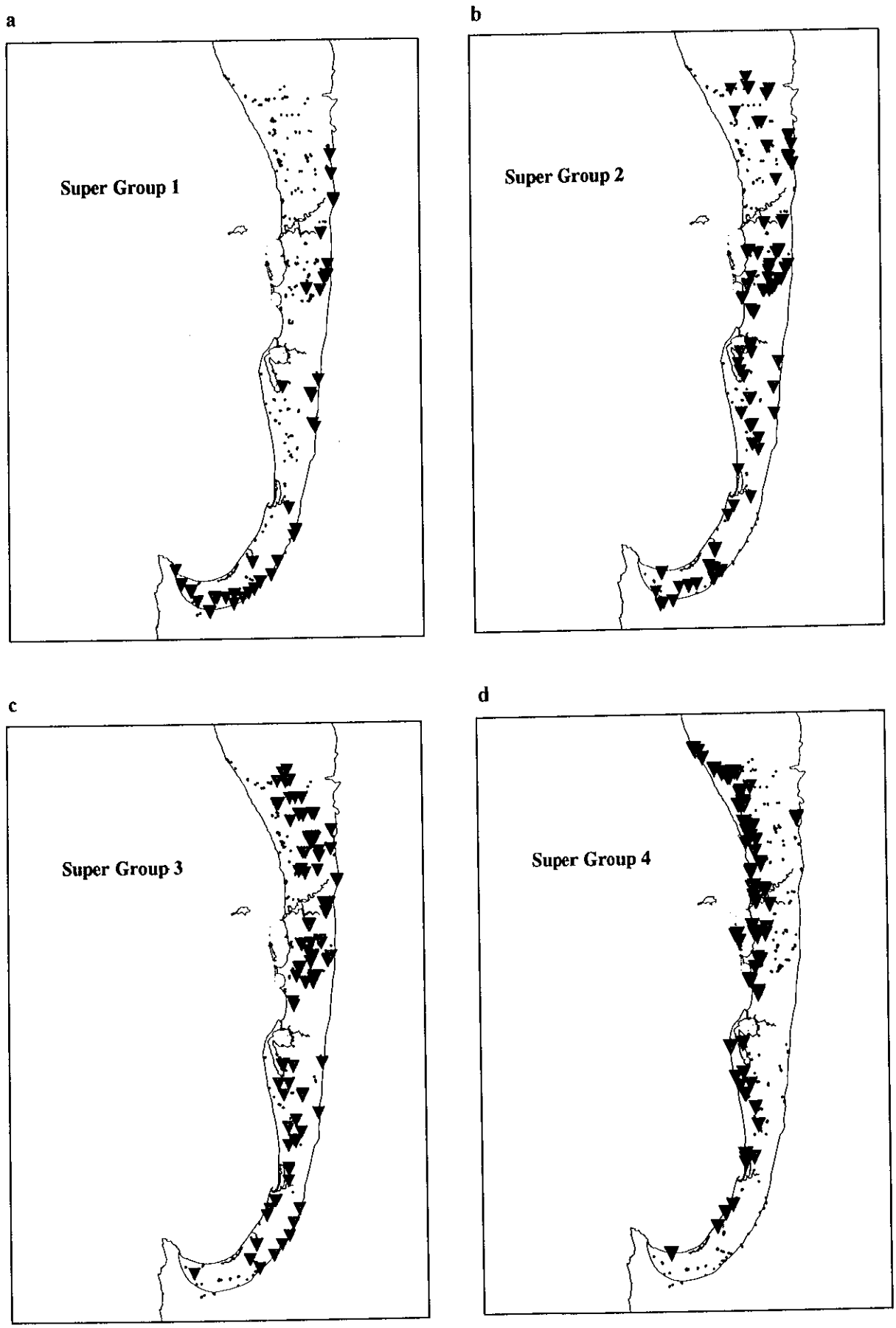



*Figure 5. Distribution of the four major floristic groups across the Plain.*

Group 3 is largely centred on the Bassendean Dune but with significant numbers of plots on Spearwood and Pinjarra Plain and in the south on the Whicher Scarp (Figure 5c). The Whicher Scarp plots were generally *Banksia* woodlands on sand sheets occurring up to 110 m altitude. This group had high levels of species richness and low mean weed frequency (Table 11).

Most of the 151 sites in group 4 occur on the Spearwood or Quindalup Dunes (Figure 5d) They have a largely western distribution except for a small group of *Banksia* woodlands sites at Bullsbrook at the base of the Scarp. The number of plots diminishes to the south as does the occurrence of these land systems. This group has moderate levels of species richness, relative high levels of weed invasion and lower annual rainfall than most other groups reflecting the concentration of this community type in the north and west of the study area. Vegetation condition was significantly poorer on the coast relative to all other groups except for the seasonal wetlands (Table 11).

The major environmental correlates with the four group classification are major geomorphological units (McArthur and Bettenay 1960, Churchward and McArthur 1980) and a rainfall gradient running at 90 degrees to the coastline. Temperature, rainfall, geomorphology, and slope were all significantly inter correlated. It should also be noted that while the major variation in the vegetation appears to be primarily controlled by geomorphology, significant departures from this pattern are seen in the floristic data. This aspect will be discussed further below.

*Table 11. Means for species frequency, weed frequency, slope (class 1 - flat; to class 3 - steep), annual rainfall, annual temperature and condition rating (class 1 - excellent, to class 5 - very disturbed) at the four super group level. Groups means with the same superscript are not significantly different at P < 0.001.*

| Super Group. | Mean species richness | Mean weed frequency | Slope | Mean annual rainfall (mm) | Mean annual temp (°C) | Mean condition rating | Number of quadrats |
|---|---|---|---|---|---|---|---|
| 1 | $60.4^{a}$ | $3.5^{a}$ | $1.5^{a}$ | $975^{a}$ | $17.1^{a}$ | $2.1^{a}$ | 61 |
| 2 | $36.2^{b}$ | $6.2^{b}$ | $1.1^{b}$ | $913^{b}$ | $17.5^{b}$ | $2.4^{ab}$ | 154 |
| 3 | $54.6^{a}$ | $3.4^{a}$ | $1.7^{a}$ | $902^{b}$ | $17.7^{bc}$ | $2.2^{a}$ | 143 |
| 4 | $45.8^{c}$ | $8.8^{c}$ | $2.0^{c}$ | $840^{c}$ | $17.9^{c}$ | $2.6^{b}$ | 151 |

**Thirty group classification**

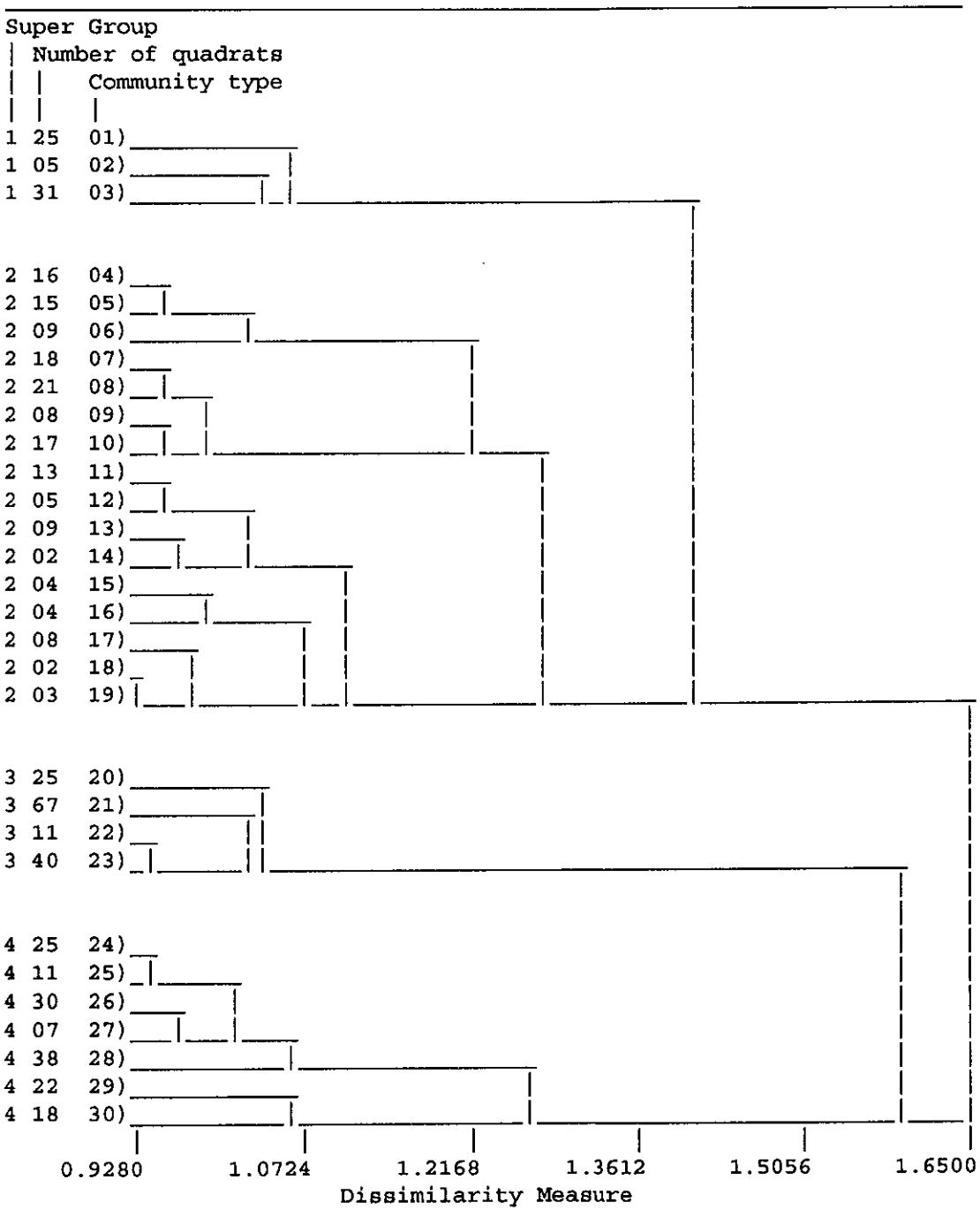
In the more detailed classification 30 community types and 35 species groups have been defined. Some of the 30 communities types have been further subdivided where distinct subunits were recognisable in the sorted two way table (Figure 6, Table 12). The sorted two way table shows only those species that occur at frequency of > 50% in at least one of the site groups. For some of the species groups, no species reached this frequency and these are omitted from the table. Very strong patterning in both site and species groups is evident (Table 12). Distribution maps for each of the community types are shown in Appendix 1.

*Community types of heavy soils*

Three community types are found on the heavy soils of the eastern coastal plain. These heavy soil communities are defined by the general absence of species in the large species groups A, B, and I. and the presence of species in species groups R and S (Table 12).

Community type 1 is restricted to the area south of Bunbury and has two distinct subgroups. Type 1a occurs along the northern edge of State Forest along the base of the Whicher Range and is composed of *Eucalyptus haematoxylon - E. calophylla - E. marginata* forests and woodlands. The one site of this community type on the plain proper belonged to a fertile soil unit (Abba very fertile), that has been almost entirely cleared (Tille and Lantzke 1990). Community type 1a was characterised by high frequency of species in species group S and moderate frequencies in species group R. Lower frequency species such as *Acacia teretifolia, Acacia varia* var. *varia, Agonis grandiflora,* and *Xanthosia pusilla* are virtually restricted to type 1a.

*Figure 6. Dendrogram showing the four super groups and the 30 community types defined from the floristic presence / absence data set.*




Community type 1b consists largely of *E. calophylla* forests and woodlands of bushland remnants on the plain south of Capel. Group R species were more common in community type 1b with lower frequencies of group S species compared to the previous group. In addition another low frequency group which includes *Acacia myrtifolia, Opercularia spermacocea* and *Acacia mooreana* are largely restricted to type 1b.

*Table 12. Sorted two way table showing species frequency by community type. Only species which occur with frequencies of at least 50% in any one community type are shown.*

**Taxon** / **Community type**

| Species group A | 1a | 1b | 2 | 3a | 3b | 3c | 4 | 5 | 6 | 7 | 8 | 9 | 10a | 10b | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20a | 20b | 20c | 21a | 21b | 21c | 22 | 23a | 23b | 24 | 25 | 26a | 26b | 27 | 28 | 29a | 29b | 30a | 30b | 30c |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Wurmbea monantha | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 50 | - | - | - | - | - | - | - | - | - | - | - | - | 55 | 5 | - | - | - | 8 | - | - | - |
| Stylidium maritimum Ms | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 73 | 5 | - | - | - | 8 | - | - | - |
| Acanthocarpus preissii | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 13 | - | - | - | - | - | - | - | - | - | - | - | 40 | 18 | - | 16 | - | 5 | 78 | 85 | 71 | 75 | - |
| Rhagodia baccata | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 25 | - | - | - | - | - | - | - | - | - | - | - | - | 20 | 9 | 45 | 21 | - | 3 | 78 | 77 | 57 | 88 | 33 |
| Spyridium globulosum | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 4 | 9 | 9 | 16 | 29 | - | 78 | 46 | 86 | 100 | 100 |
| Acacia rostellifera | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 33 | - | - | - | - | - | - | - | - | - | 32 | - | 9 | 16 | - | - | 11 | 54 | 29 | 38 | - |
| * Crassula glomerata | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 67 | - | - | - | - | - | - | - | - | - | 40 | - | 18 | 5 | - | - | 67 | 46 | - | - | - |
| Olearia axillaris | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 28 | 9 | - | 11 | 14 | - | 33 | 62 | - | 13 | 67 |
| Poa porphyroclados | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 67 | - | - | - | - | - | - | - | - | - | 24 | 9 | 9 | - | - | 3 | 67 | 77 | - | 13 | 67 |
| * Dischisma arenarium | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 33 | - | - | - | - | - | - | - | - | - | 20 | - | 73 | 21 | - | - | 33 | 77 | - | 25 | - |
| Senecio lautus subsp. dissectifolius | - | - | - | - | - | - | - | - | - | - | 5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 18 | 18 | 16 | 14 | - | 78 | 77 | - | 25 | - |
| * Galium murale | - | - | - | - | - | - | - | - | - | 6 | - | - | - | - | 8 | - | - | - | - | - | 13 | - | 33 | - | - | - | - | - | - | - | - | - | 20 | 27 | 27 | - | - | 5 | 56 | - | 71 | 75 | - |
| * Lagurus ovatus | - | - | - | 23 | - | - | - | - | 11 | - | 5 | - | 13 | - | - | - | 11 | - | - | - | 13 | - | 33 | - | - | - | - | - | - | - | - | - | 4 | - | - | - | - | - | - | - | 25 | 67 |
| Calandrinia brevipedata | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 33 | - | - | - | 3 | - | - | - | - | - | 28 | - | 82 | 16 | 57 | - | 22 | 85 | - | - | 67 |
| Loxocarya parviflora | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 100 | 33 | 14 | - | - | 5 | - | - | - | - | 10 | 48 | 9 | 64 | 37 | 86 | 5 | 67 | 62 | - | 50 | - |
| Lomandra maritima | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 33 | - | - | - | - | - | - | - | - | - | 64 | - | 45 | 37 | 86 | 8 | 44 | 92 | 14 | - | - |
| Melaleuca acerosa | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 11 | - | 5 | 8 | - | 9 | - | 5 | 52 | - | 82 | 68 | 100 | 13 | 22 | 92 | 14 | - | - |
| Dryandra sessilis | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 28 | - | 91 | 42 | 29 | 11 | 11 | - | 14 | - | 67 |
| Grevillea thelemanniana subsp. preissii | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 40 | - | 100 | 32 | 100 | 3 | 22 | - | 14 | - | - |
| Melaleuca huegelii | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 12 | - | 82 | 11 | 29 | - | 44 | - | 14 | - | - |
| Trymalium albicans | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 4 | - | 91 | 11 | 71 | 3 | 22 | 8 | 14 | - | - |
| Templetonia retusa | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 13 | - | 33 | - | - | - | - | - | - | - | - | - | 20 | - | 64 | 16 | 86 | - | 33 | 8 | 29 | 50 | 67 |
| Hydrocotyle hispidula | - | - | - | - | - | - | - | - | - | - | - | - | - | 11 | - | - | - | - | - | - | 13 | - | - | - | - | - | - | - | - | - | - | - | 4 | - | 73 | 5 | 14 | - | 33 | 8 | - | 13 | 33 |
| Acacia truncata | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 8 | - | 36 | - | 86 | - | - | 15 | - | - | - |
| Hibbertia spicata subsp. leptotheca | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 12 | - | 9 | - | 71 | - | 11 | 15 | - | - | - |
| Astroloma microcalyx | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 36 | 16 | 100 | - | - | 8 | - | - | - |
| Comesperma confertum | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 5 | - | - | - | - | - | 8 | 9 | 9 | 5 | 86 | - | 11 | 23 | - | - | - |
| Schoenus lanatus | - | - | - | 8 | - | 10 | - | - | 22 | 28 | 14 | 13 | - | - | 8 | - | - | 50 | - | 25 | 13 | 50 | 100 | - | 11 | - | 23 | - | - | - | - | - | 8 | - | - | - | 57 | - | - | - | - | - | - |
| * Anagallis arvensis | - | - | - | - | 20 | - | 7 | 11 | 33 | 19 | 13 | - | 11 | 38 | - | 11 | - | - | - | 25 | 63 | 50 | 33 | - | - | 11 | 21 | - | 6 | - | 21 | - | 64 | 64 | 82 | 68 | - | 39 | 67 | 8 | 29 | 50 | 67 |
| * Sonchus oleraceus | - | - | - | - | 13 | 30 | - | 13 | 11 | 6 | - | - | - | 8 | - | - | 50 | - | - | - | - | 50 | - | - | - | - | 10 | - | 6 | - | - | - | 56 | 27 | - | 32 | 14 | 26 | 11 | 8 | 43 | - | 100 |
| Disnella revoluta | - | - | - | 8 | 13 | 10 | 6 | 7 | 56 | 6 | 5 | - | - | 15 | - | - | - | - | - | 25 | - | - | - | - | 11 | - | 5 | - | 6 | - | 11 | - | 44 | 18 | - | - | - | 16 | 44 | 8 | 43 | 25 | 33 |
| * Bursaria longiflora | - | - | - | - | - | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 21 | - | - | - | - | - | 68 | 91 | 9 | 26 | - | 34 | 11 | - | - | 13 | 33 |
| * Petrorhagia velutina | - | - | - | - | - | - | - | - | 11 | - | - | - | - | 23 | - | - | - | - | - | - | - | - | 67 | - | - | - | 3 | - | - | - | - | - | 52 | 64 | - | 11 | - | 13 | 56 | 69 | - | 25 | - |
| * Bromus diandrus | - | - | - | - | - | - | - | 7 | - | - | - | - | - | - | 8 | - | - | - | - | 25 | 13 | 50 | 33 | - | - | - | 5 | - | - | - | - | - | 68 | 45 | 45 | 63 | - | 21 | 56 | - | 43 | 50 | 67 |
| * Cerastium glomeratum | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 13 | - | - | - | - | - | - | - | - | - | - | - | 24 | 73 | 9 | 16 | 14 | 3 | 33 | 15 | 14 | 88 | 67 |
| Caladenia latifolia | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 13 | - | - | - | - | - | 10 | - | - | - | - | - | 24 | 82 | - | 32 | - | 11 | 11 | - | 29 | 38 | 33 |
| Eucalyptus gamphocephala | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 24 | - | 18 | 37 | - | 26 | 22 | 62 | 14 | - | 33 |
| Conostylis candicans | - | - | - | - | - | - | - | - | 11 | - | - | - | - | 11 | - | - | - | - | - | - | - | - | - | - | - | - | 10 | - | - | - | - | - | 48 | 36 | 73 | 68 | - | 18 | 22 | 54 | - | 13 | 33 |
| * Heliophila pusilla | - | - | - | - | - | - | - | 7 | - | - | - | - | - | - | 8 | - | - | - | - | - | - | 50 | 33 | - | - | - | 26 | - | 6 | - | - | - | 28 | 91 | 91 | 95 | 57 | 58 | 78 | 77 | - | 38 | 100 |
| Daucus glochidiatus | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 13 | - | 33 | 14 | - | - | 38 | 8 | - | - | - | - | 68 | 64 | 55 | 63 | 29 | 29 | 67 | 38 | 43 | 100 | 67 |
| Hardenbergia comptoniana | 8 | - | - | - | 13 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 10 | - | - | - | - | - | 56 | 82 | 45 | 47 | - | 18 | - | 62 | 43 | 50 | - |
| Phyllanthus calycinus | - | - | - | - | 25 | 20 | - | 7 | - | - | - | - | - | - | 8 | - | - | - | 25 | - | - | - | - | - | - | - | 15 | - | 6 | - | - | - | 56 | 55 | 91 | 42 | - | 21 | 78 | 92 | 57 | 63 | - |
| Stipa flavescens | - | - | - | - | 13 | 10 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 33 | - | - | - | 3 | - | - | - | - | - | 4 | 55 | - | - | - | 5 | 44 | 15 | - | 13 | - |
| * Orobanche minor | 15 | 8 | - | - | 38 | - | - | - | - | - | 5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3 | - | - | - | - | - | 4 | 55 | - | - | - | - | - | - | - | - |
| * Conyza albida | - | 8 | - | - | - | - | - | - | - | 6 | 5 | - | - | 11 | 31 | 20 | 11 | - | 25 | - | 13 | - | 33 | - | - | - | 3 | - | 6 | - | 5 | - | 12 | 18 | - | 5 | - | 11 | - | - | - | - | 67 |
| * Zantedeschia aethiopica | - | 8 | - | - | - | - | 6 | - | - | - | - | - | - | - | 38 | - | - | - | - | 25 | 13 | - | - | - | - | - | 10 | - | 6 | - | - | - | - | 9 | - | - | - | - | - | - | 29 | 63 | - |
| Schoenus grandiflorus | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 6 | - | - | - | 20 | 18 | - | 21 | 14 | 11 | - | 54 | 14 | - | - |
| **Species group B** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Agonis flexuosa | - | 8 | - | - | 13 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | 13 | - | - | - | - | - | 15 | 8 | - | - | - | - | 4 | 64 | - | 5 | - | - | - | 8 | - | 88 | - |
| Geranium retrorsum | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 33 | - | - | - | - | - | - | - | - | - | - | 55 | 27 | 11 | - | - | - | - | - | 75 | - |
| Oxalis perennans | - | - | - | - | - | 10 | - | - | - | - | - | 13 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 82 | - | 11 | - | - | - | - | 14 | 88 | - |
| Dichondra repens | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 9 | - | - | - | - | - | - | - | 63 | - |
| Hibbertia cuneiformis | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 18 | - | - | - | - | - | - | - | 100 | - |
| * Oxalis pes-caprae | - | 8 | - | - | - | - | - | - | - | - | - | - | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 14 | - | 67 |

| | 1a | 1b | 2 | 3a | 3b | 3c | 4 | 5 | 6 | 7 | 8 | 9 | 10a | 10b | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20a | 20b | 20c | 21a | 21b | 21c | 22 | 23a | 23b | 24 | 25 | 26a | 26b | 27 | 28 | 29a | 29b | 30a | 30b | 30c |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * Trifolium glomeratum | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - | 8 | - | - | - | - | - | - | - | 67 | - | - | - | - | - | - | - | - | - | 4 | 9 | - | - | - | - | - | - | - | - |
| Callitris preissii | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 11 | - | 71 | - | - |
| * Myriophyllum asparagoides | - | - | - | - | - | 10 | - | - | - | - | 5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 12 | - | - | - | - | 5 | - | - | 71 | 13 | - |
| Eremophila glabra | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 4 | - | - | - | - | - | 56 | - | 29 | - | - |
| Isolepis nodosa | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 8 | - | - | - | - | - | - | - | 100 | - | - | - | - | - | - | - | - | - | - | 9 | - | - | - | - | 22 | - | - | - | - |
| Muehlenbeckia adpressa | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 25 | - | 100 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3 | 11 | - | - | - | - |
| **Species group C** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Acacia aurocitrea | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 67 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Species group D** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stipa pycnostachya | - | - | - | - | 13 | 50 | - | - | - | - | 5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 67 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Species group E** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cyathochaeta avenacea | 31 | 8 | 20 | 85 | 50 | 80 | 19 | 7 | 33 | - | 48 | 63 | 13 | - | - | - | - | - | - | - | - | - | - | - | 11 | - | - | - | 13 | - | - | - | - | - | - | - | 3 | - | - | - | - | - |
| Neurachne alopecuroidea | - | 8 | - | 69 | 38 | 80 | 6 | - | 22 | - | 48 | - | - | 33 | - | - | - | - | - | - | - | - | - | - | 11 | 89 | - | 17 | 19 | - | - | - | - | - | - | - | 3 | - | - | - | - | - |
| Goodenia caerulea | 23 | - | - | 62 | - | 40 | - | - | - | - | 10 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Tholymitra crinita | 31 | - | 60 | 23 | 25 | 40 | 6 | - | - | - | 10 | - | - | 22 | - | - | - | 50 | - | - | - | - | - | - | 22 | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Hakea corymbosa | - | 25 | 80 | 54 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Synaphea petiolaris | 8 | 33 | 80 | 62 | - | - | - | - | - | - | 5 | 13 | 25 | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3 | - | - | - | - | - |
| **Species group F** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Grevillea brachystylis subsp. brachystylis | - | - | 60 | - | - | - | - | - | - | - | - | - | 13 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Isopogon scaber | - | - | 80 | - | - | - | - | - | - | - | - | - | 13 | 22 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Leptocarpus tenax | - | 8 | 80 | - | - | - | 6 | - | - | - | - | - | - | 33 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Species group G** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hakea varia ( BJK & NG 226) | - | - | - | - | - | - | - | - | - | - | - | 13 | - | 56 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Loxocarya magna Ms | - | - | - | - | - | - | - | - | - | - | - | 13 | - | 67 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Opercularia vaginata (BJK & NG 238) | - | - | - | - | - | - | - | - | - | - | - | - | - | 56 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Species group H** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| * Crassula natans | - | - | - | - | - | - | - | - | - | 6 | 10 | - | - | - | 23 | 20 | 11 | - | 75 | 25 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Isolepis producta | - | - | - | - | - | - | - | - | - | - | 5 | - | - | - | - | - | - | - | 75 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Species group I** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Acacia saligna | - | - | - | - | - | 30 | - | 40 | 44 | 11 | 14 | 13 | 13 | - | 31 | - | 11 | 50 | - | - | 25 | 100 | 67 | - | - | - | 5 | - | - | - | - | - | 24 | - | - | 11 | - | 5 | 11 | 23 | - | - | - |
| Baumea juncea | - | - | 20 | - | - | - | - | 47 | - | 22 | - | 13 | 25 | - | 8 | - | 33 | - | - | 25 | 63 | - | 100 | - | - | - | - | - | 6 | 9 | - | - | 4 | 9 | - | - | - | - | - | - | - | - | - |
| Lepidosperma longitudinale | - | - | - | - | - | - | 25 | 40 | - | 17 | 5 | 50 | - | - | 77 | 100 | - | - | - | - | 50 | 100 | 33 | - | - | - | 3 | - | - | - | - | - | - | 9 | - | - | - | - | - | - | - | - | - |
| Eucalyptus rudis | - | - | - | - | - | - | - | 20 | 11 | - | 5 | - | - | 11 | 62 | - | 22 | 50 | - | - | 13 | - | - | - | - | - | - | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Cynodon dactylon | - | - | - | 8 | - | - | - | - | 11 | - | - | - | - | - | 15 | - | 11 | - | 75 | 25 | 25 | - | - | - | - | - | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Epilobium billardierianum | - | - | - | - | - | - | - | - | - | - | 5 | - | - | 11 | - | 60 | - | - | - | 25 | 13 | - | 33 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Gahnia trifida | - | - | - | - | - | - | - | - | - | 11 | 5 | - | 13 | - | 8 | - | - | - | - | 25 | 88 | 100 | 33 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Lobelia alata | - | - | - | - | - | - | - | - | - | 6 | 5 | 13 | 13 | 11 | 23 | 40 | 11 | - | 25 | - | 75 | - | 33 | - | - | - | - | - | - | - | - | - | - | - | 9 | - | - | - | - | - | - | - |
| Melaleuca rhaphiophylla | - | - | - | - | - | - | - | 20 | 11 | 22 | - | - | - | - | 23 | 40 | 56 | 50 | 75 | 25 | 100 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Triglochin procerum | - | - | - | - | - | - | - | - | - | 22 | 29 | 13 | - | - | 15 | 40 | 78 | - | 100 | - | 13 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Atriplex cinerea | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 75 | 13 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| * Atriplex prostrata | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 25 | 75 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Samolus repens | - | - | - | - | - | - | - | - | - | 6 | - | - | - | - | - | - | - | - | - | 75 | 25 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Sarcocornia quinqueflora | - | - | - | - | - | - | - | - | - | 17 | - | - | - | - | - | - | - | - | 25 | 100 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Sporobolus virginicus | - | - | - | - | - | - | - | - | - | 6 | - | - | - | - | 8 | - | - | - | - | 75 | 25 | - | 33 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 11 | - | - | - | 33 |
| Lomna disperma | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 11 | - | 75 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Melaleuca teretifolia | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 8 | 80 | 11 | - | 50 | - | 38 | 100 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Baumea articulata | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 60 | - | - | 25 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Oxylobium linearo | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 60 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Villarsia latifolia | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 60 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Melaleuca incana | - | - | 40 | - | - | - | - | 7 | - | 6 | - | - | - | - | 8 | - | 11 | - | - | - | - | 100 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Leptomeria lehmannii | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 100 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Species group J** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Brachyscome bellidioides | - | - | - | - | - | - | - | 7 | - | 56 | 19 | - | 38 | 11 | - | - | - | - | - | - | - | 50 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Schoenus sp. 2 (GJK 5739) | - | - | - | - | - | - | - | 7 | - | 56 | 24 | 38 | 13 | - | - | - | 11 | - | - | - | - | 50 | - | - | - | - | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

| | 1a | 1b | 2 | 3a | 3b | 3c | 4 | 5 | 6 | 7 | 8 | 9 | 10a | 10b | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20a | 20b | 20c | 21a | 21b | 21c | 22 | 23a | 23b | 24 | 25 | 26a | 26b | 27 | 28 | 29a | 29b | 30a | 30b | 30c |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Centrolepis polygyna | - | - | - | - | - | - | - | - | - | 56 | 5 | - | 13 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Pogonolepis stricta | - | - | - | - | - | - | - | - | - | 56 | 5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Cotula coronopifolia | - | - | - | - | - | - | - | - | - | 39 | - | - | 25 | - | 46 | 20 | - | - | 75 | 25 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Apbolia cyperoides | 8 | 8 | 40 | 31 | 13 | 10 | 31 | 40 | 33 | 39 | 43 | 25 | 100 | 89 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Centrolepis aristata | 8 | 17 | 20 | 31 | 13 | 20 | 38 | 40 | 33 | 83 | 90 | 38 | 100 | 100 | 31 | 40 | - | - | - | - | - | - | - | - | 22 | 22 | 3 | 8 | - | - | 11 | - | - | - | - | - | - | - | - | - | - | - | - |
| Drosera menziesii subsp. menziesii | - | 8 | 20 | 54 | - | 10 | - | 13 | 33 | 44 | 62 | 13 | 88 | 44 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 18 | - | - | - | - | - | - | 3 | - | - | - | - | - | - |
| Drosera gigantea | - | - | 20 | 23 | 13 | - | 44 | 20 | 33 | 39 | 10 | 50 | 88 | 44 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Burchardia multiflora | - | 17 | 20 | 15 | - | 20 | 31 | 13 | - | 22 | 48 | 63 | 50 | 22 | 8 | - | 11 | - | - | - | - | - | - | - | - | 11 | - | - | 6 | 9 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Drosera rosulata | - | 17 | 20 | 38 | 13 | 20 | 6 | - | - | 28 | 52 | 63 | 38 | 56 | - | - | - | - | - | - | - | - | - | - | - | - | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Viminaria juncea | - | 8 | - | 38 | 13 | 10 | - | - | - | - | 67 | 25 | 50 | 67 | - | - | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Astartea aff. fascicularis | - | - | 60 | - | - | - | 63 | 40 | 11 | 33 | 33 | 50 | 25 | - | 62 | 100 | 44 | - | - | - | - | - | - | - | - | - | - | - | - | 9 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Eutaxia virgata | - | - | 100 | - | - | - | 19 | 20 | - | 6 | 43 | 50 | 13 | 11 | - | 40 | 44 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Hakea varia | - | - | 80 | 23 | - | - | 13 | 27 | - | - | 19 | 63 | 63 | 22 | - | - | 67 | - | - | - | - | 100 | - | - | - | - | - | - | - | 9 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| * Cicendia filiformis | - | - | - | 8 | 13 | - | - | 13 | 11 | 61 | 86 | - | 63 | 11 | 8 | 20 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| * Cyperus tenellus | - | - | 20 | 8 | - | 20 | - | - | - | 33 | 95 | 50 | 100 | 44 | 15 | - | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| * Monopsis debilis | - | - | - | 8 | - | - | - | 7 | - | 17 | 62 | - | 25 | 22 | 31 | 40 | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| * Juncus capitatus | - | - | - | - | 25 | 10 | 6 | 13 | 11 | 44 | 52 | - | 50 | 22 | 15 | 20 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Philydrella pygmaea | - | - | 20 | 15 | 13 | 10 | - | 13 | - | 83 | 43 | 25 | 63 | 67 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Schoenus odontocarpus | - | - | - | 15 | 13 | - | 6 | 7 | - | 50 | 57 | 25 | 50 | 56 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Polypompholyx multifida | - | - | 20 | - | - | - | - | 13 | 11 | 56 | 43 | 13 | 50 | 67 | - | - | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Goodenia micrantha | - | - | - | 23 | - | 20 | - | 7 | - | 61 | 52 | - | 25 | 11 | - | 20 | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Schoenolaena juncea | - | 8 | 20 | 15 | - | - | 6 | - | - | 39 | 38 | 13 | 75 | - | - | - | 33 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Schoenus rigens | - | - | - | - | - | - | - | 13 | 22 | 17 | 14 | 13 | 75 | 11 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Thelymitra antennifera | - | - | - | - | - | - | 6 | 7 | - | 28 | 19 | - | 50 | 56 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| * Parentucellia viscosa | - | - | - | - | - | 20 | - | 13 | 22 | 11 | 71 | 13 | 25 | 11 | 8 | 80 | - | - | 25 | - | - | 100 | - | - | - | - | - | - | - | - | - | - | - | 9 | 9 | 16 | - | - | 11 | 8 | - | 13 | - |
| Melaleuca viminea | - | - | - | 8 | - | - | - | 13 | 22 | 56 | 19 | 63 | 13 | - | 8 | 20 | 11 | - | - | 25 | - | 100 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Leptocarpus coangustatus | - | - | - | 8 | - | - | - | - | 22 | 6 | 38 | 63 | 13 | - | 15 | 40 | 22 | - | - | - | 38 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Melaleuca lateritia | - | - | - | 8 | - | - | - | 13 | - | 11 | 29 | 13 | - | - | 23 | - | 56 | 50 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Chorizandra enodis | - | - | - | - | - | - | - | - | - | 6 | 67 | 50 | - | - | - | - | 22 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Leptocarpus canus | - | - | - | 23 | - | - | - | - | 11 | 22 | 48 | - | - | - | - | - | 11 | - | - | - | - | 100 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Haemodorum simplex | - | - | - | 8 | - | 20 | - | - | 11 | 17 | 67 | - | 13 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Borya scirpoidea | - | - | - | 62 | 13 | 20 | - | - | - | 6 | 43 | 25 | 38 | 67 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Verticordia densiflora | - | - | - | 31 | - | 20 | - | 7 | 22 | 11 | 24 | - | 88 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Kunzea aff. micrantha (BJK & NG 040) | 8 | - | 60 | - | - | - | - | - | - | 17 | - | 25 | 25 | 78 | - | - | - | - | - | - | - | - | - | - | - | 11 | - | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Calothamnus lateralis | - | - | 100 | - | - | - | 6 | 7 | - | - | - | 25 | - | 22 | 8 | 40 | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Hakea sulcata | - | - | 60 | 8 | - | - | - | - | - | - | - | 13 | 75 | 22 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Caladenia marginata | - | 8 | - | - | - | - | 6 | - | - | - | - | - | 38 | 56 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3 | - | - | - | - | - | - |
| * Briza minor | - | 50 | - | 31 | 75 | 20 | 31 | 60 | - | 78 | 86 | 13 | 63 | 44 | 46 | 40 | 22 | 50 | - | - | - | 50 | - | - | - | 22 | 28 | 17 | 6 | - | 11 | - | 40 | 82 | - | 16 | - | 26 | - | - | - | - | - |
| * Romulea rosea | - | - | - | 46 | 25 | 80 | 19 | 27 | 56 | 44 | 90 | - | 25 | 22 | 23 | - | - | - | - | 25 | - | - | 67 | - | - | 11 | 8 | - | 6 | - | 11 | - | 40 | 9 | 9 | - | - | 16 | 22 | 8 | 29 | - | - |
| Drosera glanduligera | 8 | 8 | - | 23 | 38 | 20 | 31 | 33 | 33 | 39 | 19 | 13 | 25 | 56 | 8 | - | - | - | - | - | - | - | - | - | 22 | 33 | - | - | - | 9 | - | - | - | - | - | - | 3 | - | - | - | - | - | - |
| Siloxerus humifusus | - | 8 | 20 | 38 | - | 30 | 44 | 80 | 11 | 56 | 33 | 13 | 63 | 33 | 8 | 60 | - | - | - | - | - | - | - | - | 22 | 22 | 5 | - | 6 | - | 16 | - | - | - | 9 | 5 | - | 18 | - | - | - | - | - |
| * Monadenia bractcata | 8 | 8 | - | 15 | 25 | 10 | 25 | 20 | 56 | 11 | 19 | 25 | - | - | - | - | - | - | - | - | - | - | - | - | 11 | 11 | 13 | 8 | 6 | - | - | - | - | - | - | 11 | - | - | 11 | - | - | - | - |
| Haemodorum spansiflorum | - | - | 60 | - | 25 | - | - | 7 | - | 6 | 5 | - | 13 | 11 | - | - | - | - | - | - | - | - | - | - | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Species group K** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| * Lolium rigidum | - | - | - | - | - | - | - | - | - | 11 | 5 | - | - | - | 15 | - | - | - | - | 25 | - | - | 67 | - | - | - | - | - | - | - | - | - | 16 | - | - | 5 | - | - | 22 | - | 14 | - | - |
| **Species group L** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Banksia ilicifolia | - | - | - | - | - | - | 13 | 20 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 21 | 25 | 38 | 91 | 32 | 38 | - | - | - | - | - | - | - | - | - | - | - | - |
| Kunzea ericifolia | - | - | - | - | - | - | 19 | 60 | - | - | - | - | - | - | 23 | 40 | - | 100 | - | - | - | - | - | - | - | 33 | 42 | 50 | 18 | 26 | - | - | - | - | - | - | 3 | - | - | - | - | - | - |
| Jacksonia furcellata | - | - | - | - | 13 | - | 6 | 27 | 11 | 6 | - | - | - | - | 8 | - | - | 100 | - | - | - | - | - | - | - | 26 | - | 38 | 9 | 21 | - | 4 | 18 | - | - | - | 5 | - | 15 | - | - | - | - |
| Leptomeria cunninghamii | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 100 | - | - | - | 3 | - | - | - | - | - | - | 9 | - | - | - | 3 | - | - | - | - | - | - |
| **Species group M** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Adenanthos obovatus | - | 50 | 40 | - | - | - | 56 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3 | - | - | 18 | 5 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Melaleuca preissiana | - | - | 20 | - | - | - | 75 | 27 | 11 | - | - | 13 | - | 11 | 46 | - | 22 | 100 | - | - | - | - | - | - | - | - | - | 31 | 27 | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Schoenus rodwayanus | 15 | - | 20 | 8 | - | - | 63 | 20 | - | - | - | 13 | 13 | - | 15 | 20 | - | - | - | - | - | 50 | - | - | - | 8 | - | - | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Hypocalymma angustifolium | 15 | 75 | 60 | 15 | 13 | 50 | 81 | 27 | 56 | 6 | 48 | 25 | 13 | 11 | 15 | - | 11 | - | - | - | - | - | - | - | - | 8 | - | - | 19 | 55 | 16 | - | - | - | 5 | - | 3 | - | - | - | - | 33 |
| Pericalymma ellipticum | - | 33 | 80 | 54 | - | - | 81 | 67 | 11 | - | 5 | 38 | 50 | 89 | - | 40 | 22 | - | - | - | - | - | - | - | - | 3 | - | 19 | 36 | - | 5 | - | - | - | - | - | - | - | - | - | - | - | - |
| Thysanotus multiflorus | 8 | 17 | 80 | 8 | 13 | - | 44 | 13 | - | - | 5 | - | - | 11 | 8 | 40 | - | - | - | - | - | 50 | - | 14 | - | 13 | - | - | 18 | 11 | - | 4 | - | - | - | - | - | - | - | - | - | - | - |
| Baumea vaginalis | - | 8 | - | - | - | - | - | 13 | - | - | - | - | - | - | - | - | 33 | 100 | - | - | 25 | - | - | - | - | - | - | - | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Species group N** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Beaufortia elegans | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 27 | 11 | 57 | - | - | - | - | - | 3 | - | - | - | - | - | - |

| | 1a | 1b | 2 | 3a | 3b | 3c | 4 | 5 | 6 | 7 | 8 | 9 | 10a | 10b | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20a | 20b | 20c | 21a | 21b | 21c | 22 | 23a | 23b | 24 | 25 | 26a | 26b | 27 | 28 | 29a | 29b | 30a | 30b | 30c |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conostephium minus | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 14 | - | - | 3 | - | 6 | - | 5 | 62 | - | - | - | - | - | - | - | - | - | - | - |
| Stylidium diuroides | - | - | - | - | - | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 43 | - | - | - | - | - | 27 | 5 | 71 | - | - | - | - | - | 3 | - | - | - | - | - |
| Melaleuca aff. trichophylla | - | - | - | - | - | - | - | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 8 | - | 9 | - | 71 | - | - | - | - | - | 3 | - | - | - | - | - |
| Verticordia nitens | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 73 | 5 | 33 | - | - | - | - | - | - | - | - | - | - | - |
| **Species group O** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Adenanthos cygnorum | - | - | - | - | - | - | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 14 | - | 44 | - | - | 19 | 73 | 53 | 48 | - | - | - | - | - | 3 | - | - | - | - | - |
| Banksia menziesii | - | - | - | - | - | - | 6 | - | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 43 | 44 | 22 | 26 | - | 69 | 45 | 95 | 95 | 4 | - | - | - | - | 39 | - | - | - | - | - |
| Schoenus curvifolius | - | - | - | 8 | - | - | 13 | - | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 71 | - | 67 | 5 | 17 | 38 | 36 | 89 | 90 | 4 | - | - | 5 | - | 11 | - | - | - | - | - |
| Scholtzia involucrata | - | - | - | - | - | - | 6 | - | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 33 | 33 | 10 | 8 | 56 | 9 | 79 | 86 | - | - | - | - | - | 8 | - | - | - | - | - |
| Hibbertia subvaginata | 8 | 17 | - | - | - | - | 6 | 7 | - | - | - | 13 | - | - | - | - | - | - | - | - | - | - | - | - | - | 22 | 21 | 17 | 38 | 45 | 63 | 86 | - | - | - | - | - | 11 | - | - | - | - | - |
| Calytrix flavescens | - | - | - | - | - | - | 6 | - | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 29 | 22 | - | 15 | 83 | 19 | 9 | 68 | 95 | - | - | - | - | - | 11 | - | - | - | - | - |
| Leucopogon conostephioides | 15 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 14 | - | 22 | 13 | 75 | 50 | 45 | 84 | 71 | 4 | - | - | - | - | - | - | - | - | - | - |
| Alexgeorgea nitens | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 100 | - | - | - | - | 6 | 9 | 32 | 81 | - | - | - | - | - | 32 | - | - | - | - | - |
| Eremaea pauciflora | - | - | - | - | - | - | - | - | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 71 | 44 | 44 | 5 | 17 | 6 | - | 37 | 95 | - | - | - | 5 | - | 8 | - | - | - | - | - |
| Jacksonia densiflora / floribunda complex | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 57 | - | 56 | - | - | 6 | 9 | 42 | 76 | - | - | - | - | - | 3 | - | - | - | - | - |
| Anigozanthos humilis | - | - | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 22 | - | 3 | 8 | - | - | 21 | 76 | - | 9 | 9 | 5 | 14 | 29 | - | 8 | - | - | - |
| Arnocrinum preissii | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 43 | 11 | 56 | 5 | - | 13 | - | 26 | 10 | - | - | - | 5 | - | - | - | - | - | - | - |
| Acacia pulchella | 31 | 67 | 20 | 8 | 13 | 50 | 19 | - | - | - | - | 38 | 13 | 33 | 15 | 20 | - | 50 | - | - | - | - | - | - | - | 11 | 28 | 58 | 19 | - | 32 | 52 | 16 | 27 | 9 | 37 | - | 53 | - | - | - | - | - |
| Drosera menziesii subsp. penicillaris | 31 | 67 | - | 38 | 25 | 50 | 19 | 7 | - | 22 | - | 13 | - | 11 | - | - | 11 | - | - | - | - | - | - | 86 | 33 | 44 | 26 | 92 | 31 | - | 74 | 52 | 16 | 9 | 18 | - | - | 34 | - | 8 | - | - | - |
| Eriostemon spicatus | 46 | 58 | 20 | 100 | 63 | - | 38 | 13 | - | - | - | 13 | - | - | - | - | - | - | - | - | - | - | - | 57 | 56 | 56 | 56 | 75 | 13 | 27 | 74 | 95 | 8 | - | - | - | 43 | 11 | - | - | - | - | - |
| Xanthosia bungalii | 15 | 67 | 20 | 69 | 63 | - | 50 | 7 | - | - | 5 | 13 | - | - | 8 | - | - | - | - | - | - | - | - | 57 | 67 | 22 | 56 | 83 | 13 | 27 | 63 | 76 | 8 | 9 | 9 | 21 | 43 | 32 | - | - | - | - | - |
| Banksia attenuata | 8 | 8 | - | - | - | - | - | 7 | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 100 | 78 | 22 | 87 | 92 | 88 | 82 | 100 | 100 | 16 | 36 | - | 26 | - | 79 | - | - | - | - | - |
| Conostephium pendulum | 8 | - | - | - | - | - | - | 7 | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 86 | 78 | 22 | 51 | 75 | 6 | 55 | 68 | 67 | 4 | - | - | 11 | - | 53 | - | - | - | - | - |
| Petrophile linearis | 46 | 33 | - | - | 13 | - | - | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 100 | 78 | 67 | 79 | 92 | 56 | 82 | 95 | 100 | 12 | 9 | - | 5 | - | 53 | - | - | - | - | - |
| Stylidium piliferum | 23 | 8 | - | - | 50 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 86 | 67 | 11 | 38 | 58 | 38 | 55 | 84 | 67 | - | - | - | - | - | 18 | - | - | - | - | - |
| Bossiaea eriocarpa | 31 | 17 | - | - | 100 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 100 | 89 | 89 | 79 | 92 | 25 | - | 95 | 90 | 12 | 27 | 18 | 37 | 14 | 47 | - | - | - | - | - |
| Lomandra hermaphrodita | 62 | 75 | - | 23 | 75 | - | 25 | - | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 86 | 78 | 89 | 59 | 83 | 50 | 27 | 95 | 81 | 4 | 9 | - | 5 | 14 | 53 | - | - | - | - | - |
| Burchardia umbellata | 62 | 50 | - | 15 | 88 | 80 | 19 | 13 | 11 | 6 | - | - | - | - | - | - | 11 | 50 | - | - | - | - | - | 100 | 89 | 89 | 82 | 92 | 56 | - | 89 | 86 | 28 | 27 | - | 5 | - | 82 | - | - | - | - | - |
| Lyperanthus nigricans | 31 | 25 | - | - | 25 | 10 | 13 | 13 | - | - | - | - | - | 22 | - | - | - | 50 | - | - | - | - | - | - | 56 | 33 | 36 | 67 | 38 | 27 | 47 | 33 | 4 | 27 | - | - | - | 32 | - | - | - | - | - |
| Conostylis juncea | - | - | - | - | 75 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 14 | 67 | - | 74 | - | 44 | 27 | 79 | 71 | - | 9 | - | - | - | 5 | - | - | - | - | - |
| Dasypogon bromeliifolius | 23 | 33 | 40 | 38 | 13 | - | 81 | 13 | 22 | - | - | - | - | 11 | 15 | - | - | - | - | - | - | - | - | 43 | 100 | 67 | 72 | 92 | 56 | 64 | 63 | 52 | 4 | - | - | - | - | 8 | - | - | - | - | - |
| Phlebocarya ciliata | - | 33 | - | - | 25 | - | 56 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 29 | 44 | 11 | 69 | 92 | 25 | 64 | 63 | 48 | 4 | - | - | - | - | 8 | - | - | - | - | - |
| Drosera paleacea | 8 | - | - | - | - | - | - | 13 | 33 | - | 5 | - | - | - | - | 40 | - | - | - | - | - | - | - | 29 | 56 | - | 15 | 33 | 25 | 55 | 21 | 33 | - | - | - | - | - | 5 | - | - | - | - | - |
| Lyginia barbata | - | 8 | 60 | 15 | 13 | 10 | 50 | 40 | 11 | - | - | - | 38 | 22 | - | - | - | - | - | - | - | - | - | 100 | 11 | 89 | 67 | 92 | 88 | 64 | 95 | 95 | 16 | - | - | - | - | 8 | - | - | - | - | - |
| Stylidium brunonianum | 8 | 8 | 80 | 46 | 13 | 20 | 75 | 47 | - | - | - | - | - | 11 | 23 | - | - | - | - | - | - | - | - | 57 | 56 | 33 | 33 | 33 | 50 | 82 | 74 | 71 | 4 | - | - | 16 | - | 50 | - | - | - | - | 33 |
| Patersonia occidentalis | 54 | - | 20 | 54 | 38 | 30 | 44 | 27 | - | 6 | 14 | 25 | 50 | 22 | 23 | - | 11 | - | - | - | - | 100 | - | 100 | - | 89 | 59 | 83 | 69 | 64 | 89 | 95 | 4 | 27 | - | 5 | - | 24 | - | - | - | - | - |
| Stylidium repens | 15 | 17 | 20 | 23 | 13 | 10 | 88 | 20 | 33 | - | - | - | - | 44 | - | 20 | - | - | - | - | - | - | - | 29 | 22 | 44 | 8 | 42 | 56 | 82 | 74 | 76 | - | - | - | 5 | - | 24 | - | - | - | - | - |
| Amphipogon turbinatus | - | 17 | - | 23 | - | 10 | 13 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 71 | 67 | 100 | 13 | 42 | 13 | 27 | 68 | 52 | - | - | - | - | - | 21 | - | - | - | - | - |
| Leporella fimbriata | - | - | - | 8 | 13 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 56 | 67 | 15 | 75 | 31 | 45 | 47 | 43 | - | - | - | - | - | 13 | - | - | - | - | - |
| Stirlingia latifolia | 15 | 17 | 60 | 38 | 13 | - | 6 | 7 | 22 | - | - | - | 13 | 11 | - | - | - | - | - | - | - | - | - | 100 | 67 | 78 | 31 | 67 | 19 | 36 | 47 | 57 | 4 | - | - | 5 | - | 21 | - | - | - | - | - |
| Hibbertia huegelii | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 100 | 78 | 44 | 3 | 25 | 6 | - | 26 | 24 | - | - | - | - | - | 26 | - | - | - | - | - |
| Lysinema ciliatum | - | 8 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 43 | 22 | 22 | - | 50 | - | 36 | 11 | 24 | 8 | - | - | - | 100 | 5 | - | - | - | - | - |
| Anigozanthos manglesii | 8 | - | - | 15 | 50 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 29 | 11 | 56 | 8 | 25 | 19 | - | 11 | - | 4 | 18 | - | 5 | - | 3 | - | 8 | - | - | - |
| Laxmannia squarrosa | - | - | - | - | - | 20 | - | - | - | - | 5 | - | - | - | - | - | - | - | - | - | - | - | - | - | 22 | - | 21 | - | 13 | - | 63 | 5 | - | - | - | - | 11 | - | - | - | - | - |
| Waitzia suaveolens | - | - | - | - | - | - | - | - | - | - | - | - | - | 11 | 8 | - | - | - | - | - | - | - | - | 14 | - | - | 5 | - | 6 | - | 58 | - | - | 18 | - | 5 | 14 | 26 | - | - | - | - | - |
| Cassytha flava | 8 | - | - | 8 | 13 | - | - | 7 | - | - | - | - | 13 | - | - | - | - | - | - | - | - | - | - | 14 | - | - | 10 | - | - | 18 | 16 | 38 | 8 | - | 27 | 11 | 57 | 3 | - | 8 | - | - | - |
| Neurachne reticulata | - | - | - | 15 | - | - | - | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 43 | 11 | - | 3 | - | - | - | 21 | 38 | - | - | - | 5 | 29 | 8 | 56 | 23 | - | - | - |
| Hemiandra pungens | 15 | 8 | - | 8 | - | - | - | - | - | - | - | - | - | 56 | 8 | - | - | - | - | - | - | - | - | 57 | 11 | 33 | 26 | 25 | 6 | - | 16 | 14 | 4 | - | - | 5 | - | 3 | 11 | 62 | - | 13 | - |
| Acacia sessilis | - | - | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 14 | 22 | 56 | - | - | 6 | - | 5 | - | - | - | - | - | - | 3 | - | - | - | - | - |
| Restio sinosus Ms | - | - | - | 8 | - | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 78 | 33 | - | - | 6 | - | - | - | - | - | - | - | - | 3 | - | - | - | - | - |
| Conostylis aurea | - | - | - | - | - | 10 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 71 | 11 | 78 | - | - | - | - | - | - | - | - | - | - | - | 5 | - | - | - | - | - |
| Caustis dioica | - | - | 20 | - | - | - | - | - | - | - | - | - | - | 56 | - | - | - | - | - | - | - | - | - | 29 | - | 22 | - | - | - | - | - | 10 | - | - | - | - | - | 8 | - | - | - | - | - |
| Calectasia cyanea | - | 8 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 29 | 56 | 11 | 3 | - | 6 | - | - | 10 | - | - | - | - | - | 13 | - | - | - | - | - |
| Daviesia nudiflora | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 57 | - | - | - | - | - | - | - | - | - | - | - | - | - | 18 | - | - | - | - | - |
| Daviesia triflora | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 71 | 22 | 33 | 5 | - | - | - | 26 | 19 | 8 | - | - | - | - | 29 | - | - | - | - | - |
| Scaevola repens var. repens | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 86 | 11 | 78 | 3 | - | - | - | 16 | 19 | 12 | - | 9 | - | - | 11 | - | 8 | - | - | - |
| Monotaxis grandiflora | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 71 | 11 | 22 | 3 | 8 | - | - | - | 5 | - | - | - | - | - | 13 | - | - | - | - | - |
| Synaphea spinulosa | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 57 | - | - | 8 | - | - | - | 5 | 14 | - | 9 | - | 5 | - | 13 | - | - | - | - | - |
| Eremaea asterocarpa subsp. asterocarpa | - | - | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 11 | 56 | - | - | - | - | 11 | 10 | - | - | - | - | - | 8 | - | - | - | - | - |
| **Species group P** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Acacia stenoptera | 31 | 25 | 60 | 15 | 38 | - | 19 | 7 | - | - | 19 | - | 25 | 56 | 8 | - | - | - | - | - | - | - | - | - | 11 | - | 21 | 42 | - | 18 | 11 | - | - | - | - | - | - | 8 | - | - | - | - | - |
| Chamaescilla corymbosa | 54 | 67 | - | 38 | 75 | 20 | 31 | 33 | 11 | 11 | 14 | 13 | 13 | 22 | - | - | 11 | - | - | - | 13 | - | - | 14 | 100 | 67 | 59 | 75 | 44 | - | 42 | - | 4 | 36 | - | 5 | - | 13 | - | - | - | 13 | - |
| Dampiera linearis | 77 | 92 | 100 | 77 | 38 | 20 | 75 | 27 | - | 6 | 24 | 50 | - | 56 | 15 | - | - | - | - | - | - | - | - | 57 | 33 | - | 46 | 42 | 19 | 45 | 79 | 38 | - | 9 | 9 | - | 14 | 3 | - | - | - | - | - |

| | 1a | 1b | 2 | 3a | 3b | 3c | 4 | 5 | 6 | 7 | 8 | 9 | 10a | 10b | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20a | 20b | 20c | 21a | 21b | 21c | 22 | 23a | 23b | 24 | 25 | 26a | 26b | 27 | 28 | 29a | 29b | 30a | 30b | 30c |
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| Hypolaena exsulca | 38 | 50 | 60 | 69 | 50 | 10 | 81 | 80 | 22 | 6 | - | 25 | 13 | 33 | 8 | 20 | - | - | - | - | - | - | - | 71 | 44 | 22 | 49 | 67 | 56 | 45 | 32 | 29 | - | - | - | - | - | 8 | - | - | - | - | - |
| Thysanotus thyrsoideus | 23 | 25 | 20 | 31 | 63 | 40 | 25 | 20 | - | 6 | 5 | 38 | 50 | 56 | 15 | - | - | - | - | - | - | - | - | 14 | 11 | - | 10 | 17 | - | 27 | 21 | 24 | - | - | - | - | - | 5 | - | - | - | - | 33 |
| Schoenus brevisetis complex | - | - | 20 | 38 | - | - | - | 20 | - | - | 14 | - | 13 | - | 15 | - | - | - | - | - | 13 | - | - | 29 | 44 | 78 | 3 | - | 6 | 18 | 11 | 38 | - | - | - | - | - | 3 | - | - | - | - | - |
| Laxmannia sessiliflora subsp. australis | 8 | - | 20 | 8 | - | 10 | 6 | - | - | - | - | - | - | 44 | - | - | - | - | - | - | - | - | - | 14 | 22 | 56 | - | 75 | 6 | - | 11 | - | - | - | - | - | - | 3 | - | - | - | - | - |
| Allocasuarina humilis | 8 | 8 | 20 | 23 | 25 | 10 | - | - | - | - | - | - | - | 11 | - | - | - | - | - | - | - | - | - | 57 | 67 | 78 | 5 | 33 | 6 | - | 5 | 5 | 28 | - | - | 11 | 29 | 21 | - | - | - | - | - |
| Haemodorum laxum | 15 | 25 | - | 85 | 50 | 20 | - | 7 | - | - | 5 | 13 | 13 | - | - | - | - | - | - | - | - | - | - | 100 | 67 | 100 | 3 | - | 6 | - | - | - | 4 | - | - | 5 | - | 24 | - | - | - | - | - |
| Thysanotus triandrus | 15 | - | - | 38 | 25 | - | - | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 71 | 33 | 11 | 3 | - | - | 9 | 11 | 10 | - | - | - | - | - | 8 | - | - | - | - | - |
| Conostylis setigera | 54 | 33 | 20 | 54 | 13 | - | - | - | - | - | - | - | - | 11 | - | - | - | - | - | - | - | - | - | 71 | 67 | 11 | - | 8 | 13 | 9 | 5 | 24 | 8 | - | 18 | 21 | - | 50 | - | - | - | - | - |
| Hakea ruscifolia | 23 | 42 | - | 8 | 13 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 29 | 67 | 44 | - | 8 | - | - | - | - | - | - | - | 26 | 14 | 16 | - | - | - | - | - |
| Beaufortia camphorosmae | 8 | - | - | 46 | 50 | 30 | - | - | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 56 | - | 10 | - | - | - | - | - | - | - | - | - | 3 | - | - | - | - | - |
| Grevillea pilulifera | - | - | - | 46 | 25 | 10 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 56 | - | - | - | - | - | - | - | - | - | - | - | 8 | - | - | - | - | - |
| Pronaya fraseri | - | 17 | - | - | 63 | - | - | - | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 44 | 11 | 8 | 8 | - | - | - | - | - | - | - | - | 5 | - | - | - | - | - |
| Eucalyptus calophylla | 38 | 92 | 20 | 77 | 88 | 60 | 13 | - | 11 | - | 5 | 13 | - | - | 15 | - | - | - | - | - | - | - | - | - | 11 | 11 | 36 | 17 | 19 | - | 5 | - | - | 9 | - | - | 13 | - | - | - | - | - |
| Tetraria octandra | 77 | 92 | 20 | 85 | 100 | 70 | - | - | - | - | 5 | - | - | - | - | - | - | - | - | - | - | - | - | 57 | 100 | 56 | 8 | 17 | - | - | - | - | 4 | 27 | - | 21 | 14 | 32 | - | - | - | - | - |
| Kingia australis | 38 | 58 | 100 | 92 | 38 | 10 | - | - | - | - | - | - | 13 | 11 | - | - | - | - | - | - | - | - | - | 14 | 44 | 33 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Loxocarya fasciculata | 77 | 92 | 80 | 100 | 100 | 30 | 6 | - | - | - | 5 | 25 | 38 | 67 | - | - | - | - | - | - | - | - | - | 86 | 100 | 33 | 23 | 50 | 31 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mesomelaena tetragona | 38 | 83 | 80 | 100 | 88 | 70 | - | 7 | 11 | - | 19 | 13 | 13 | 11 | - | - | - | - | - | - | - | - | - | 14 | 78 | 44 | 5 | 8 | 6 | - | - | - | - | - | - | - | 8 | - | - | - | - | - |
| Gompholobium marginatum | 31 | 42 | - | 46 | 63 | 60 | - | - | - | - | 5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 8 | - | - | - | - | - |
| Lepidosperma sp. (BJK & NG 232) | 15 | 42 | 20 | 31 | 38 | 70 | - | - | - | - | 14 | - | - | 33 | 8 | - | - | - | - | - | - | - | - | - | 33 | 22 | 3 | 8 | - | - | - | - | - | - | - | 11 | - | - | - | - | - |
| Hibbertia vaginata | 8 | 8 | - | - | 13 | - | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 56 | - | 21 | 67 | 31 | 9 | 5 | - | - | - | - | - | - | - | - | - | - | - |
| Melaleuca thymoides | 31 | 17 | - | - | - | - | 13 | - | - | - | - | 13 | - | - | - | - | - | - | - | - | - | - | - | - | 11 | - | 41 | 100 | 38 | - | 37 | - | - | 9 | - | - | - | - | - | - | - | - |
| Jacksonia sp. Busselton (G.J.K. 4482) PN | 8 | 8 | - | - | - | - | - | - | - | - | - | 13 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 5 | 92 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Eucalyptus marginata subsp. marginata | 100 | 75 | - | 8 | 88 | - | 6 | - | - | - | - | - | - | - | 15 | - | - | - | - | - | - | - | - | 43 | 56 | - | 64 | 33 | 13 | - | 11 | - | 12 | 18 | - | 5 | - | 34 | - | - | - | - | - |
| Hypocalymma robustum | 62 | 42 | - | - | - | - | - | - | - | - | - | - | 13 | - | - | - | - | - | - | - | - | - | - | 43 | 56 | - | 28 | 75 | - | - | 21 | 5 | 4 | 9 | - | - | - | 21 | - | - | - | - | - |
| Lomandra sericea | 85 | 67 | - | - | 25 | - | 6 | - | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 43 | 56 | 11 | 51 | 50 | - | 18 | 16 | 24 | - | 9 | - | - | - | 11 | - | - | - | - | - |
| Xylomelum occidentale | 62 | 33 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 14 | 67 | - | 26 | 42 | - | - | - | - | - | 9 | - | - | - | - | - | - | - | - | - |
| Cyathochaeta clandestina | 15 | 42 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 57 | 11 | 22 | - | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Gompholobium confertum | 54 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 43 | 11 | 44 | 5 | 8 | - | 9 | - | 14 | - | - | - | 5 | - | 3 | - | - | - | - | - |
| Labichea punctata | 46 | 8 | - | - | 13 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 29 | 67 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

## Species group Q

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Acacia willdenowiana | 31 | 25 | - | - | 50 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 29 | 22 | 67 | 15 | 42 | - | - | 21 | - | 4 | 55 | - | - | 29 | 11 | - | - | - | - | - |
| Astroloma pallidum | 23 | 25 | - | 15 | 25 | 10 | - | - | 11 | - | - | - | - | - | 8 | - | - | - | - | - | - | - | - | 71 | 56 | - | 28 | - | - | - | - | 5 | 8 | 18 | - | - | - | 26 | - | - | - | - | - |
| Caladenia flava | 38 | - | - | 8 | 63 | - | 6 | 60 | 11 | 6 | - | 13 | - | 11 | 8 | 20 | - | - | - | - | - | - | - | - | 56 | - | 69 | 50 | 56 | - | 47 | 10 | 12 | 55 | 9 | 21 | 14 | 37 | - | - | - | - | - |
| Lomandra caespitosa | 15 | 33 | - | 8 | 38 | - | 13 | 7 | 11 | - | - | 38 | 13 | - | - | - | - | - | - | - | - | - | - | 57 | 11 | 33 | 67 | 50 | 81 | 18 | 32 | 38 | 8 | 64 | 9 | 37 | - | 37 | - | - | - | - | - |
| Hibbertia hypericoides | 100 | 100 | - | 38 | 100 | 30 | - | - | - | - | - | - | - | 22 | - | - | - | - | - | - | - | - | - | 100 | 78 | 89 | 90 | 100 | 13 | - | 68 | 57 | 48 | 82 | 9 | 79 | 57 | 100 | - | - | - | - | 33 |
| Hovea trisperma var. trisperma | 38 | 58 | - | - | 38 | 10 | - | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 43 | 22 | - | 49 | 58 | - | 9 | 58 | 29 | 16 | 45 | - | 11 | 14 | 26 | - | - | - | - | - |
| Drosera stolonifera | 15 | - | - | 15 | 75 | 10 | - | 7 | - | 6 | - | - | - | - | 8 | - | - | - | - | - | - | - | 100 | - | 29 | 44 | 56 | 62 | - | 19 | - | - | - | - | 45 | 18 | 16 | 29 | 8 | - | - | - | - |
| Isotropis cuneifolia | 8 | 8 | - | 8 | - | - | 6 | - | - | - | - | - | 13 | - | - | - | - | - | - | - | - | - | - | 14 | - | 56 | 31 | - | - | - | 11 | 14 | 8 | 18 | 9 | 5 | - | 32 | - | 8 | - | - | - |
| Dianthoria occidentalis | - | 8 | - | - | 38 | - | 6 | - | - | - | 5 | - | - | 11 | - | - | - | - | - | - | - | - | - | 57 | 11 | - | 51 | 17 | 25 | - | 74 | 19 | 12 | 18 | 55 | 42 | 14 | 50 | 22 | 62 | - | - | - |
| Gompholobium tomentosum | - | 8 | - | - | 25 | - | 13 | 40 | 11 | - | - | - | - | - | 8 | - | - | - | - | - | - | - | - | 57 | 56 | 67 | 79 | 58 | 63 | 27 | 79 | 29 | 36 | 18 | 55 | 21 | 29 | 55 | 22 | 54 | - | - | - |
| Loxocarya flexuosa | 15 | 25 | - | - | - | 60 | - | - | 22 | - | 5 | - | - | 11 | - | - | - | - | - | - | - | - | - | 57 | - | 44 | 69 | 25 | 38 | - | 63 | 48 | 72 | 36 | 100 | 79 | 100 | 87 | 44 | 92 | - | - | 33 |
| Trachymene pilosa | 15 | 17 | - | 8 | 25 | 10 | 25 | 67 | 22 | 17 | - | - | - | 11 | 15 | 20 | - | - | - | - | - | - | - | 29 | 44 | 100 | 79 | 92 | 81 | 18 | 79 | 38 | 24 | 82 | 100 | 95 | 86 | 82 | 67 | 77 | 57 | 75 | 67 |
| Hibbertia racemosa | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 29 | - | - | 49 | 42 | 31 | 9 | 42 | 14 | 32 | 36 | 36 | 53 | 57 | 8 | - | 23 | - | - | - |
| Drosera erythrorhiza | - | - | - | 8 | 75 | 30 | 6 | 13 | 22 | 11 | 5 | - | - | - | - | - | - | - | - | - | - | - | - | 86 | 100 | - | 64 | 25 | 56 | 9 | 84 | 71 | 20 | 55 | 36 | 74 | 43 | 79 | - | - | - | - | 33 |
| * Ursinia anthemoides | - | - | - | 31 | 38 | 30 | 25 | 60 | 67 | 17 | 19 | - | - | - | - | - | - | - | - | - | - | - | - | 29 | 56 | 100 | 56 | 25 | 50 | 27 | 74 | 38 | 20 | 36 | 9 | 32 | - | 71 | - | - | - | - | 33 |
| * Gladiolus caryophyllaceus | - | - | - | 8 | - | 30 | - | - | - | - | 10 | - | - | - | 8 | - | - | - | - | - | - | - | - | 57 | - | 89 | - | - | 25 | 27 | 68 | 43 | 40 | - | 9 | 5 | - | 68 | - | - | - | - | - |
| Stipa compressa | - | 8 | - | - | - | 20 | - | 33 | - | - | - | - | 11 | - | - | - | - | - | - | - | - | - | - | - | 11 | 78 | 8 | 58 | 19 | - | 58 | 38 | - | - | 55 | 42 | - | 26 | - | - | - | - | - |
| Wahlenbergia preissii | - | - | - | 15 | 13 | - | - | 13 | - | - | - | - | - | - | 8 | - | - | - | - | - | - | - | - | - | - | - | 13 | 17 | 6 | - | 32 | 33 | 8 | - | - | 58 | - | 34 | 11 | - | - | - | - |
| * Aira caryophyllea/cupaniana group | 8 | 17 | 20 | 23 | 63 | 10 | 38 | 73 | 11 | 39 | 57 | - | 38 | 44 | 8 | 80 | 11 | - | - | - | - | - | - | 43 | - | 11 | 46 | 33 | 31 | 9 | 63 | 19 | 24 | 55 | 73 | 100 | 14 | 71 | 33 | - | 14 | 13 | 33 |
| * Briza maxima | 8 | 42 | 20 | 85 | 100 | 100 | 56 | 60 | 100 | 67 | 86 | 13 | 38 | 33 | 77 | - | 11 | - | - | - | - | - | - | 14 | 11 | 56 | 79 | 58 | 81 | - | 84 | 5 | 72 | 82 | 18 | - | - | 74 | 22 | - | - | 25 | 33 |
| * Hypochaeris glabra | 15 | 83 | 60 | 62 | 100 | 60 | 69 | 93 | 100 | 56 | 52 | 50 | 50 | 78 | 62 | 40 | 33 | 50 | - | - | 13 | 50 | - | 29 | 44 | 56 | 87 | 75 | 81 | 18 | 89 | 10 | 80 | 91 | 91 | 89 | - | 89 | 11 | 8 | - | - | 67 |
| Thysanotus manglesianus/patersonii | 8 | 50 | 20 | 54 | - | 50 | - | 33 | 33 | 56 | 48 | - | 25 | 22 | 38 | - | - | - | - | - | - | 50 | - | 43 | 11 | 44 | 46 | 42 | 81 | - | 53 | - | 48 | 36 | 91 | 58 | 71 | 63 | 33 | 23 | 43 | 25 | 100 |
| Conostylis aculeata | 8 | 33 | 40 | 15 | 25 | 20 | 6 | 13 | - | - | - | 13 | 50 | 33 | 8 | - | 11 | - | - | - | - | - | - | 14 | - | 78 | 64 | 25 | 38 | 9 | 42 | 19 | 64 | 64 | - | 21 | 57 | 53 | 22 | 23 | - | 13 | - |
| Lepidosperma angustatum | 92 | 75 | 40 | 46 | 75 | 40 | 25 | - | 11 | - | 19 | 38 | 38 | 44 | - | - | - | - | - | - | - | 50 | - | 29 | 67 | 33 | 85 | 83 | 44 | 9 | 68 | 38 | 72 | 73 | 45 | 74 | 86 | 58 | 22 | 92 | 29 | 50 | - |
| Xanthorrhoea preissii | 54 | 92 | 100 | 92 | 100 | 90 | 75 | 20 | 22 | - | 33 | - | 13 | 33 | 15 | - | - | - | - | - | - | - | 100 | 67 | 43 | 89 | 33 | 38 | 17 | 44 | 55 | 58 | 43 | 52 | 18 | 9 | 79 | 57 | 95 | - | - | - | - | - |
| Centrolepis drummondiana | 8 | - | - | 8 | 25 | 10 | - | 40 | 22 | 11 | 10 | 13 | 50 | 56 | 15 | 40 | - | - | - | - | - | - | - | 14 | - | 44 | 13 | 42 | 31 | 9 | 53 | 19 | 20 | 18 | 9 | 63 | - | 50 | - | - | - | - | - |
| Quinetia urvillei | 8 | - | - | - | 25 | 10 | 6 | 67 | 11 | 33 | 19 | - | 13 | 11 | - | 20 | - | - | - | - | - | - | - | - | 22 | 44 | 28 | 8 | 13 | - | 32 | 5 | 4 | 18 | 18 | 21 | - | 26 | - | - | - | - | - |
| Drosera macrantha | - | - | - | 15 | 13 | 40 | - | - | 22 | 22 | 10 | 25 | 13 | 22 | - | - | 11 | - | - | - | - | - | - | - | 56 | 33 | 28 | - | 13 | 9 | 16 | 5 | 8 | 9 | 36 | 5 | 71 | 16 | - | 8 | - | - | - |
| Hyalosperma cotula | - | - | - | 31 | 38 | 10 | 6 | 13 | 11 | 6 | 52 | 25 | - | 33 | - | - | - | - | - | - | - | - | - | - | 11 | 11 | 15 | - | 6 | - | - | 29 | 4 | - | 45 | - | 43 | 13 | - | 8 | - | - | - |
| Mitrasacme paradoxa | 15 | - | - | 8 | - | - | 13 | 53 | - | 28 | 10 | 25 | - | 56 | - | 40 | - | - | - | - | - | 50 | - | 29 | - | 44 | 5 | 25 | 13 | 27 | 37 | 62 | - | - | 82 | 11 | 29 | 13 | 22 | - | - | 13 | - |
| Stylidium calcaratum | 15 | 25 | 20 | 23 | 38 | - | 6 | 13 | - | 22 | 19 | 38 | 50 | 56 | - | - | - | - | - | - | - | - | - | 57 | - | - | 5 | - | 13 | 9 | 11 | 14 | 4 | - | - | 11 | - | 37 | - | - | - | - | - |
| Podolepis gracilis | 8 | - | - | - | 13 | - | - | - | - | 6 | 14 | 13 | 25 | - | 8 | - | - | - | - | - | - | - | - | - | 11 | 100 | 21 | - | - | - | - | - | - | 9 | - | 11 | - | 16 | - | 8 | - | - | - |
| Homalosciadium homelocarpum | - | - | - | - | 63 | 30 | 25 | 40 | - | 17 | 5 | - | - | - | 8 | - | - | 50 | - | - | - | - | - | - | - | - | 11 | 33 | 8 | 13 | - | 5 | - | 8 | 45 | 36 | 53 | - | 47 | 11 | 8 | - | - | - |
| Konnedia prostrata | - | - | - | 8 | 50 | 30 | 6 | - | 11 | - | 5 | - | - | - | 15 | - | - | 50 | - | - | - | - | 33 | - | - | - | 28 | - | 13 | 9 | - | - | 8 | 27 | 9 | 53 | 14 | 26 | - | 23 | - | 13 | - |

| | 1a | 1b | 2 | 3a | 3b | 3c | 4 | 5 | 6 | 7 | 8 | 9 | 10a | 10b | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20a | 20b | 20c | 21a | 21b | 21c | 22 | 23a | 23b | 24 | 25 | 26a | 26b | 27 | 28 | 29a | 29b | 30a | 30b | 30c |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lagenifera huegelii | - | 58 | - | - | 50 | 20 | 6 | 7 | - | - | 5 | - | - | - | 8 | - | - | 50 | - | - | - | - | - | - | 11 | - | 74 | 25 | 31 | - | 16 | - | 4 | 73 | 9 | 89 | 43 | 55 | - | - | - | 38 | - |
| Macrozamia riedlei | 15 | 8 | - | - | 13 | - | - | 13 | - | - | - | - | - | - | 15 | - | - | - | - | - | - | - | - | - | - | - | 64 | 25 | 25 | - | 21 | 5 | 40 | 100 | - | 37 | - | 37 | - | - | - | 13 | 33 |
| Leucopogon propinquus | - | 25 | - | - | 25 | - | - | 7 | - | - | - | - | - | - | 8 | - | - | - | - | - | - | - | - | - | - | 11 | 33 | - | 6 | - | - | - | 4 | 73 | - | 32 | - | 24 | - | - | - | - | - |
| Sowerbaea laxiflora | - | 8 | - | - | 75 | 50 | 6 | - | - | 11 | 14 | - | - | - | 15 | - | - | - | - | - | - | - | - | - | 22 | 22 | 49 | - | 6 | - | 16 | - | 16 | 91 | 9 | 58 | - | 61 | - | - | - | 13 | - |
| Dichopogon capillipes | - | - | - | - | 38 | 30 | - | - | - | 6 | 5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 31 | - | - | - | - | - | 20 | 64 | - | 11 | - | 8 | - | - | - | 13 | - |
| * Trifolium campestre | - | - | - | - | - | 10 | - | - | - | 6 | 5 | - | - | - | - | - | - | - | - | - | - | 50 | - | 14 | 11 | - | 23 | - | - | - | - | - | 28 | 73 | 27 | 5 | - | 21 | - | - | - | - | - |
| Crassula colorata | - | - | - | - | 13 | - | 13 | 7 | 22 | 6 | - | - | - | - | - | 20 | - | - | - | 25 | - | - | - | - | 11 | - | 8 | 25 | 13 | 9 | 32 | 5 | 44 | 18 | 64 | 68 | - | 29 | 78 | 38 | 14 | 13 | - |
| Millotia tenuifolia | - | 8 | - | - | - | - | 6 | 33 | - | 22 | - | - | - | 22 | - | - | - | - | - | - | - | - | - | 14 | - | - | 18 | 25 | 13 | - | 42 | - | 12 | 36 | 91 | 89 | - | 32 | 22 | 8 | - | 25 | - |
| Waitzia citrina | - | 8 | - | - | 13 | - | 6 | 27 | - | - | - | - | - | - | - | 60 | - | - | - | - | - | - | - | - | - | 11 | 8 | 25 | - | - | 11 | - | 4 | 9 | 45 | 42 | 14 | 5 | 11 | 15 | - | 25 | - |
| Microlaena stipoides | - | - | - | 8 | - | - | - | 7 | 11 | - | 5 | - | - | - | 31 | - | - | - | - | - | - | - | - | - | - | - | 28 | - | 31 | - | - | 5 | 20 | 73 | 18 | 53 | - | 37 | - | 8 | 14 | 63 | - |
| Pterostylis aff. nana | 8 | - | - | - | - | - | 6 | 27 | 11 | 17 | - | - | - | - | 15 | - | - | - | - | - | - | - | - | - | - | - | 31 | 17 | 38 | 18 | 5 | 10 | 4 | 45 | 64 | 53 | 57 | 21 | - | 15 | - | 50 | 67 |
| Isolepis marginata | - | - | - | - | - | 10 | 6 | 13 | 22 | 44 | 19 | 25 | 13 | 33 | 38 | - | 11 | - | - | - | 13 | 50 | - | - | - | 11 | 8 | - | 19 | 9 | 16 | 5 | 28 | 27 | 27 | 74 | - | 26 | 33 | 31 | - | 25 | 33 |
| * Vulpia myuros | - | - | - | 8 | 13 | 10 | 19 | 27 | - | 17 | 24 | - | - | 22 | 8 | 20 | - | - | - | - | - | 50 | - | - | - | - | 8 | 8 | 19 | - | 16 | - | 24 | 27 | 100 | 47 | - | 34 | 44 | - | - | 13 | - |
| * Ehrharta calycina | - | - | - | 15 | - | - | - | - | 56 | - | 5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 11 | 13 | - | 19 | - | 32 | - | 32 | 18 | - | 11 | - | 24 | - | - | - | - | 33 |
| Lepidosperma sp. (BJK&NG 231) | - | - | - | - | - | - | 13 | - | - | - | - | - | 13 | - | - | - | - | - | - | - | - | - | 33 | 57 | - | - | 3 | - | 6 | - | 11 | 5 | 8 | - | - | - | 14 | 29 | - | - | - | - | - |
| Mesomelaena pseudostygia | - | - | - | - | - | - | - | - | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 100 | 67 | 100 | 8 | - | 6 | - | 11 | 10 | 28 | - | - | 32 | - | 95 | - | - | - | - | 33 |
| Scaevola canescens | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 56 | 5 | - | - | - | - | - | 8 | - | - | 5 | - | 39 | - | 8 | - | - | - |
| Petrophile macrostachya | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 57 | 11 | - | - | - | - | - | - | 5 | 4 | - | - | 26 | - | 39 | - | 8 | - | - | - |
| Opercularia vaginata | 8 | 8 | - | 31 | - | 60 | - | - | - | - | 38 | - | - | 22 | - | - | 11 | - | - | - | - | 100 | 33 | - | - | - | 8 | - | - | - | 16 | - | 24 | - | 73 | 5 | 71 | 24 | 33 | 54 | - | - | - |
| Hakea trifurcata | - | - | - | 23 | - | 30 | - | 7 | - | - | 10 | - | 25 | - | - | - | - | - | - | - | - | - | - | - | - | 11 | - | - | - | - | - | 8 | - | 27 | 11 | 57 | 5 | - | - | - | - | - |
| Hybanthus calycinus | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 43 | - | 56 | 5 | - | - | - | 5 | - | 36 | 18 | 27 | 32 | - | 18 | - | 23 | - | - | - |
| Poa drummondiana | - | - | - | - | - | 10 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 22 | 5 | - | - | - | 5 | - | 4 | 18 | 36 | 42 | 71 | 21 | 22 | 46 | - | - | - |
| Cassia micrantha | - | 50 | 20 | 31 | 88 | 70 | 6 | 7 | 22 | 11 | 19 | 13 | - | 11 | 15 | - | - | - | - | - | - | - | - | - | - | - | 11 | 23 | - | - | - | - | 5 | 8 | 27 | - | 11 | - | 26 | - | - | 13 | - |
| Cassytha glabella | - | 17 | 60 | 62 | 13 | - | 19 | - | - | 6 | 10 | 13 | 13 | 33 | - | - | - | - | - | - | - | 50 | - | 14 | 11 | - | 3 | 17 | - | - | 5 | - | 4 | - | 36 | 26 | 57 | - | 11 | 38 | - | - | - |
| Dryandra nivea | 77 | 50 | 60 | 92 | 75 | 60 | 6 | 7 | 33 | - | 10 | - | 25 | 11 | - | - | - | - | - | - | - | - | - | 43 | 89 | 67 | 8 | 8 | 13 | - | - | - | 44 | 18 | 73 | 68 | 86 | 29 | 22 | 8 | - | - | - |
| Tricoryne elatior | 31 | 42 | 20 | 69 | 25 | 20 | 25 | - | - | - | 5 | - | - | 11 | 8 | - | - | - | - | - | - | 50 | 33 | 43 | 11 | 22 | 8 | 8 | 31 | 18 | 5 | 5 | 28 | 27 | 45 | 42 | 57 | 13 | 22 | - | 29 | 25 | - |
| Eriochilus dilatatus | 54 | 42 | 40 | 15 | - | - | - | - | 11 | - | 5 | 13 | 25 | 11 | - | - | - | - | - | - | - | - | - | - | 11 | - | 21 | 42 | - | - | - | - | 8 | - | 82 | 5 | 43 | 11 | - | - | 50 | 33 |
| Cassytha racemosa | 23 | 25 | - | 8 | - | 10 | 13 | 20 | - | 17 | - | 63 | 13 | - | 31 | 80 | 67 | - | - | - | 25 | 50 | - | 14 | - | - | 13 | 8 | - | - | 5 | 5 | 12 | - | 27 | 5 | - | 13 | 44 | 15 | - | 38 | - |
| Stylidium junceum | 15 | 8 | - | - | - | - | 25 | 7 | - | - | - | 25 | - | - | 8 | 20 | 11 | - | - | - | - | - | - | - | - | - | 3 | 8 | 6 | 18 | 5 | 5 | - | - | 27 | 11 | 71 | 3 | 11 | 15 | - | - | - |
| **Species group R** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Acacia extensa | 46 | 83 | 20 | - | - | - | 6 | - | - | - | - | - | - | 11 | - | - | - | - | - | - | - | - | - | - | - | - | 8 | 67 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Billardiera variifolia | 54 | 67 | - | - | 13 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 21 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Lomandra purpurea | - | 58 | - | 8 | 25 | 20 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 11 | - | 5 | 33 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Agrostocrinum scabrum | 62 | 67 | 60 | 15 | 38 | 20 | 6 | - | - | - | 14 | 13 | - | - | 8 | - | - | - | - | - | - | - | - | - | 22 | - | 23 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Comesperma virgatum | 8 | 42 | 80 | - | 38 | - | - | - | - | - | - | - | - | - | - | 20 | 11 | - | - | - | - | - | - | - | 33 | - | 10 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Stipa semibarbata/campylachne | - | 83 | - | 15 | 13 | 30 | - | 7 | - | 6 | 5 | 13 | - | 11 | 8 | - | - | - | - | - | - | - | - | 14 | 11 | - | 3 | - | - | - | 5 | - | - | 18 | - | - | - | 3 | - | - | - | - |
| Daviesia preissii | 23 | 33 | 60 | - | 13 | - | - | - | - | - | - | 13 | 25 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3 | - | - | - | - | - |
| Hibbertia rhadinopoda | 38 | 25 | 60 | - | - | - | - | - | - | - | 5 | - | - | 11 | - | - | - | - | - | - | - | - | - | - | - | - | 5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Xanthosia candida | 8 | 67 | - | - | - | 30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Boronia spathulata | 46 | 17 | 60 | 8 | - | - | 38 | 7 | - | - | - | 25 | - | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | 50 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Species group S** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hakea cyclocarpa | 54 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Eucalyptus haemastoxylon | 62 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Hibbertia amplexicaulis | 69 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Isopogon sphaerocephalus | 62 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Hakea amplexicaulis | 69 | 33 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Xanthorrhoea gracilis | 54 | 17 | - | - | 25 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 11 | - | - | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Hovea chorizemifolia | 54 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 11 | - | - | - | - | - | - | - | - | 9 | - | - | - | - | - | - | - | - |
| Pentapeltis peltigera | 54 | 25 | - | - | 13 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 22 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Gompholobium knightianum | 85 | 25 | - | - | 13 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 14 | 33 | - | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Stylidium amoenum | 62 | 25 | - | - | - | - | 6 | - | - | - | - | - | - | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | 8 | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Amphipogon amphipogonoides | 85 | 33 | 40 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 5 | - | - | 9 | - | 5 | - | - | - | - | - | - | - | - | - | - |
| Patersonia umbrosa forma xanthina | 85 | 67 | 40 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Scaevola calliptera | 62 | 75 | 20 | - | 13 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 11 | - | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Gompholobium polymorphum | 62 | 75 | 20 | - | 25 | 10 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3 | - | - | - | - | - | - | 9 | - | 5 | - | - | - | - | - | - |
| Tetratheca laevis | 31 | 67 | - | - | 13 | 20 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Logania serpyllifolia | 62 | 8 | - | - | 13 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 50 | - | - | 11 | - | 3 | - | - | - | - | - | - | - | - | 5 | 14 | - | - | - | - | - | - |
| Opercularia spiciflora | 38 | 58 | - | - | 13 | 10 | - | - | - | - | 14 | - | 13 | - | - | - | - | - | - | - | - | - | - | - | - | - | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Number of plots/type** | **13** | **12** | **5** | **13** | **8** | **10** | **16** | **15** | **9** | **18** | **21** | **8** | **8** | **9** | **13** | **5** | **9** | **2** | **4** | **4** | **8** | **2** | **3** | **7** | **9** | **9** | **39** | **12** | **16** | **11** | **19** | **21** | **25** | **11** | **11** | **19** | **7** | **38** | **9** | **13** | **7** | **8** | **3** |

These community types have the highest mean species richness recorded (67.6 and 67.8 species / plot; Table 13). Weed frequency is significantly higher in community type 1b reflecting higher human impacts to the remnants to which this community is confined (2.4 weeds/ plot cf. 0.3 weeds/ plot). The community type 1a which occurred along the edge of a large forest block had the lowest disturbance rating of any group (Table 13). Mean rainfall for these groups was high as would be expected from their southern distribution.

Community type 2 are shrublands or open low woodlands restricted to small remnants south of Busselton. These occur on seasonally inundated sandy clay soils. They are shrub rich and thus differ from all other seasonal wetlands which classify into super group 2. They are best characterised by species groups E, M and R and are lacking most species in species group S. This community type has moderate species richness (mean 51 species / plot). Weed frequency is low with a low disturbance rating (Table 13). The wetter nature of these sites is apparent with the occurrence of species such as *Kingia australis*, *Eutaxia virgata* and *Calothamnus lateralis* being present in all plots. These species are totally lacking in both subgroups of community type 1.

The third community type of the heavy soils occurs further north stretching from Waterloo to Pearce airforce base (Appendix 1). This community type is considered to have been one of the most extensive community on the eastern side of the coastal plain (Keighery and Trudgen 1992) but due to clearing is now regionally rare (Keighery and Keighery 1992). It has three distinct subgroups comprising either *Eucalyptus calophylla*, *E. marginata* or *Eucalyptus wandoo* woodland or *Xanthorrhorea preissii* dominated scrub or heath formations. These three subgroups differ in the relative proportions of species in species groups P, Q and R.

Community type 3a has, in addition, high frequencies of species group E (Table 12). This subgroup occupies the wettest sites with high frequencies of *Eucalyptus calophylla* and *Kingia australis*, and very low frequencies of *E. marginata*. *Pericalymma elliptica* was present in over half the sites of this subgroup.

By contrast in group 3b most sites are dominated by both *E. calophylla* and *E. marginata*. Species such as *Bossiaea eriocarpa* and *Conostylis juncea* differentiate this subgroup. Type 3b has been recorded from alluvial soils near the Peel - Harvey estuary as well as the better drained sites on the eastern side of the plain.

Group 3c extended further to the north and differed from the other subgroups in terms of frequency of species occurrence rather than having different species groups. *Eucalyptus wandoo* was an occasional dominant and this group lacks species such as *Bossiaea eriocarpa*, *Stylidium piliferum* and *Conostylis juncea* (common in type 3b) and *Acacia drewiana*, *Hakea incrassata*, and *Lepyrodia macra* (common in type 3a). Thirty percent of quadrats included *Acacia saligna*, this species was not recorded in the other subgroups.

There were significant differences in mean species richness between the subgroups. Subgroups 3a (58.9) and 3b (61.2) were significantly higher than subgroup 3c (48.0) (Table 13). Not surprisingly rainfall was also significantly lower in subgroup 3c. There was no significant difference in weed frequency between any of the groups. Average vegetation condition ranged from 2.0 in community type 3a to 2.6 in group 3c which represent more disturbed condition than seen in either community types 1 or 2.

*Community types of the seasonal wetlands*

Almost all of the quadrats in the second major subdivision of the dataset are seasonal wetlands. These occur across all major geomorphological elements. They are the most heterogenous group, with many more community types discernible than the other major groups (Figure 6). Many of the community types are represented by only a few quadrats with restricted distributions (Appendix 1).

*Table 13. Average values for species richness, rainfall, slope (1 - flat to 3 - steep), weed frequency, vegetation condition (1 - excellent to 5 - badly degraded) and number of quadrats in each of the groups and subgroups in the 30 group classification.*

| Type | Species richness | Rainfall | Slope | Weed frequency | Vegetation condition | Number of quadrats |
|---|---|---|---|---|---|---|
| 1a | 67.6 | 1001 | 2.0 | 0.3 | 1.7 | 13 |
| 1b | 67.8 | 966 | 1.5 | 2.4 | 2.0 | 12 |
| 2 | 51.0 | 972 | 1.0 | 0.8 | 1.9 | 5 |
| 3a | 58.9 | 985 | 1.3 | 3.9 | 2.0 | 13 |
| 3b | 61.2 | 1013 | 1.3 | 5.7 | 2.4 | 8 |
| 3c | 48.0 | 907 | 1.5 | 6.0 | 2.6 | 10 |
| 4 | 36.9 | 922 | 1.0 | 3.3 | 2.0 | 16 |
| 5 | 38.4 | 907 | 1.1 | 5.8 | 2.1 | 15 |
| 6 | 26.6 | 885 | 1.2 | 7.9 | 3.6 | 9 |
| 7 | 46.4 | 864 | 1.0 | 8.0 | 2.3 | 18 |
| 8 | 52.0 | 943 | 1.0 | 11.0 | 2.7 | 21 |
| 9 | 35.5 | 972 | 1.1 | 2.2 | 2.0 | 8 |
| 10a | 51.8 | 956 | 1.0 | 5.8 | 2.1 | 8 |
| 10b | 53.7 | 987 | 1.6 | 4.9 | 2.2 | 9 |
| 11 | 27.2 | 920 | 1.3 | 6.9 | 2.7 | 13 |
| 12 | 26.4 | 895 | 1.0 | 5.5 | 2.9 | 5 |
| 13 | 17.4 | 918 | 1.0 | 1.4 | 1.8 | 9 |
| 14 | 16.5 | 792 | 1.0 | 0.7 | 2.3 | 2 |
| 15 | 17.5 | 833 | 1.0 | 4.3 | 2.9 | 4 |
| 16 | 13.5 | 893 | 1.3 | 3.7 | 2.9 | 4 |
| 17 | 13.6 | 872 | 1.0 | 1.7 | 2.3 | 8 |
| 18 | 39.5 | 942 | 1.0 | 5.6 | 2.5 | 2 |
| 19 | 22.6 | 829 | 1.3 | 6.9 | 2.7 | 3 |
| 20a | 67.4 | 876 | 1.7 | 1.0 | 1.7 | 7 |
| 20b | 62.7 | 1026 | 1.6 | 1.4 | 2.6 | 9 |
| 20c | 64.0 | 875 | 1.7 | 4.0 | 2.2 | 9 |
| 21a | 54.6 | 938 | 1.7 | 4.2 | 2.5 | 39 |
| 21b | 61.3 | 948 | 1.8 | 1.7 | 2.0 | 12 |
| 21c | 40.5 | 916 | 1.3 | 3.6 | 2.6 | 16 |
| 22 | 32.5 | 841 | 1.0 | 0.6 | 2.0 | 11 |
| 23a | 62.8 | 884 | 1.8 | 5.2 | 2.0 | 19 |
| 23b | 53.8 | 810 | 1.8 | 0.7 | 1.8 | 21 |
| 24 | 41.8 | 815 | 2.0 | 14.2 | 3.0 | 25 |
| 25 | 52.8 | 922 | 1.6 | 12.9 | 3.3 | 11 |
| 26a | 50.2 | 844 | 2.2 | 8.0 | 2.1 | 11 |
| 26b | 52.7 | 852 | 1.8 | 8.4 | 2.5 | 19 |
| 27 | 39.0 | 932 | 2.2 | 0.0 | 1.7 | 7 |
| 28 | 55.2 | 818 | 1.8 | 8.0 | 2.5 | 38 |
| 29a | 40.7 | 799 | 2.1 | 11.2 | 2.3 | 9 |
| 29b | 35.6 | 834 | 2.2 | 3.4 | 1.8 | 13 |
| 30a | 21.1 | 781 | 2.0 | 6.3 | 3.2 | 7 |
| 30b | 37.6 | 902 | 1.9 | 7.7 | 3.1 | 8 |
| 30c | 27.3 | 825 | 2.6 | 3.7 | 2.7 | 3 |

The first two wetland communities are shrub rich damplands (Semeniuk 1987) centred on the Bassendean land system. These two communities with a diverse and dense shrub grow in soils that are saturated for short periods in winter. Free surface water is rare. Community type 4 is distributed over the length of the coastal plain and was generally found on the Bassendean or Southern River units. This shrub rich community generally has scattered *Melaleuca preissiana* as an overstorey. Where tree species are absent it forms heaths or scrubs. It shares a number of species in species group O and Q with upland Bassendean communities (Table 12). *Pericalymma ellipticum, Hypolaena exsulca, Hypocalymma angustifolium* and *Dasypogon bromeliifolius* were the most constant species in this community type. Average species richness for this group was 36.9.

By contrast, community type 5 has no consistent dominant overstorey. Dominants may include *Banksia ilicifolia, M. preissiana, Actinostrobus pyramidalis* and *Kunzea ericifolia.* While species composition is similar to the previous group this community has a higher frequency of species in species group L and a higher frequency of annual species. It also includes two sites from low dunes ridges in Austin Bay Nature Reserve. It generally has more open ground and a less dense shrub layer than community type 4. It has a mean species richness of 38.4 with an average weed frequency of 5.8. This community was recorded from Bassendean, Vasse, Herdsman and Beermullah land units.

Community type 6 is the first of the seasonal wetlands on the heavy soils, it has been recorded on the Guildford and Yanga units from Cardup to Bullsbrook. Floristically it is transitional between the moderately species rich Bassendean wetland described above and the heavy soil communities described below. Average species richness has dropped to 26.6 species / plot and average weed frequency risen to 7.9 / plot. The rise in weed species is even more dramatic when expressed as a percentage. It had the highest disturbance rating of any community and inspection of air photos indicates that this community type appears to have arisen from major disturbance events. In some cases this may have been clearing or grazing in others it appears to have resulted from major *Phytophthora* infections. It is not clear from the data which community type these sites would have belonged to prior to disturbance. The most faithful species to this group are all weeds except for *Hypocalymma angustifolium* (Appendix 1).

The next four community types are typical clay pan, clay flat and ironstone communities (seasonal wetlands) of the heavy soil of the eastern side of the plain and the heavy soils near the Peel - Harvey estuary. Keighery and Trudgen (1992) describe these communities as a mosaic of structural types. Sites of community type 7 are generally dominated by either *Melaleuca viminea, M. uncinata, M. cuticularis* or *Casuarina obesa* or a mixture of these species. This community occurs on heavy clay soils that are generally inundated from winter into mid summer. Species composition (*Melaleuca cuticularis,* and *Casuarina obesa*) may indicate some saline influence for at least some part of the year.

High frequencies of species in species group J defines community types 7 to 10. Differences between these groups is primarily on proportions of the species shown in Table 12, and in occurrence of a series of less frequent species restricted to each of these four types.

In community type 7, for example, such species as *Brachycome bellidioides, Schoenus* sp 2, *Centrolepis polygyna, Pogonolepis strigosa* and *Cotula coronopifolia* (species group J) are more typical of this community. In addition species such as *Angianthus* aff. *drummondii, Eryngium pinnatifidum* subsp. *palustre* Ms, and *Blennospora* aff. *drummondii* occur in this community in low frequency (<50%) and are absent from community types 8 to 10.

These four clay pan, clay flat and ironstone communities are the most species rich seasonal wetlands (35.5 - type 9 to 53.7 - type 10b), with type 7 having an average of 46.4 species. Much of the species richness in all four communities types comes from geophytes and an annual flora that germinates, grows and flowers sequentially as these areas dry over summer. While the massive sheet ironstone finds surface expression in community type 10b, ironstone is known to occur at varying depth in the other three communities in this group.

In early spring many of the sites in community type 7 are covered by free water up to 30 cm deep. *Cotula coronopifolia* formed yellow floating mats in some pools while others were dominated by

*Villarsia submersa*. Aquatic species are common in this community type early in the growing season. As the wetland dries a succession of species such as *Centrolepis* spp. and annual *Stylidium* spp. successively germinate grow and flower, resulting in an extended flowering period of over three months. It is likely that some of these communities would have occurred in the totally altered *Casuarina obesa* woodland south of Serpentine (Keighery and Trudgen 1992). The understorey of these stands have been completely converted to improved pasture. Some sites within community type 7 have significant variation in species composition and it may be that other related communities have been lost due to agricultural development.

Weed frequencies tend to be high in these four communities but given the high species richness the percentage of weeds is low to moderate. Average vegetation condition similarly ranges from 2.1 to 2.7.

Community type 8 are the clay pan communities which can be dominated by *Viminaria juncea, Melaleuca viminea, M. lateritia* or *M. uncinata* but also occasionally by *Eucalyptus wandoo*. They differ in proportions of species from species group E, and occurrence of such species as *Hypocalymma angustifolium, Acacia lasiocarpa* var. *bracteolata* (Long peduncle form), and *Verticordia huegelii* at moderate frequencies (Table 12). Aquatic annuals are again common but pools probably are not inundated to the same depth or for the same length of time as those above. Species richness averages 52 species / plot with weed frequencies of 11 / plot (almost entirely annuals or geophytes). This community had the highest disturbance score of the heavy soil wetland communities (2.7). This community type is distributed from Ellen Brook to Waterloo on small remnants of less than 20 ha (Appendix 1).

Average species richness in community type 9 fell dramatically to 35.5 (significantly lower than other heavy soil wetland communities) (Table 13). This community represents shrublands or open woodlands of clay flats that are inundated for long periods. Sedges are more apparent in this community (moderate frequencies of *Chorizandra enodis, Cyathochaeta avenacea, Lepidosperma longitudinale* and *Leptocarpus coangustatus*) and weed frequencies (2.2 / plot) drop significantly lower than other heavy soil wetlands, presumably because of the long inundation times.

The most rapidly drying of the clay flats form community type 10. These generally have shallower microtopography than the previous three community types or else have thin skeletal soils. Indeed two distinct subgroups are recognisable for this community. Both subgroups are differentiated from the other clay pan community types by the almost complete lack of low frequency species in species group H. This species group includes aquatic annuals and geophytes typical of the other clay pan and flat communities (eg. *Schoenus natans, Crassula natans, Eryngium pinnatifidum* subsp. *palustre* Ms, *Wurmbea dioica* subsp. aff. *alba* and *Amphibromus neesii*). Community type 10b occurs on small areas of ironstone with thin skeletal soils in the Busselton area. Much of this land unit has been cleared. These sites have an endemic flora which can be seen in species group G. These endemics include *Petrophile latericola* Ms, *Andersonia* aff. *latiflora, Dryandra* sp 30, *Hakea* aff. *varia* (Yellow flowered form with an earlier flowering period), *Loxocarya magna,* and *Lepyrodia* aff. *macra.* These communities are very rich with large numbers of annuals and geophytes.

All of the remaining nine wetland community types have much lower species richness than the preceding groups, except for community type 18 (shrublands on calcareous silts). These groups are largely the deeper wetlands and consequently much of the annual flora drops out (see species group J). These groups are generally but not totally restricted to the aeolian units.

Community type 11 occurs on both Bassendean and heavier soil units. Sites in this community are generally dominated by with *Eucalyptus rudis* and / or *Melaleuca rhaphiophylla* . This community is found from Bullsbrock south to Pinjarra with an outlying site south of Bunbury (Appendix 1). Common species of this community type include *Astartea* aff. *fascicularis, Lepidosperma longitudinale* and *Pericalymma elliptica.* Average species richness is 27.2 (Table 13).

Sites in community type 12 have similar species composition to type 11 but are mostly dominated by *Melaleuca teretifolia* and / or *M. rhaphiophylla. Lepidosperma longitudinale* and *Astartea* aff. *fascicularis* also commonly occur in this community type. It is differentiated by high frequencies of

*Baumea articulata, Oxylobium linearis* and *Villarsia latifolia* and is restricted to the moderately deep seasonal wetlands of the Bassendean and Southern River units between Forrestdale Lake and Capel. Average species richness was 26.4.

Community type 13 represents deeper wetlands (seasonally inundated to 1 m) on clay or humus rich sandy soils and occurs on a variety of land systems (but primarily Bassendean and Pinjarra Plain). Where it occurs on the Bassendean system it occurs low in the landscape with considerable organic matter accumulation. Dominants recorded include *Eucalyptus rudis, Melaleuca rhaphiophylla, M. lateritia* and in one plot *Melaleuca preissiana.* Characteristic species are *Triglochin procera, Melaleuca rhaphiophylla* and *Hakea varia.* This community type occurs south from Serpentine but an outlier was recorded from a deep wetland area in the head waters of GinGin Brook. Average species richness was very low (17.4) as was average weed frequency (1.4), again reflecting the long period of inundation of this wetland type.

The next wet community (type 14) has a similar inundation period to type 13 but occurs on sandy soils. Only two sites were located in this community type: one dominated by *Eucalyptus rudis* and the other by *Banksia littoralis* and *Melaleuca rhaphiophylla.* Common taxa included *Melaleuca preissiana, Baumea vaginalis* (understorey dominant), *Kunzea ericifolia* and *Jacksonia furcellata.* This community was one of the most species poor recorded in our study (mean 16.5 species / plot) but had very few weeds. This community was only recorded in the north of our study area (Appendix 1).

*Melaleuca rhaphiophylla* or *Casuarina obesa* dominate community type 15. This group occurs on alluvial sediments and is related to community types 7 and 9. It occurs in site which are inundated for much longer periods and to a greater depth than community type 9 and as a result the annuals of species groups J and Q are absent. More typical aquatic species (species group H) and deep wetland species (group I) are more common (Table 12). It is obviously more saline than community type 9 with species such as *Atriplex cinerea, Samolus repens, Sarcocornia quinqueflora* and *Sporobolus virginicus* being more common. Species richness is low (mean 17.5 species / plot). The community was only recorded on the eastern side of the plain north of Perth and adjacent to the Peel-Harvey Estuary (Appendix 1).

Community type 16 is made up of the most saline sites. It is quite heterogenous and includes a saline estuarine site, a site on Tamala limestone in the salt spray zone and two sites from saline flats south of Busselton. These environments were poorly sampled and with further sampling more homogenous communities could be defined. The saline flats south of Busselton are now a very rare community type since most of this soil type has been converted to pasture.

The last three wetland communities are restricted to the Spearwood, Quindalup and Vasse land systems close to the coast. Community type 17 has only been recorded from swales in Quindalup and Spearwood dunes or at interfaces with other systems. This group is generally dominated by *Melaleuca rhaphiophylla* although one swale was dominated by *Eucalyptus gomphocephala.* This is the only record of tuart in a seasonal wetland in this study. Species in species group I were common with *Gahnia trifida* being the usual dominant or subdominant in the understorey. Species diversity was very low (mean 13.6 species / site). This community type was found south from Rockingham (Appendix 1).

Community type 18 was a very species rich (39.5) community found restricted to a calcareous silt flat in Yalgorup National Park. The two sites located in this community were open low scrubs with rich annual flora. Common taxa were *Acacia saligna* (suckering form), *Leptomeria lehmannii*(a taxa apparently restricted to this community type), *Xanthorrhoea preissii, Gahnia trifida* and *Melaleuca teretifolia.* This flat would be classified by Semeniuk (1987) as a dampland.

The final wetland community type (type 19) is a species poor Quindalup swale community found restricted to the linear features in the Becher Point area and adjacent Quindalup swales at the northern end of Lake Walyungup. This community is dominated by *Lepidosperma longitudinale, Isolepis nodosa* and *Muehlenbeckia adpressa.* At the Lake Walyungup site an overstorey of *Banksia littoralis* was present. This community type had an average of 22.6 species / plot had moderate to high frequencies of species in species group A, species typical of the Quindalup and Spearwood systems.

*Community types centred on the Bassendean system*

The third major grouping (super group 3 in Figure 6) in the analysis is made up of four community types. While over 50% of the sites in this group occur on the Bassendean land system, another 20% of sites are mapped as occurring on Spearwood Dunes and a further 18% of sites are mapped as occurring on Pinjarra Plain. Inspection of the dendrogram and the sorted two way table (Figure 6 and Table 12 - see species group O) shows that despite this variation in geomorphology, all sites in the third major group are much more closely related to each other than any other site. This is despite the fact that most of the upland Pinjarra Plain and Ridge Hill Shelf sites occur in super group 1 and most upland Spearwood sites occur in super group 4 (Figure 5).

Community type 20 occurs from Koondoola south to Yarloop. Sites in this community type were generally *Banksia attenuata* woodlands, *Eucalyptus marginata - Banksia attenuata* woodlands or shrublands. The three subgroups of this community type share high frequencies of species in species group O with community type 28 which encompasses much of the *Banksia* woodland sites on Spearwood Dunes. However this community lacks most species of species group A which are common on the Spearwood system.

Sites in community type 20a were found on sandy soils near Koondoola and also at base of the Scarp at Forrestfield covering two distinct land form units, Southern River unit (part of the Bassendean system, Table 2) and Karrakatta unit (part of the Spearwood system). The environmental geology series (Gozzard 1986) also places the sites north of Perth on the Spearwood Dunes. Structurally this group was either *Banksia attenuata* woodlands or *Eucalyptus marginata - Banksia attenuata* woodlands. This group is the richest of any of the *Banksia* communities recorded with an average species richness of 67.4 species / site. Weed frequency was low and the community was distinctive in having a diverse shrub layer and *Mesomelaena pseudostygia* occurs in all plots. Sites of community type 20a were differentiated from the other two subgroups by occurrence of species such as *Alexgeorgea nitens, Daviesia nudiflora, Synaphea spinulosa, Hibbertia racemosa, Stylidium calcaratum* and a variety of other taxa occurring at low frequency. These unusual *Banksia* woodlands have been previously identified by Keighery and Trudgen (1992) and Keighery and Keighery (1992).

Community type 20b was found on sands at the base of the Scarp between Byford and Yarloop. These sands were mapped as belonging to the Guildford or Forrestfield units (Pinjarra Plain and Ridge Hill Shelf). This community type was again very species rich (mean 62.7) with low weed frequency (Table 13). Most sites in this community type were *Eucalyptus marginata - Banksia attenuata* woodlands but *Banksia* woodlands and heaths were also found. Again *Mesomelaena pseudostygia* was common occurring in 67% of plots. Species that differentiated this subgroup included *Hakea stenocarpa, Conostylis setosa* and *Johnsonia* aff. *pubescens* as well as the absence of species restricted to the other subgroups.

Sites in community type 20c were largely scrubs and some *Banksia attenuata* woodlands again on sands of Forrestfield or Guildford units. This community type was only recorded from the Talbot Rd bushland at the base of the Scarp east of Perth. Species in species group C and D were largely restricted to this community type (as well as low frequency taxa not shown in Table 12). Again *Mesomelaena pseudostygia* was a ubiquitous species. This community type contained taxa more common on the Scarp (eg. *Templetonia biloba)* and taxa such as *Neurachne alopecuroides*, a species more typical of the marri - wandoo woodlands of the heavy soils. Species richness was again high in this community type (64.0) with average weed frequency rising to four species / plot.

In the original analysis patterns in sites and species grouping of community type 21 were equivocal. Data from this community type was re-analysed and three clear subgroups emerged. Community type 21a are primarily *Eucalyptus marginata - Banksia attenuata* woodlands, *Eucalyptus marginata - E. calophylla - B. attenuata* woodlands or *B. attenuata* woodlands. This is community type has high frequencies of most species in species groups O and Q and low frequencies of mainly native and weedy annuals from species group A. It also differs from the other two subgroups by presence of taxa such as *Sowerbaea laxiflora, Drosera pallida, Leucopogon propinquus* and *Isotropis cuneifolia. Allocasuarina fraseriana* and *Eucalyptus gomphocephala* are sometimes present as dominant or

codominant. Average species richness in this community type is 54.6 species / plot. This community type commonly occurs in the central part of the coastal plain from Perth to Capel. Two outlying occurrences of this community have been recorded north of Perth, these *Eucalyptus calophylla - B. attenuata* woodlands surround small lakes in the Bassendean Dunes east of state forest 65 (Appendix 1). Just on half of sites in this group occur on Bassendean Dunes, another third occur on Spearwood system and the rest on alluvial soils. The data suggests that some further segregation of the sites between Perth and Woodmans Point may be possible.

The second subgroup (type 21b) is restricted to sand sheets at the base of the Whicher Scarp, the sand sheets on elevated ridges or the sand plain south of Bunbury. Structurally this community type is normally *B. attenuata* or *Eucalyptus marginata - B. attenuata* woodlands. It differs from the other subgroups in the relative frequencies of species in species groups O and Q and by occurrence of species such as *Acacia extensa, Jacksonia* sp. Busselton, *Laxmannia sessiliflora, Lysinema ciliatum* and *Johnsonia acaulis* which are almost totally absent from the other subgroups. Species richness averages 61.3 species / plot.

Community type 21c occurs sporadically between GinGin and Bunbury. This community is significantly less species rich (mean 40.5) than the other subgroups and is largely restricted to the Bassendean systems. This subgroup tends to occupy the more low lying wetter sites and is variously dominated by *Melaleuca preissiana, Banksia attenuata, B. menziesii, Regelia ciliata, Eucalyptus marginata* or *E. calophylla* either singly or in combination. Structurally this community type may be either a woodland or occasionally shrubland.

Sites in community type 22 are also low lying and have significantly lower slopes than all other community types in the super group 3 except for community 21c. Sites in community 22 are generally *Banksia ilicifolia - B. attenuata* woodlands but *Melaleuca preissiana* woodlands and scrubs were also recorded. This community type was recorded on Bassendean and Spearwood systems and typically had very open understoreys. This group is likely to be seasonally waterlogged. It was found in the central coastal plain north of Rockingham. Species richness was low (mean 32.5) and the group was characterised by high frequency of species in species group M and a general absence of species in species group Q (compared to other communities in super group 3).

In *Banksia attenuata - B. menziesii* woodlands of community type 23 *Eucalyptus marginata* and *E. calophylla* are rare. This community type is generally restricted to the Bassendean system and can be subdivided into two distinct groups in the north of the study area. Type 23a stretches from Bullsbrook south to the Woodman Point area. Species richness of this group is very high with an average of 62.8 species / plot recorded, weed frequency is still relatively low at about 5.2 per site. This community type is differentiated by moderate frequencies of species in species groups L and M. The other subgroup (type 23b) has a more northern distribution (from Melaleuca Park to GinGin) and is characterised by high frequencies of species in species group N as well as a series of lower frequencies species not shown in Table 12. This group has a lower species richness than the other subgroup (53.8) and a significantly lower mean weed frequency (0.7 species / plot) reflecting the more extensive and intact *Banksia* woodlands which still occur north of Perth.

*Community types centred on the Spearwood and Quindalup systems*

The last major group seen in the dendrogram (Figure 6) are sites centred on the Spearwood and Quindalup systems. This group contains seven community types, types 24 to 28 are largely restricted to the Spearwood system while types 29 and 30 occur on Quindalup system. Both the Spearwood and Quindalup types are characterised by high frequency of species in group A. The Spearwood types also have moderate to high frequency of species in group Q, while this group of species are much less common in the Quindalup types. Indeed sites in the Quindalup types lack species from most species groups shown in Table 12.

Community type 24 are heaths or heaths with scattered *Eucalyptus gomphocephala* occurring on deeper soils north from Woodmans Point. All but three sites in this community type occur on the Cottesloe unit of the Spearwood system. This community is closely related to community type 25 which encompasses the *E. gomphocephala - Agonis flexuosa* woodlands south of Woodmans Point.

The former community differs in its virtual lack of species such as *Agonis flexuosa, Geranium retrorsum, Oxalis perennans, Lomandra micrantha* and *Luzula meridionalis.* This change in community type may be related to the drop in rainfall at the northern end of the study area. The southern group was recorded from Karrakatta, Cottesloe and Vasse units. Occasionally dominants other than tuart were recorded (eg. *E. calophylla* at Paganoni block and *E. decipiens* at Kemerton). In both cases tuart formed the overstorey nearby.

The heathland sites in community type 24 differ in presence of taxa such as *Dryandra sessilis, Calothamnus quadrifidus* and *Schoenus grandiflorus.* This may represent a distinct subgroup within type 24. The southern *E. gomphocephala - Agonis flexuosa* woodlands (type 25) are significantly richer than the northern group (52.8 cf. 41.8 species / plot). Weed frequency was very high in both groups (mean values of 14.2 and 12.9).

Community type 26 is restricted to the large limestone ridges north of Perth and those in the Yalgorup area. The two distinct subgroups are related to degree of soil development. On the skeletal soil on ridge slopes and ridge tops heaths dominated by *Melaleuca huegelii, M. acerosa, M.* aff. *acerosa* or *Dryandra sessilis* are found (type 26a). On the lower slopes or in pockets were deeper soil is able to develop *Eucalyptus gomphocephala, E. foecunda* or *E. petrensis* Ms woodlands or mallee develop over a dense heath (type 26b). Occasionally an overstorey was absent.

Type 26b is virtually restricted to the Cottosloe unit. Taxa typical of the limestone heaths are *Trymalium albicans, Templetonia retusa, Stylidium maritimum, Wurmbea monantha,* and *Acacia lasiocarpa.* While on the deeper soils *Hibbertia hypericoides, Caladenia flava, Lagenifera huegelii, Sowerbaea laxiflora, Schoenus clandestinus* and *Mesomelaena pseudostygia* are common. Species richness is similar in both subgroups (mean 50.2 and 52.7) as was a high mean weed frequency (8.0 and 8.4 species / plot).

Another limestone community was community type 27. This was largely restricted to the Yalgorup area and was either shrubland or mallee heath variously dominated by *E. decipiens, E. foecunda, Melaleuca acerosa* or *Hakea prostrata.* While similar in species composition to type 26 it differs in lacking many of the annual native and weed species and by the occurrence of taxa such as *Acacia truncata, Hibbertia spicata* subsp. *leptotheca,* and *Comesperma conferta.* This community has significantly lower species richness than the other two limestone community types (39.0) and significantly lower average number of weeds (less than 1 species / plot). Most sites in this community type fall in the Yoongarillup unit (as do two sites in community type 26b) with an outlier occurring north of Perth on Shire View Hill. The large limestone ridge on which these sites occur appears little different geomorphologically from other large ridge systems north of Perth (Semeniuk 1990) and species composition is more likely to be controlled by light availability.

The last community in the Spearwood system is community type 28. This community type is largely made up of *Banksia attenuata* woodlands, *Eucalyptus calophylla - B. attenuata* woodlands or *E. marginata - B. attenuata* woodlands. Community type 28 is characterised by high frequencies of species in species groups A, O and Q. It differs from the other Spearwood community types in the occurrence of species from species group O. Community type 28 has been recorded from Thompson's Lake north to Seabird. Species richness averages 55.2 species / plot and average weed frequency is high at 8 species / plot. Sites in this community predominantly fall in the Karrakatta and Cottosloe units except for a group of sites on at the base of the Dandaragan scarp (Appendix 1). These plots are clearly seen as outliers on the distribution map, separated from the main occurrence by Bassendean sands. These sites are atypical in lacking species such as *Daucus glochidiatus* and in the presence of species such as *Lepidosperma* 'eastern terete', *Scaevola phlebopetala* and *Acacia willdenowiana.* The sandy soils at the foot of the Scarp (Ridge Hill Shelf, Table 2) have been variously thought to be derived from weathered laterite (McArthur and Bettenay 1960) or to be a fossil shoreline beach and dune deposits (Woods 1979).

Both the Bullsbrook sites and the more western sites clearly show differences in species composition compared to the *Banksia* woodlands on Bassendean systems. In the Bassendean *Banksia* woodlands species from species group A were largely absent (except in community type 21a which includes unusual Spearwood sites). In addition species such as *Mesomelaena pseudostygia* and *Petrophile*

*macrostachya* which are common in the Spearwood *Banksia* woodlands are largely absent from Bassendean communities.

The other eastern *Banksia* woodlands and heaths (community types 20a, 20b, and 20c) are floristically more closely related to typical Bassendean *Banksia* communities (Figure 6, Table 12), although community type 20a also has significant associations with Spearwood communities as discussed earlier. The floristic data could be interpreted to indicate several different origins for these eastern sands or perhaps, more likely, indicate complex interleaving and / or reworking of some of the sand masses.

Community types 29 and 30 are largely restricted to the Quindalup system. Type 29 contains two distinct subgroups. The first subgroup are mostly heaths on shallow sands over limestone close to the coast. These communities do not have a single dominant but important species include, *Spyridium globulosum, Rhagodia baccata,* and *Olearia axillaris.* Average number of species / plot was 40.7 and weed frequency was high (mean 11.2 weeds / plot). This community was found from Seabird to Garden Island with woodland variants at Trigg and Yalgorup. These two anomalous sites, one *Callitris* woodland and the other a *Melaleuca lanceolata* woodland were both degraded with high numbers of annual weed species. As a result these two woodlands were classified with the Quindalup heaths rather than the other *Callitris - Melaleuca* woodland sites (community type 30a) as might have been expected.

Sites of the other subgroup (type 29b) were dominated by *Acacia* shrublands or mixed heaths of the larger dunes. This community type stretched from Seabird to south of Mandurah. Average species richness was 35.6 species / plot and weed frequency was significantly lower at 3.4 species / plot. Again there was no consistent dominant but species such as *Acacia rostellifera, Acacia lasiocarpa, Melaleuca acerosa* were important.

Community type 30 is typically the forests and woodlands of the Quindalup system. Again several subgroups are recognisable, type 30a are the *Callitris preissii, Melaleuca lanceolata* and (occasionally) *Eucalyptus gomphocephala* forests and woodlands restricted to a small area from Perth to Garden Island (Keighery and Keighery 1992). Typically the *Callitris* and *Melaleuca* forests have a dense overstorey with relatively few understorey taxa. As a result species richness is low (mean 21.1 species / plot, cf. type 29a) significantly lower than all other Quindalup community types except for type 30c. The two tuart plots in this group are likewise both depauperate. Speck (1952) describes this community in some detail and states that it was probably more widespread in the past being restricted by too frequent fires. Certainly the area of this community type has been significantly reduced since his study by both fire and urban development but we can find no reference that this community type was more widespread at the time of white settlement. The best examples of this community type are now found on Garden Island were a no burn policy and a native Tammar population have resulted in impressive largely weed free *Callitris* and *Melaleuca* forests and woodlands.

Other *Eucalyptus gomphocephala* sites of the Quindalup system occur in community type 30b. This group is either dominated by tuart or by *Agonis flexuosa.* It differs from community types 24 and 25 (tuart / *Agonis* communities on Spearwood system) by complete absence of many species in species group Q. This community type also has significantly fewer weeds than types 24 and 25 (7.7 cf 14.2 and 12.9). Species richness is similar with a mean richness of 37.6 species / plot. The presence of species such as *Hibbertia cuneiformis, Geranium retrorsum* and *Dichondra repens* differentiate this group from other Quindalup community types. This community is found from the Leschenault Peninsular south to Busselton.

The final subgroup (30c) is a small heterogenous group of 3 sites similar to type 30b. This group lacks many of the species from species group A. It is represented by a single plot of *Eucalyptus argutifolia* mallee and two *Dryandra* scrub / thicket plots above the Swan estuary on Spearwood dunes. These sites are depauperate yet contain typical Quindalup taxa such as *Spyridium globulosum, Olearia axillaris* and *Poa porphyroclados.* This community type needs further sampling. However, the Swan River sites occur in the only remnant of this community type on the river.

A summary of the community types and the major land system on which they occur is presented in Table 14.

*Table 14. Generalised description of the 30 community types and most frequent landforms on which they occur.*

| Floristic community type | Generalised description | Predominant landform type (as mapped by Churchward and McArthur 1980) |
|---|---|---|
| 1a | *E. haematoxylon - E. marginata* woodlands on Whicher foothills | Ridge Hill Shelf |
| 1b | Southern *E. calophylla* woodlands on heavy soils | Pinjarra Plain |
| 2 | Southern wet shrublands | Pinjarra Plain |
| 3a | *E. calophylla - Kingia australis* woodlands on heavy soils | Pinjarra Plain |
| 3b | *E. calophylla - E. marginata* woodlands on sandy-clay soils | Pinjarra Plain |
| 3c | *E. calophylla- Xanthorrhoea preissii* woodlands and shrublands | Pinjarra Plain |
| 4 | *Melaleuca preissiana* damplands | Bassendean |
| 5 | Mixed shrub damplands | Bassendean / Pinjarra |
| 6 | Weed dominated wetlands on heavy soils | Pinjarra Plain |
| 7 | Herb rich saline shrublands in clay pans | Pinjarra Plain |
| 8 | Herb rich shrublands in clay pans | Pinjarra Plain |
| 9 | Dense shrublands on clay flats | Pinjarra Plain |
| 10a | Shrublands on dry clay flats | Pinjarra Plain |
| 10b | Shrublands on southern ironstones | Pinjarra Plain |
| 11 | Wet forests and woodlands | Bassendean / Pinjarra |
| 12 | *M. teretifolia* and / or *Astartea* aff. *fascicularis* shrublands | Bassendean |
| 13 | Deeper wetlands on heavy soils | Bassendean / Pinjarra |
| 14 | Deeper wetlands on sandy soils | Bassendean / Spearwood |
| 15 | Forests and woodlands of deep seasonal wetlands | Pinjarra Plain |
| 16 | Highly saline seasonal wetlands | - |
| 17 | *M. rhaphiophylla - Gahnia trifida* seasonal wetlands | Quindalup / Spearwood |
| 18 | Shrublands on calcareous silts | Lake deposit |
| 19 | Sedgelands in Holocene dune swales | Quindalup |
| 20a | *Banksia attenuata* woodlands over species rich dense shrublands | Spearwood / Pinjarra |
| 20b | Eastern *Banksia attenuata* and / or *E. marginata* woodlands | Ridge Hill / Pinjarra |
| 20c | Eastern shrublands and woodlands | Ridge Hill / Pinjarra |
| 21a | Central *Banksia attenuata - E. marginata* woodlands | Bassendean /Spearwood |
| 21b | Southern *Banksia attenuata* woodlands | Ridge Hill / Pinjarra |
| 21c | Low lying *Banksia attenuata* woodlands or shrublands | Bassendean |
| 22 | *Banksia ilicifolia* woodlands | Bassendean |
| 23a | Central *Banksia attenuata - B. menziesii* woodlands | Bassendean |
| 23b | Northern *Banksia attenuata - B. menziesii* woodlands | Bassendean |
| 24 | Northern Spearwood shrublands and woodlands | Spearwood |
| 25 | Southern *E. gomphocephala - Agonis flexuosa* woodlands | Spearwood |
| 26a | *M. huegelii - M. acerosa* shrublands of limestone ridges | Spearwood |
| 26b | Woodlands and mallees on limestone | Spearwood |
| 27 | Species poor mallees and shrublands on limestone | Spearwood |
| 28 | Spearwood *B. attenuata* or *B. attenuata - Eucalyptus* woodlands | Spearwood |
| 29a | Coastal shrublands on shallow sands | Quindalup |
| 29b | *Acacia* shrublands on taller dunes | Quindalup |
| 30a | *Callitris preissii (*or *M. lanceolata)* forests and woodlands | Quindalup |
| 30b | Quindalup *E. gomphocephala* and / or *A. flexuosa* woodlands | Quindalup |
| 30c | Other mallees or scrubs | Quindalup - Spearwood |

*Major species groups*

Thirty five species groups were defined in the classification. The 19 groups which had species frequency of at least 50% in one community type are shown in Table 12. The classification, groups

species, based on similar distribution in sites. In the same way the site classification groups sites based on similar species composition. While the 35 species groups will not be discussed detail, the major patterning does warrant some discussion.

Species group A is largely restricted to Spearwood and Quindalup community types (types 19, 21a and 24 to 30). Species group B was also largely restricted to community types with the Spearwood and Quindalup systems to south but had less widespread occurrences within these sites than species in species group A. Species group E are largely restricted to the eastern side of the plain on sandy soils, while those of species group G are typical of the southern ironstone communities.

Group H species are annual aquatic taxa and species in species group I were typical of the seasonal wetlands. Species group J occurred in both the seasonal wetlands and the heavy soils of the eastern side of the plain.

Species in group L were typical of wet *Banksia* woodlands and group M were wet Bassendean species. Northern Bassendean taxa occurred in species group N while species group O typically occur in sites centred on the Bassendean system (types 20 to 23) but many of these species also occur on well drained sites on the east of the plain (types 1 to 3) and in the Spearwood *Banksia* community. Species group Q are the most ubiquitous group but are less common in seasonal wetlands and sites on Quindalup system. Group R were another group of southern taxa and group S were more typical of foothills of the Whicher Scarp.

*Distribution of singletons*

Given the large number of singletons (i.e. taxa found in only one plot) that were recorded in this survey (272) it was of interest to know if these taxa were distributed randomly across the study area or were aggregated. If all of these species were naturally rare then a random Poisson distributed might be expected. If however some land systems or community types have been massively reduced in area then singletons could be expected to be clustered in small remnants. The distribution pattern of the singletons was tested for randomness by initially calculating expected distribution assuming a random Poisson distribution then testing these results against the observed frequency using a Chi-squared test. This analysis showed that the distribution of singletons was highly non random ($X^2 = 79.05$, $P < 0.005$) with fewer than expected singletons at frequency two and many more singletons than expected at frequencies greater than or equal to four. All of the quadrats with higher than expected numbers of singletons were from the eastern side of the plain. These patterns are likely to have arisen from the almost total clearance (>95%) of these heavy soils on the eastern side of the plain resulting in some suites of species now having a very localised distribution. It is likely that careful searches of bushland remnants with high singleton frequencies will result in the location of further rare species.

## *ENVIRONMENTAL CORRELATES*

### Comparison of floristic groups with geomorphology / geology

The 509 sites were located on 40 different Environmental Geology units (Table 15; Gozzard 1982a,b, 1983a,b, 1986, 1987; Smurthwaite 1986a,b; Jordan 1986a,b; Belford 1987a,b; Leonard 1991; Anon 1976, 1977a,b, 1978, 1981, 1982). Many of these units were only sampled a few times so it was necessary to amalgamate similar units to compare with the floristic community types. In all, 16 amalgamated units are recognised (Table 15 and 16). There is a very close correlation between these amalgamated units and the major geomorphological and geological systems (McArthur and Bettenay 1960) (Table 2).

These data clearly show that while floristic types are broadly correlated with geomorphological / geological units there is generally not a direct one to one correspondence. This was also true when the full 40 geomorphological / geological units were examined. A few community types were found on only one unit (types 18, 27, 29b), but two of these communities were represented by only a few sites. Type 29b (*Acacia* shrubland on taller Quindalup dunes) was found only on the Quindalup system. Another 12 community types were recorded from only two geomorphological / geological units (types 6, 10b, 12, 14, 15, 18, 19, 20a, 20c, 25, 26a, 30c).

No sites in community types 1-3 (super group 1) occurred on Swamp, Vasse, Quindalup or Spearwood units. Similarly no sites from community types 20-23 (super group 3) occurred on Swamp, Vasse or Quindalup units nor did any sites from community types 24-30 (super group 4) occur on Pinjarra Plain, Ridge Hill Shelf or associated units except for 5 sites in community type 28 (Spearwood *Banksia* community) as previously discussed.

*Table 15. Environmental geology units (reflecting geomorphology / soils) sampled during the floristic survey of the southern Swan Coastal Plain. Amalgamated units used in the analysis are shown in Table 16.*

| Amalgamated Environmental Geology Unit | Environmental Geology Code | Amalgamated Unit Name (major geomorphological system (Table 2)) | Geology Code |
|---|---|---|---|
| SWP | cs1 | swamp deposits - holocene | qhw |
| SWP | cps | swamp deposits - holocene | qhw |
| SWP | cps1 | swamp deposits - holocene | qhw |
| SWP | scp | swamp deposits - holocene | qhw |
| SWP | spc1 | swamp deposits - holocene | qhw |
| SWP | spm | swamp deposits - holocene | qhw |
| SWP | sp1 | swamp deposits - holocene | qhw |
| SWP | ms5 | swamp deposits - holocene | qhw |
| VA | m5 | lagoonal and estuarine deposits (vasse) | qhg |
| VA | sm2 | lagoonal and estuarine deposits (vasse) | qhg |
| VA | ls5 | lagoonal and estuarine deposits (vasse) | qhg |
| Q | s1 | safety bay sands (quindalup) | qhs |
| Q | s2 | safety bay sands (quindalup) | qhs |
| Q | s13 | safety bay sands (quindalup) | qhs |
| Q | ls4 | safety bay sands (quindalup) | qhs |
| Ss | s7 | sands from tamala limestone (spearwood) | qts |
| Stl | ls1 | tamala limestone (spearwood) | qtl |
| Stl | ls2 | tamala limestone (spearwood) | qtl |
| Bs | s8 | bassendean sands | qpb |
| Bld | s9 | lagoonal deposits - bassendean dunes | qpw |
| Bs/PP | s10 | bassendean sands over guildford formation | qpb/qpa |
| Pgf | ms2 | guildford formation (pinjarra plain) | qpa |
| Pgf | mgs1 | guildford formation (pinjarra plain) | qpa |
| Pgf | c2 | guildford formation (pinjarra plain) | qpa |
| Pgf | cs | guildford formation (pinjarra plain) | qpa |
| Pgf | sc | guildford formation (pinjarra plain) | qpa |
| Pad | cp | alluvial deposits (pinjarra plain) | qha |
| Pad | s14 | alluvial deposits (pinjarra plain) | qha |
| Pad | sm1 | alluvial deposits (pinjarra plain) | qha |
| Pad | msc1 | alluvial deposits (pinjarra plain) | qha |
| Pa/cd | g1 | alluvial/colluvial deposit (pinjarra plain) | qha/qc |
| P/R | fs3 | alluvial/colluvial deposit (pinjarra / ridge hill) | qha/qc |
| Rcd | msg1 | colluvial deposits (ridge hill shelf) | qc |
| Rcd | csg | colluvial deposits (ridge hill shelf) | qc |
| Rcd | ms3 | colluvial deposits (ridge hill shelf) | qc |
| Rcd | smg1 | colluvial deposits (ridge hill shelf) | qc |
| Rcd | s5 | colluvial deposits (ridge hill shelf) | qc |
| Rcs | s6 | colluvial sand (ridge hill shelf) | qs |
| Rbs | s12 | yoganup form (ridge hill shelf-beach deposit) | qpr |
| Sca | g2 | scarp - gravels and laterite | ql (czl) |
| Sca | la1 | scarp - gravels and laterite | ql (czl) |

*Table 16. Floristic community classification compared to amalgamated environmental geology units. Codes used for the amalgamated environmental units as in Table 15.*

| | | | Quin | Spearwood | | Bassendean | | | Pinjarra Plain | | | | Ridge Hill Shelf | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Community type | SWP | VA | Q | Ss | Stl | Bs | Bld | Bs/ PP | Pgf | Pad | Pa/c d | P/R | Rcd | Rcs | Rbs | Sca |
| 1a | | | | | | | | | 1 | | | | 1 | 2 | 1 | 8 |
| 1b | | | | | | 6 | | 2 | | 3 | | | | | 1 | |
| 2 | | | | | | 3 | | 1 | | | 1 | | | | | |
| 3a | | | | | | 2 | | 1 | 8 | | | | 2 | | | |
| 3b | | | | | | 1 | | 2 | | | | | 2 | 1 | 2 | |
| 3c | | | | | | | | | 6 | | | | 2 | | 2 | |
| 4 | 1 | 1 | | | | 4 | 1 | 6 | 3 | | | | | | | |
| 5 | 5 | | | | | 4 | 1 | 3 | | 2 | | | | | | |
| 6 | | | | | | | | | 8 | | | | 1 | | | |
| 7 | 4 | 4 | | | | | | 2 | 6 | | 2 | | | | | |
| 8 | | | | | | 1 | | | 18 | | | | 2 | | | |
| 9 | 1 | | | | | | | 1 | 5 | | | | 1 | | | |
| 10a | | | | | | | | 4 | 3 | | 1 | | | | | |
| 10b | | | | | | | | 2 | | | | 7 | | | | |
| 11 | 4 | 2 | | 1 | | 3 | | 2 | | | | | 1 | | | |
| 12 | 4 | | | | | | | 1 | | | | | | | | |
| 13 | 4 | | | | | | | 1 | 3 | 1 | | | | | | |
| 14 | | | 1 | | | 1 | | | | | | | | | | |
| 15 | 3 | 1 | | | | | | | | | | | | | | |
| 16 | | 2 | | | 1 | | | | | 1 | | | | | | |
| 17 | 1 | 4 | 3 | | | | | | | | | | | | | |
| 18 | | 2 | | | | | | | | | | | | | | |
| 19 | 2 | | 1 | | | | | | | | | | | | | |
| 20a | | | | 4 | | 3 | | | | | | | | | | |
| 20b | | | | | | 7 | | | | | | | 1 | | 1 | |
| 20c | | | | | | | | | | | | | 4 | | 5 | |
| 21a | | | | 12 | 2 | 19 | 1 | 3 | | 1 | | | 1 | | | |
| 21b | | | | | | 6 | | | | | | | 2 | 3 | 1 | |
| 21c | | | | 1 | | 7 | 1 | 5 | 2 | | | | | | | |
| 22 | | | | 3 | | 5 | 1 | 2 | | | | | | | | |
| 23a | | | | | | 15 | | 3 | | | | | 1 | | | |
| 23b | | | | 1 | | 17 | | 3 | | | | | | | | |
| 24 | | | 6 | 4 | 14 | 1 | | | | | | | | | | |
| 25 | 1 | | | 10 | | | | | | | | | | | | |
| 26a | | | | 1 | 10 | | | | | | | | | | | |
| 26a | | | 1 | 9 | 9 | | | | | | | | | | | |
| 27 | | | | | 7 | | | | | | | | | | | |
| 28 | | | | 26 | 6 | 1 | | | | | | | | 5 | | |
| 29a | | 1 | 3 | | 5 | | | | | | | | | | | |
| 29b | | | 13 | | | | | | | | | | | | | |
| 30a | | | 4 | 1 | 2 | | | | | | | | | | | |
| 30b | 1 | | 6 | 1 | | | | | | | | | | | | |
| 30c | | | 1 | | 2 | | | | | | | | | | | |
| □ | | | | | | | | | | | | | | | | |

It is interesting to note that no community type is restricted to Rbs unit (Yoganup formation - an early Pleistocene beach ridge unit at the base of the Ridge Hill Shelf) (Tables 15 and 16). At least seven different communities have been recorded from this unit. Similarly the colluvial sand units of the Shelf (Rcs) are occupied by at least four different communities. The seasonal wetland communities occupy all geology / geomorphological units except the sandy Ridge Hill Shelf units and gravels associated with the Whicher Scarp.

The implication of these results is that while geomorphology is one of the major correlates with community composition, by itself it is not a good predictor of plant community type.

**Ordination results**

Ordination of the sites data was undertaken to show spatial relationships between groups and to elucidate possible environmental correlates with the classification. A measure of how good the ordination fits the original association matrix is termed the stress values. This value decreases as the number of dimensions in the ordination increases and a compromise between stress values and number of dimensions in the solution has to be reached. In the present analysis stress values decreased from 0.22 in a three dimensional solution, to 0.18 in a four dimensional solution, to 0.17 in a five dimensional solution. Consequently the results of the four dimensional solution are reported below.

The first two axes of the group means of the ordination confirm the major environmental correlates are moisture regime and soil type. Axis 1 is related to site soil moisture regime, with the seasonal wetlands occurring at low values on this axis and upland groups occurring at higher values (Figure 7). The second axis separates dominant geomorphological units within the upland group, with the predominantly Quindalup groups occurring at low scores, Spearwood groups at intermediate scores and Bassendean and Pinjarra Plains groups at high scores. Patterns within the seasonal wetlands are less clear but heavy soil groups also occur at high scores on axis 2 and sandy soils at lower scores. The exception to this trend is the group mean for community type 15 (forests and woodlands of deep seasonal wetlands) which occurs at low value on this axis. Axis 3 shows even clearer separation of land units, while axis 4 was not interpretable (Figure 7).

The correlation between axis 1 and seasonality of soil moisture is clearly seen when average slope score (on a five point scale) is overlain on the ordination. Low slope scores are restricted to the low axis 1 scores and high average slope scores are at high axis 1 values (Figure 8a). As was discussed previously rainfall increases from coast across the coastal plain to the Scarp. In addition there is area of higher rainfall at base of the Whicher Scarp and a general decrease in rainfall north of Wanneroo. The broad pattern of decrease inland from the coast correlates strongly with the geomorphological pattern across the plain. It is no surprise therefore when the high average rainfall groups (on a five point scale) generally high scores on axis 2. (Figure 8b)

Species richness was also strongly correlated with ordination scores. Species poor wetlands were concentrated in lower left quadrant and species poor upland communities in the lower right (Figure 8c). Groups with highest average species richness were confined to Pinjarra Plain and Bassendean groups (super groups 1 and 2) in the upper right quadrant as well as the seasonally wet clay pans which had extended periods of geophyte and annual recruitment as the pools dried. Average percentage weed frequency followed similar trends (Figure 8d). Highest percentage of weeds occurred in species poor wetland and upland sites. In addition the herb rich shrublands in clay pans (community type 8) and community type 6 also had a high percentage of weeds. All community types associated with tuart (types 24, 25 and 30b) have been heavily weed invaded (Table 12). It was rare in this survey to find any tuart sites that had not been significantly invaded. It should also be noted that sites were located least disturbed areas found.

Vegetation condition is a subjective score (from 1 least disturbed to 5 most disturbed) based on weed frequency, weed aggressiveness, site disturbance, fire frequency and disease impact on a five point scale (Figure 8e). The groups with the highest average disturbance were again some of the species poor wetlands (types 6, 12, 15, 16). and the tuart and *Callitris* - *M. lanceolata* woodlands (types 24, 25, 30a and 30b). The communities in the best condition tended to be the species rich communities of

the Pinjarra Plain and Bassendean systems. Some of the best vegetation includes sites from small remnants. These data suggests that weed invasion of the species rich communities only occurs after major disturbance events.

## *CORRELATIONS WITH OTHER CLASSIFICATIONS*

### Correlation with structural units

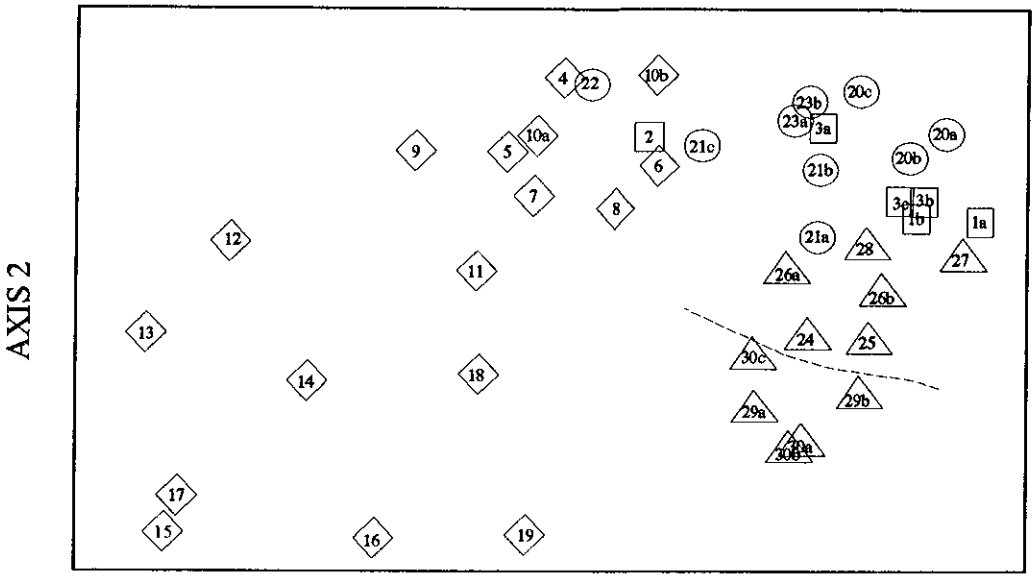
Structure has been used by various authors to map vegetation types or community complexes. It has been suggested that structural units bear little correlation to plant floristics in a variety of Western Australian ecosystems (Griffin *et al.* 1983, Cresswell and Bridgewater 1985, Keighery and Trudgen 1992, Griffin 1993). At each of the 509 sites a detailed structural description was recorded (Muir 1977). From these descriptions the structure of the dominant layer was compared to the floristic classification (Table 17). In all, 41 units were found in six major formations (Table 18). There appears to be little correlation between floristic group and structural units and only slightly better correlation between floristic group and formations. The mallee formation was entirely restricted to community types centred on the Spearwood system (super group 3) with only one exception from a Quindalup swale (type 30c). The seasonal wetland group were the most heterogenous in terms of structural diversity. The communities centred on the Bassendean system (super group 3) were largely forest and woodland formations as were the communities from uplands on heavy soils (super group 1). Most communities occurred in a variety of formations and vegetation units. The most diverse structurally was community type 24 (Northern Spearwood shrublands and woodlands) which was recorded from 14 structural units in four different formations.

These results are consistent with Cresswell and Bridgewater's (1985) conclusions that in areas of great species or vegetation richness, floristically based classificatory methods appear the most appropriate to describe the full vegetation variation which is an essential prerequisite to the development of adequate conservation planning.

### Correlation with vegetation complexes (Heddle *et al.* 1980)

The vegetation complexes mapped by Heddle *et al.* (1980) are based on the concept of a series of vegetation communities forming regularly repeating vegetation complexes. These authors believed that vegetation was changing continuously and that pattern of vegetation change could only be detected in a localised area. Consequently it was necessary to map broad vegetation complexes. Both Beard (1979a) and Cresswell and Bridgewater (1985) believed that fine scale repeatable patterns were apparent both in structure (Beard 1979a) and floristics (Cresswell and Bridgewater 1985). Our data has shown that repeatable floristic communities do occur across the coastal plain and that these communities appear to be primarily determined by seasonal water regimes and geomorphology. As shown above our 30 floristic groups do not equate to structural units and as a result could not be mapped simply.

Four hundred and seventy-one of our sites occurred in the area mapped by Heddle *et al.* (1980). Our 471 sites occurred in 27 of the 75 vegetation complexes mapped by these authors. Tables 19 and 20 show the correlation between our floristic types and the mapped vegetation complexes. The floristic types occurred in between one (types 10b, 18 and 19) and 10 vegetation complexes (type 21a). Some floristic groups were centred on one or two particular complexes but also occurred at lower frequency in other complexes (eg. type 24, 26a, 29b). There is little indication in our data that groups of floristic communities are restricted to particular vegetation complexes across the coastal plain.



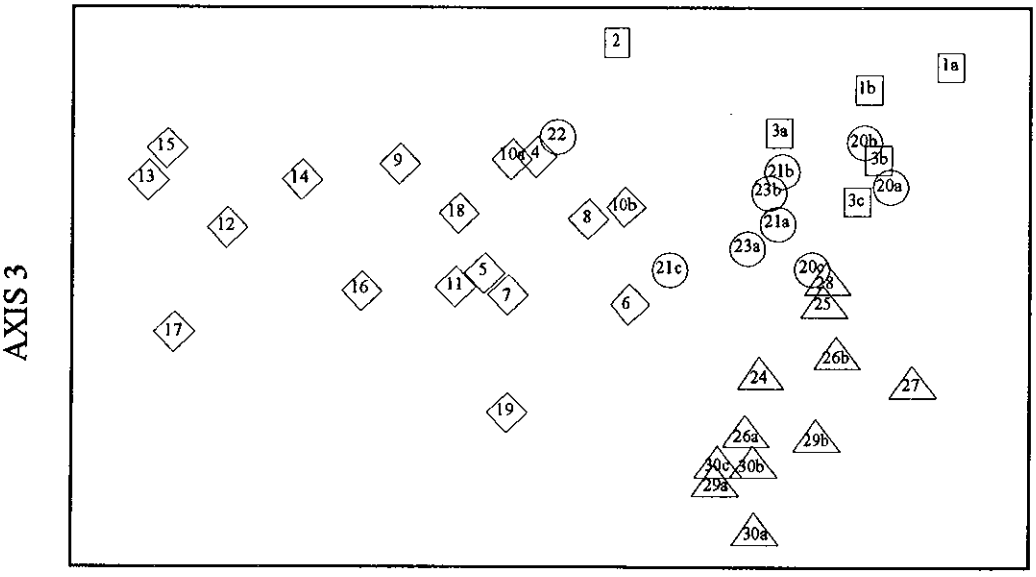




*Figure 7.* *Ordination diagram of 43 floristic groups/subgroups. Symbols indicate super groups to which they belong (squares - super group 1; diamonds - super group 2: circles - super group 3: triangles - super group 4). In super group 4 Quindalup sites fall below the dotted line.*

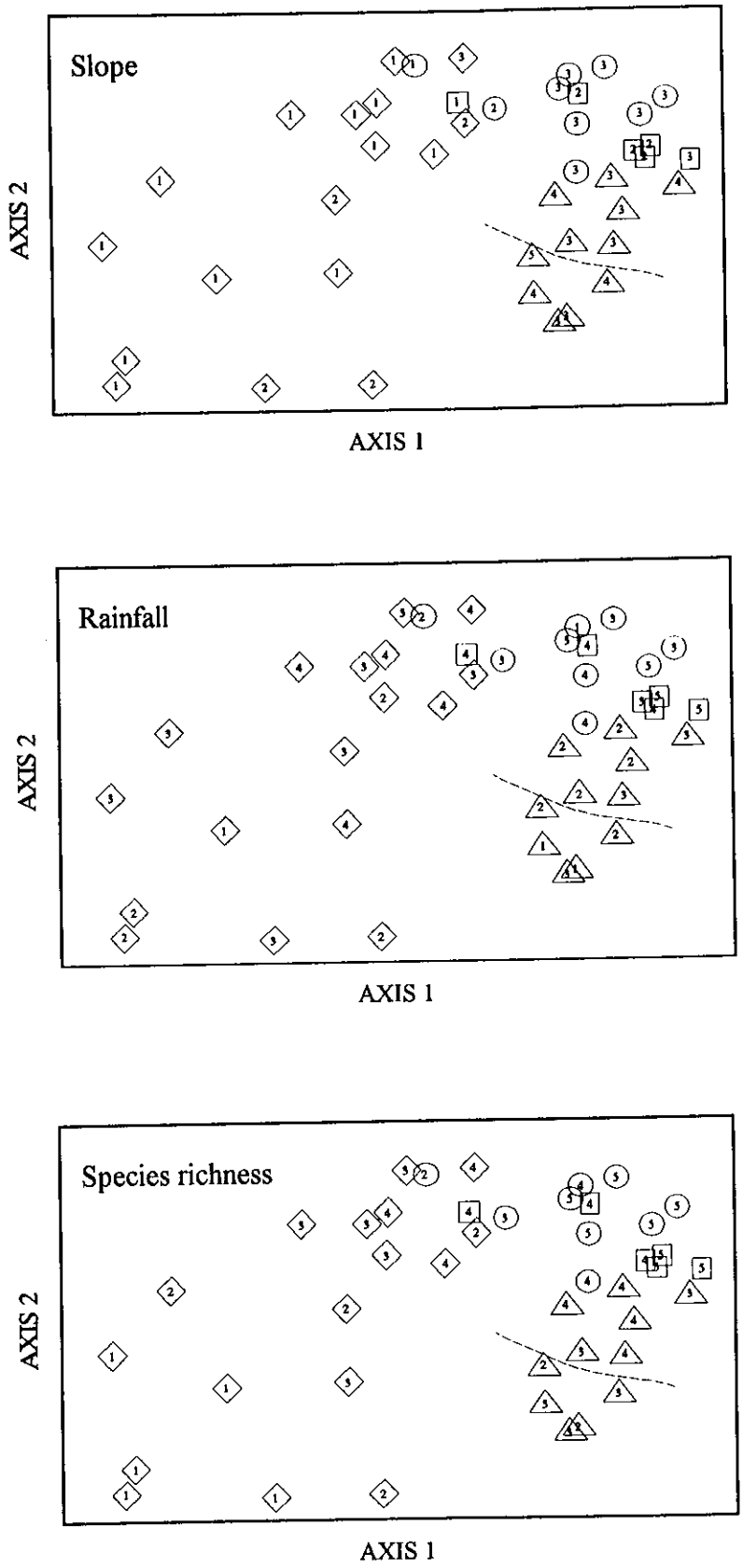
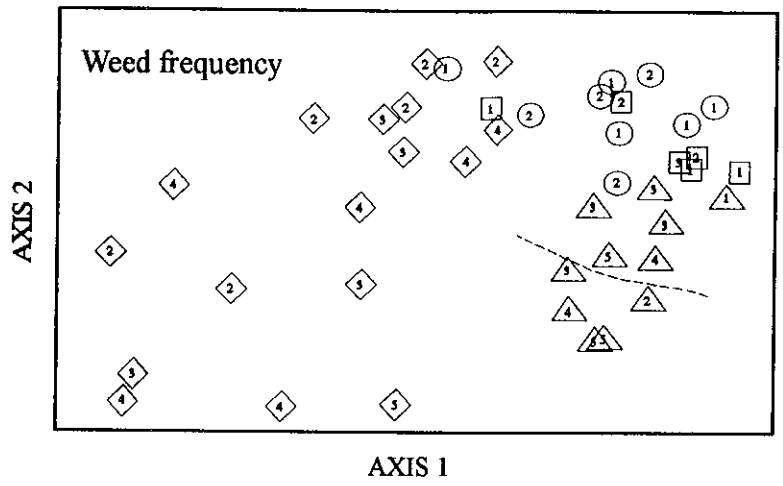



*Figure 8. Ordination diagrams of 43 floristic groups/subgroups showing slope, rainfall, species richness, weed frequency, and vegetation condition on a five point scale. (Slope - flat to steep; rainfall, species richness, and weed frequency - low to high; vegetation condition - least disturbed to most disturbed).*



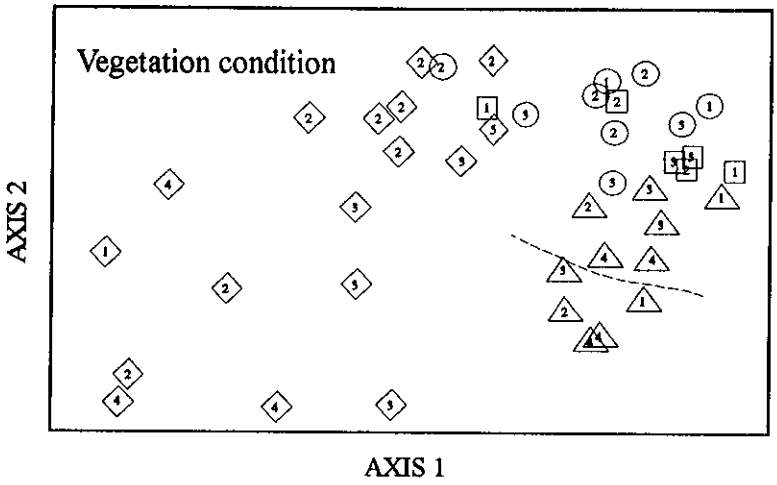




*Figure 8 (cont.). Ordination diagrams of 43 floristic groups/subgroups showing slope, rainfall, species richness, weed frequency, and vegetation condition on a five point scale. (Slope - flat to steep; rainfall, species richness, and weed frequency - low to high; vegetation condition - least disturbed to most disturbed).*

*Table 17. Comparison of structural units with the floristic community types (H = Herbland, S = Sedgeland)*

| | Forest | | | | | | | Woodland | | | | | Mallee | | | | | | Shrublands | | | | | | | | | | | | | | | | H | S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
| 1a | | | 8 | | | | 3 | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1b | | | 4 | 2 | | | 4 | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | 1 | | | | | 1 | 1 | 1 | | |
| 3a | | | | | | | 1 | 1 | | 1 | 4 | | | | | | | | | | | | | | | | | | | 1 | | 1 | 1 | | 2 | 1 | | | |
| 3b | | | | 2 | | | 1 | 1 | | 2 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3c | | | 1 | 2 | | | | 1 | | | 3 | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | 1 | | | | |
| 4 | | | | | | | | 1 | | 3 | 4 | 1 | | | | | | | | | | | | | | | | | | 1 | | 1 | 1 | 2 | | 1 | | | | 1 |
| 5 | | | | 1 | | | | 2 | | 1 | 4 | | | | | | | | | | | | | | | | | | | 1 | 1 | | 1 | 1 | 2 | | | | |
| 6 | | | | 1 | | 2 | | | | | | 2 | | | | | | | | | | | | | | | | | | | | 2 | | 1 | 1 | | | | | |
| 7 | | | | | | | | 1 | 1 | | | 6 | | | | | | | | | | | | | | | | | | 1 | | 1 | 2 | | 1 | 3 | | | 1 | |
| 8 | | | | | | | 2 | | 1 | | | | | | | | | | | | | | | | | | | | | 1 | | 1 | 3 | | 3 | 1 | 3 | | 3 | | 1 | 2 |
| 9 | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 | 1 | 1 | | 1 | | | | |
| 10a | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | 1 | 2 | | 1 | | 1 | | 1 | |
| 10b | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | 3 | 1 | | 3 | 1 | |
| 11 | | 2 | | 1 | 1 | 1 | | 4 | 1 | | 1 | | | | | | | | | | | | | | | | | | | | 1 | | | | | 1 | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 2 | 1 | 1 | | | | | | |
| 13 | | 1 | | | 1 | | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | 1 | | | | | 1 | 1 | 1 | | 1 | | |
| 14 | | | | | | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | | | | | 1 | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | |
| 16 | | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | 1 | | | | | | |
| 17 | 1 | 1 | | 1 | 4 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 | | |
| 18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 |
| 19 | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20a | | | | | 2 | | | | 2 | 1 | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20b | | | | | 1 | | | | 4 | | | 3 | 1 | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | 1 | 2 | |
| 20c | | | | | | | 1 | 1 | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21a | 1 | | | 5 | 10 | | | 6 | 12 | | 2 | 2 | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | |
| 21b | | | | 1 | 2 | | | 3 | 3 | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21c | | | | 1 | 6 | | | 3 | 3 | | | 1 | | | | | | | | | | | | | | | | | | | | 1 | | | | 1 | | | | | |
| 22 | | | | | | | | | 8 | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | |
| 23a | | | | | 5 | | | 1 | 8 | 2 | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23b | | | | | 1 | | | | 11 | 3 | | 5 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24 | | | 1 | | 2 | | 3 | 4 | | | | | | | | | | | | 1 | | 1 | | | | | | | | 1 | 1 | 1 | 2 | | 1 | 2 | | 4 | 1 | | | |
| 25 | | | | | 2 | | 4 | | | | 4 | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | |
| 26a | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | 1 | 1 | | | 2 | 1 | 1 | | 1 | | 1 | | 1 | |
| 26b | | | | 1 | 1 | | 2 | 3 | | | | | | | | | | | | 3 | 1 | | 3 | | 1 | | 1 | 1 | | | | 1 | | | | | 1 | | | | |
| 27 | | | | | | | | | | | | | | | | | | | | | 1 | 1 | 2 | | | | | | | | | | | | 1 | 1 | | | 1 | | | |
| 28 | | | | 1 | 10 | 1 | 3 | 13 | | | 1 | 3 | 3 | | | | | | | | | | | | | | | | | 1 | | | | | | | 1 | | 1 | | | |
| 29a | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 | 1 | | 4 | | | | | | |
| 29b | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | 2 | 1 | 1 | 2 | | 2 | 2 | 1 | 1 |
| 30a | | 1 | 1 | 1 | 2 | | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30b | | 1 | | | 3 | | 2 | | | | 1 | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | |
| 30c | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | |

*Table 18. List of formations and structural units recorded for the 509 plots surveyed in the floristic survey of the southern Swan Coastal Plain. Structural units follow Muir (1977). Codes used in Table 17 to compare floristic classification to structural classification.*

| Structural Formation | Structural Unit | Code |
|---|---|---|
| Forest | dense forest | 1 |
| | dense low forest A | 2 |
| | dense low forest B | 3 |
| | forest | 4 |
| | low forest A | 5 |
| | low forest B | 6 |
| Woodland | woodland | 7 |
| | low woodland A | 8 |
| | low woodland B | 9 |
| | open woodland | 10 |
| | open low woodland A | 11 |
| | open low woodland A | 12 |
| | very open low woodland B | 13 |
| Mallee | tree mallee | 14 |
| | open tree mallee | 15 |
| | dense shrub mallee | 16 |
| | shrub mallee | 17 |
| | open shrub mallee | 18 |
| | very open scrub mallee | 19 |
| Shrubland | dense thicket | 20 |
| | dense heath A | 21 |
| | dense heath B | 22 |
| | dense low heath C | 23 |
| | dense low heath D | 24 |
| | thicket | 25 |
| | heath A | 26 |
| | heath B | 27 |
| | low heath C | 28 |
| | low heath D | 29 |
| | scrub | 30 |
| | low scrub A | 31 |
| | low scrub B | 32 |
| | dwarf scrub C | 33 |
| | dwarf scrub D | 34 |
| | open scrub | 35 |
| | open low scrub A | 36 |
| | open low scrub B | 37 |
| Herbland | herbs | 38 |
| | open herbs | 39 |
| Sedgeland | dense low sedges | 40 |
| | low sedges | 41 |

## *COMMUNITY RESERVATION AND CONSERVATION STATUS*

### Presumed destroyed community types

Several community types appear to have been totally destroyed in the study area over the last 100 years. It is difficult to know exactly what has been lost however in several case the remaining native species or early botanical accounts indicate total community loss. For example, Gozzard (1982b) maps a small area of Muchea limestone (Qpm) as occurring in the Bullsbrook area. A careful search found no significant remnant vegetation on public lands. The few native species still occurring on this geology suggests it supported a significantly different community type than anything found on other remnants in this area today. It appears that the community may have been dominated by a suckering form of *Acacia saligna*. All occurrences of this geology on private lands appear to have been mined or converted to pasture or both.

*Table 19. The 27 vegetation complexes mapped by Heddle* et al. *(1980) on the southern Swan Coastal Plain.*

| Code | Vegetation Complex |
|---|---|
| For | Forrestfield Complex |
| Abba | Abba Complex |
| Guild | Guildford Complex |
| Swan | Swan Complex |
| Dard | Dardanup Complex |
| Serp | Serpentine River Complex |
| Beer | Beermullah Complex |
| Yang | Yanga Complex |
| Cann | Cannington Complex |
| Sth R | Southern River Complex |
| Bass N | Bassendean Complex - North |
| Bass CS | Bassendean Complex - Central and South |
| Bass NT | Bassendean Complex - North Transition |
| Bass CST | Bassendean Complex - Central and South Transition |
| Karr N | Karrakatta Complex - North |
| Karr NT | Karrakatta Complex - North Transition |
| Karr CS | Karrakatta Complex - Central and South |
| Cott N | Cottesloe Complex - North |
| Cott CS | Cottesloe Complex - Central and South |
| Herd | Herdsman Complex |
| Quin | Quindalup Complex |
| Yoon | Yoongarillup Complex |
| Vass | Vasse Complex |
| Reg | Regan Complex |
| King | Kingia Complex |
| Jarr | Jarrahwood Complex |
| Cart | Cartis Complex |

Another example is the extensive alluvial flats between Thomas Rd and the Serpentine River where large areas of the improved pasture are dominated by *Casuarina obesa*. It is likely that this community was related to type 7 but had significantly different species composition. Speck (1952) briefly comments on this community which had been almost totally converted by the time of his study. No extant remnants of these *C. obesa* woodlands are known.

*Table 20. Comparison of vegetation complexes recognised by Heddle* et al. *(1980) with the floristic classification from the present study.*

| | RHS | PINJARRA PLAIN | | | | | | | | BASSENDEAN | | | | | SPEARWOOD | | | | | | QUI | | | WHICHER SCARP | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Community type | For | Abba | Guild | Swan | Dard | Serp | Beer | Yang | Cann | Sth R | Bass N | Bass CS | Bass NT | Bass CST | Karr N | Karr NT | Karr CS | Cott N | Cott CS | Herd | Quin | Yoon | Vass | Reg | King | Jarr | Cart |
| 1a | | 1 | | | | | | | | | | | | | | | | | | | | | | | 2 | 1 | 4 |
| 1b | | 1 | | | | | | | | 1 | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3a | 3 | | 10 | | | | | | | | | | | | | | | | | | | | | | | | |
| 3b | 1 | | 5 | | | | | | 1 | | | | | | | | | | | | | | | | | | |
| 3c | 3 | | 7 | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | 1 | 6 | 1 | 5 | | 1 | | | | | | | | | | | | | |
| 5 | | | | | | | 2 | | | | 1 | 6 | | 1 | | | | | | 2 | | | 3 | | | | |
| 6 | | | 5 | | | | | 4 | | | | | | | | | | | | | | | | | | | |
| 7 | | 1 | 1 | | | | 2 | 5 | | | 1 | | | | | | | | | | | | 5 | | | | |
| 8 | 2 | | 16 | | | 1 | | | | 2 | | | | | | | | | | | | | | | | | |
| 9 | | 1 | 3 | | | 3 | | | | | | | | | | | 1 | | | | | | | | | | |
| 10a | | | 2 | | | | | | 3 | 1 | | | | | | | | | | | | | | | | | |
| 10b | | 5 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | 1 | | 1 | 1 | | | | 6 | | | | | 1 | | | 1 | | | 2 | | | | |
| 12 | | | | | | | | | | 4 | | 1 | | | | | | | | | | | | | | | |
| 13 | | 1 | 2 | | | 1 | | | | 1 | 1 | 1 | | | | | | | 1 | 1 | | | | | | | |
| 14 | | | | | | | | | | | 1 | | | | | | | 1 | | | | | | | | | |
| 15 | | | | | | | 1 | 2 | | | | | | | | | | | | | | | 1 | | | | |
| 16 | | | | | | | | | | | | 1 | | | | | | | 1 | | | | | | | | |
| 17 | | | | | | | | | | | | | | | | | 1 | | 1 | | 4 | | 1 | | | | |
| 18 | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | |
| 19 | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | |
| 20a | | | | | | | | | | 3 | | | | | | | 4 | | | | | | | | | | |
| 20b | 2 | | 7 | | | | | | | | | | | | | | | | | | | | | | | | |
| 20c | 6 | | 3 | | | | | | | | | | | | | | | | | | | | | | | | |
| 21a | | | 2 | 1 | | | | | 4 | 7 | 1 | 10 | | 1 | | | 10 | | 2 | | | 1 | | | | | |
| 21b | | 3 | | | | | | | | 2 | | | | | | | 1 | | | | | | | | 1 | | 4 |
| 21c | | | 1 | | 1 | | | 2 | | 3 | | 7 | | | | 1 | 1 | | | | | | | | | | |
| 22 | | | | | | | | | | | 4 | 2 | 1 | 1 | | | | 3 | | | | | | | | | |
| 23a | | | 2 | | | | 1 | | | | 3 | 12 | 1 | | | | | | | | | | | | | | |
| 23b | | | | | | | | | | | 14 | | 2 | | 1 | 2 | | | 2 | | | | | | | | |
| 24 | | | | | | | | | | | | 1 | | | | | 1 | | 20 | | 3 | | | | | | |
| 25 | | | | | | | | | | | | 1 | | | | | 7 | | 1 | | | | 2 | | | | |
| 26a | | | | | | | | | | | | | | | 1 | | | 7 | 3 | | | | | | | | |
| 26b | | | | | | | | | | | | | | | 2 | | | 10 | 3 | | 2 | 2 | | | | | |
| 27 | | | | | | | | | | | | | | | | | | | 1 | | | 6 | | | | | |
| 28 | | | | | | | 2 | | | | 1 | 2 | | | 2 | | 8 | 8 | 12 | | | | | 3 | | | |
| 29a | | | | | | | | | | | | | | | | | | | 3 | | 5 | 1 | | | | | |
| 29b | | | | | | | | | | | | | | | | | | | 1 | | 11 | 1 | | | | | |
| 30a | | | | | | | | | | | | | | | | | | | 2 | | 5 | | | | | | |
| 30b | | | | | | | | | | | | | | | | | | | | | 5 | 1 | | | | | |
| 30c | | | | | | | | | | | | 2 | | | | | | | | | 1 | | | | | | |

**A restricted community not sampled in this survey**

An undescribed northern ironstone community is known to occur on private land in the GinGin area. Roadside occurrences of this community type were so badly disturbed as to preclude sampling. Major differences in community composition between this community type and the southern ironstone community (type 10b) were the much greater dominance of annual Asteraceae and absence of the southern endemic ironstone taxa. This community is totally unreserved, apparently very restricted and would be classed as critically threatened. The private land on which this community occurs is grazed. Some of the ironstone soils have been converted to improved pasture.

**Analysis of reservation and conservation status of the 30 community types**

For the purposes of this analysis a community is considered well reserved if it occurs in two widely separated National Parks and / or Nature Reserves. If a community is known from only one National Park or Nature Reserve it is considered poorly reserved (since it is susceptible to catastrophe) and unreserved if it is not known from any National Park or Nature Reserve. Other land categories are useful additions to conservation estate (such as local government reserves for conservation of flora) but do not carry the legislative protection of National Parks and Nature Reserves in security of tenure and purpose.

The obvious limitation of this approach is that no estimate of the actual area of the community in the National Park or Nature Reserve has been determined. This was beyond the scope of the present study. Furthermore, many of the Nature Reserves on the eastern side of the plain are small remnants. As a result some communities which are classified as well reserved may in fact be represented by only two small remnants. Further detailed analysis of reservation status will be needed for those communities only known from these small Nature Reserves.

In all the floristic analysis recognised 43 community types or subtypes. Ten of these are unreserved, and a further 11 are only known from a single National Park or Nature Reserve (Table 22). Analysis of lands and geomorphological data has shown most Ridge Hill Shelf and Pinjarra Plain (fluviatile deposits) have had more than 90% of their original vegetation cleared. Only two of the 13 units have been less severely impacted (A.H. Burbidge and J.K. Rolfe, unpublished). The most severely impacted units were 99.4% cleared (Guildford and Swan units). These data were used to indicate which of the floristic units are likely to have suffered major range contractions (Table 23). In addition to communities which have been almost totally cleared for agriculture and other purposes there are naturally rare community types. These communities are generally restricted to uncommon geological or geomorphological units. Seven such communities are recognised and a further three may fall into this category.

Using these data and an assessment of future potential threat, communities were allocated to one of seven community conservation status categories (Table 21). Allocation to a category is likely to change in time due to further survey or further alienation in much the same way as CALM's species priority list changes through time as better information becomes available.

The shrublands on southern ironstones (community type 10b) are considered to be critically endangered. This community type is not presently reserved. These ironstones are regionally rare and have been massively impacted by agriculture clearance (Tille and Lantzke 1990). It is also a very species rich community type and has a number of endemic taxa some of which are Declared Rare Flora (DRF) under the Wildlife Conservation Act (*Chamelaucium erythrochlorum* Ms, and *Chamelaucium roycei* Ms) or are proposed for declaration (*Brachysema* sp. (Treeton BJK & NG 001), *Brachysema* sp. (Williamson GJK 12719), *Darwinia* sp. (Williamson Rd GJK 12839), *Dryandra* aff. *nivea* (GJK 6622), *Dryandra* sp. *30* (aff. *squarrosa* ASG 11657), *Grevillea elongata*, *Hakea varia* (Yellow flowered ironstone form BJK & NG 226), and *Petrophile latericola* Ms) (Tables 3, 6).

Two further community types are considered endangered. These are the sedgelands in Holocene dune swales (community type 19) and *Banksia attenuata* woodlands over species rich dense shrublands (community type 20a). The former community type is very restricted and has only been recorded from

the Becher Point (M106) and Lake Walyungup (M103) areas. Both are in proposed conservation areas but this area has a rapidly expanding urban population and is presently the subject of major planning amendment to the Metropolitan Regional Scheme. The area is also being considered for a Rapid Transport Corridor (Bowman, Bishaw and Gorham, and Department of Planning and Urban Development 1994).

Community type 20a is also regionally rare. It is a very species rich *Banksia* woodland occurring over restricted areas to the north and east of Perth on two different land systems. It was recorded at Koondoola open space, Landsdale Rd, remaining section of M12 (a small reserve near Marangaroo Golf course), M 53 (Reserve C29880, Forrestfield), and the APB complex at Forrestfield.

All of these areas have been proposed as conservation reserves. The APB land has had conservation of flora recognised in its purpose (P. Keppel, pers. comm.) and Koondoola Open Space has been zoned for Regional Open Space. Marangaroo Open Space is recognised as a conservation area by the Wanneroo Council but more than 60% of the original M12 (System 6) recommendation has been developed as a golf course and some remaining parts of this reserve appear badly infected by dieback. There are a variety of development proposals for M53 and some parts of this reserve have been alienated for the Roe highway and other road realignments. Future use of the Landsdale Rd bushland is presently being decided.

A further 15 community types are considered vulnerable (11 because they are the remaining fragments of previously extensive communities) and 11 are considered susceptible should any change in management or land use occur. Twelve communities are considered at low risk from any threat and two communities are not able to be assessed due to insufficient information.

*Table 21. Definition of community conservation status (after Department of Conservation and Land Management, unpubl.).*

| Community conservation status | Definition |
|---|---|
| Presumed destroyed | A community that is totally destroyed or so extensively modified that it is unlikely to re-establish ecosystem processes in the foreseeable future. |
| Critical | A community with most or all of its known occurrences facing severe modification or destruction in the immediate future. |
| Endangered | A community in danger of severe modification or destruction throughout its range, if causal factors continue operating. |
| Vulnerable | A community likely to move into the endangered category in the near future if the causal factors continue operating. |
| Susceptible | A community of concern because there is evidence that it can be modified or destroyed by human activities, or would be vulnerable to new threatening process. |
| Low risk | A community that does not qualify for one of the above categories. |
| Insufficiently known | A community for which there is inadequate data to assign to one of the above categories |

**Suggested improvements to reservation and conservation of floristic community types**

There is an urgent need to adequately protect the three most threatened community types, all of which are presently unreserved. These three communities are only known from small remnants. To adequately protect these communities these remnants should be declared as A class Nature Reserves for the protection of flora and fauna.

Southern ironstone communities (type 10b): This community type is known from five small areas of State Forest and a road and drain reserve east of Ruabon Nature Reserve (Figure 9c). This road and drain reserve is also of regional significance as it is the last remaining continuous vegetated transect across the lower Swan Coastal Plain showing the catena of original vegetation types. Several species of DRF or proposed DRF are found along this reserve. Immediate steps should be taken to have the vesting and purpose of these areas changed. Our survey has shown that even quite small remnants can maintain themselves in very good condition for long periods of time without disturbance. All forms of disturbance should be excluded from these critical threatened remnants until we have a much better understanding of community function.

*Table 22. Present reservation and conservation status of the floristic communities on the southern Swan Coastal Plain. Numbers refer to the number of plots located in each community - tenure class, not number of individual reserves.*

| Type | Nature Res. | Nat. Park | State Forest | Local Govt | Federal | Crown Land | VCL | Road Res. | Private |
|---|---|---|---|---|---|---|---|---|---|
| 1a | | | 10 | 2 | | | | 1 | |
| 1b | 2 | | | 5 | | 4 | | 1 | |
| 2 | 1 | | | 3 | | 1 | | | |
| 3a | | | | 7 | | 4 | | 2 | |
| 3b | 3 | | 2 | 3 | | | | | |
| 3c | 1 | | | 5 | 1 | 3 | | | |
| 4 | 5 | | 3 | 4 | | 1 | 1 | 1 | 1 |
| 5 | 6 | | 2 | | | 3 | 1 | | 3 |
| 6 | 8 | | | | 1 | | | | |
| 7 | 10 | | | 3 | | 2 | | 3 | |
| 8 | 9 | | | 3 | | 4 | | 5 | |
| 9 | 3 | | | 3 | | 1 | | 1 | |
| 10a | 5 | | | 2 | | 1 | | | |
| 10b | | | 6 | | | | | 3 | |
| 11 | 5 | | | | | 2 | | 1 | 5 |
| 12 | 5 | | | | | | | | |
| 13 | 4 | | | 1 | | 3 | 1 | | |
| 14 | | | 1 | | | | 1 | | |
| 15 | 3 | | | 1 | | | | | |
| 16 | 2 | | | 2 | | | | | |
| 17 | 2 | 1 | | | | 5 | | | |
| 18 | 2 | | | | | | | | |
| 19 | | | | | | 1 | 2 | | |
| 20a | | | | 1 | | 6 | | | |
| 20b | 6 | | 1 | 2 | | | | | |
| 20c | | | | 9 | | | | | |
| 21a | 14 | | 5 | 4 | | 9 | 2 | | 5 |
| 21b | 4 | | 5 | 1 | | 2 | | | |
| 21c | 6 | | | 1 | | 2 | 1 | | 6 |
| 22 | 1 | | 8 | 1 | | | 1 | | |
| 23a | 6 | | 4 | 4 | | 4 | | | 1 |
| 23b | | | 13 | 1 | | | 7 | | |
| 24 | 1 | 5 | | 10 | | 9 | | | |
| 25 | 1 | | 6 | | | 4 | | | |
| 26a | | | 8 | 3 | | | | | |
| 26b | 5 | 1 | 12 | | | | 1 | | |
| 27 | 4 | 2 | | 1 | | | | | |
| 28 | 7 | 7 | 10 | 5 | | 7 | 2 | | |
| 29a | | 1 | | 4 | 1 | | 3 | | |
| 29b | | 3 | | 1 | | | 9 | | |
| 30a | 2 | | | 2 | 3 | | | | |
| 30b | 2 | 5 | 1 | | | | | | |
| 30c | | | | 2 | | | 1 | | |

*Table 23. Community reservation and conservation status on the southern Swan Coastal Plain. A community is considered well reserved if known from at least two National Parks or Nature Reserves, poorly reserved if known from only one National Park or Nature Reserve and unreserved if it was not recorded from a National Park or Nature Reserve. Communities likely to have been > 90% cleared are indicated as are naturally rare communities.*

| Type | Reservation status | Range contraction likely to be > 90% | Regionally rare | Conservation status |
|---|---|---|---|---|
| 1a | Unreserved | | | Susceptible |
| 1b | Well reserved | Yes | | Vulnerable |
| 2 | Poorly reserved | Yes | ? Yes | Vulnerable |
| 3a | Unreserved | Yes | | Vulnerable |
| 3b | Well reserved | Yes | | Vulnerable |
| 3c | Well reserved | Yes | | Vulnerable |
| 4 | Well reserved | | | Low risk |
| 5 | Well reserved | | | Low risk |
| 6 | Well reserved | | | Low risk |
| 7 | Well reserved | Yes | | Vulnerable |
| 8 | Well reserved | Yes | | Vulnerable |
| 9 | Well reserved | Yes | | Vulnerable |
| 10a | Well reserved | Yes | | Vulnerable |
| 10b | Unreserved | Yes | Yes | Critical |
| 11 | Well reserved | | | Low risk |
| 12 | Well reserved | | | Low risk |
| 13 | Well reserved | | | Low risk |
| 14 | Unreserved | ? | ? | Insufficiently known |
| 15 | Well reserved | Yes | ? Yes | Vulnerable |
| 16 | Poorly reserved | Yes | | Vulnerable |
| 17 | Well reserved | | | Low risk |
| 18 | Poorly reserved | | Yes | Vulnerable |
| 19 | Unreserved | | Yes | Vulnerable |
| 20a | Unreserved | | Yes | Endangered |
| 20b | Poorly reserved | Yes | Yes | Vulnerable |
| 20c | Unreserved | | Yes | Vulnerable |
| 21a | Well reserved | | | Low risk |
| 21b | Well reserved | ? | | Susceptible |
| 21c | Well reserved | | | Susceptible |
| 22 | Poorly reserved | | | Susceptible |
| 23a | Well reserved | | | Low risk |
| 23b | Unreserved | | | Susceptible |
| 24 | Well reserved | | | Susceptible |
| 25 | Poorly reserved | | | Susceptible |
| 26a | Unreserved | | | Susceptible |
| 26b | Well reserved | | | Low risk |
| 27 | Well reserved | | Yes | Low risk |
| 28 | Well reserved | | | Low risk |
| 29a | Poorly reserved | | | Susceptible |
| 29b | Poorly reserved | | | Susceptible |
| 30a | Poorly reserved | | Yes | Vulnerable |
| 30b | Well reserved | ? yes | | Susceptible |
| 30c | Unreserved | | | Insufficiently known |

Community type 19 (sedgeland in Holocene dune swales): This community type is only known from small linear wetlands in the Point Becher area (M106) and north west corner of Lake Walyungup (M103) (Figure 9b). Both of these areas are in proposed conservation areas. These reserves should be gazetted as A class Nature Reserves for conservation of flora and fauna. This endangered community type is very restricted and presently at risk from urban and infrastructure developments.

The eastern *Banksia attenuata* woodlands over species rich dense shrublands (type 20a): This community type is also considered endangered. It is also very restricted being recorded in this survey from only seven quadrats. This community is found at Koondoola open space, Landsdale Rd, M12 (a small reserve near Marangaroo Golf Course), M 53 (another System 6 recommendation), and the Agricultural Protection Board (APB) complex at Forrestfield. Koondoola, M12 and M 53 are proposed conservation reserves. The APB reserve has recently had the conservation of flora inserted into its purpose. All the other small remnants should be declared as A class Nature Reserves for the conservation of flora and fauna (Figure 9a). Urgent investigation of areas apparently affected by dieback at M12 need to be undertaken with implementation of any necessary control action.

Another area that should be vested as a Nature Reserve for the conservation of flora and fauna as a matter of priority is the road and drain reserve along Mundijong Rd (Figure 9b). Like the road east of Ruabon Nature Reserve this linear remnant covers the full catena of vegetation types across the alluvial soils of the coastal plain west of Mundijong. These two linear remnants are therefore of both regional and national significance depicting the vegetation sequences that elsewhere have been reduced to fragments or totally cleared. Road verges have long been considered important for conservation. The EPA (1976) has stated that it is of the opinion that all road verges should be protected. The regional importance of these two reserves require formal vesting for conservation purposes.

For the other 16 community types that are unreserved or poorly reserved a range of reservation strategies are possible to improve their reservation status. To locate reserves optimally, both species and community reservation status need to be considered. Species reservation data are presently being gathered in a concurrent project (G.J. Keighery, unpublished data). In a future report these data sets will be combined to allow an optimal reservation strategy to be developed. Table 24 shows possible areas for reservation that would improve the present reservation status of the remaining unreserved or poorly reserved community types.

It should be noted that many of the possible areas are already proposed National Parks, Nature Reserves or EPA red book recommendations or are presently being managed for conservation as one of their primary aims (eg. Garden Island, Ambergate Reserve, Trigg Reserve, Brickwood Reserve, Brixton Street). However their present vesting does not give them maximum protection under WA legislation. This table highlights the very high conservation values of these areas.

It is also of note that while a community type is reserved in two or more National Parks or Nature Reserves it can still be considered vulnerable. This is because of the almost total clearance of these vegetation types and small size of the remaining remnants. Their size makes them particularly vulnerable to disturbance and to invasion by weeds. Our results are consistent with the earlier work of Keighery and Trudgen (1992) who found all remnants on the alluvial soils which had their basic structure intact or were able to regenerate had significant flora conservation values regardless of the remnant's size. Our data strongly supports this conclusion and we would consider any such remnant on the alluvial soils on the Swan Coastal Plain to be of high conservation value.

The results reported above relate to a survey of largely public lands on the coastal plain between Seabird and Dunsborough. Several community types were not sampled in detail due to time or access limitations. More detailed study of the Quindalup system (including foredune and beach communities), estuarine and riverine types are needed before a comprehensive understanding of conservation and reservation of all community types is achieved for this section of the coastal plain (but see Griffin 1993 for assessment of conservation status of Quindalups in the northern half of our study area). How well our sampling covers plant communities on private lands also needs to be assessed.

*Table 24. Possible areas for reservation to improve community conservation status for the 15 non critical or endangered community types on the southern Swan Coastal Plain.*

| Type | Reservation status | Possible areas for conservation reserves. |
|---|---|---|
| 1a | Unreserved | Areas of State Forest along base of Whicher Range, Payne Road Reserve |
| 3a | Unreserved | Brixton Street, Brickwood Reserve, Mundijong Rd, C53, Lambert Lane |
| 14 | Unreserved | M5, Proposed Ridges extension to Yanchep N.P. (M4) |
| 20c | Unreserved | Talbot Rd Reserve |
| 23b | Unreserved | M5, Gnangara Water Reserve, Proposed Melaleuca Park NR (M9), Proposed Ridges extension to Yanchep N.P (M4), Lake Muckenburra Reserve, VCL north of M5 |
| 26a | Unreserved | Lake Clifton townsite, Proposed Caraban NR (C12), Proposed extensions Yeal Swamp NR (M5), Proposed Ridges extension to Yanchep N.P (M4), Shire View Hill |
| 30c | Unreserved | VCL south of Seabird (part EPA recommendation 5.24), Mt Henry Reserve (M66) |
| 2 | Poorly reserved | Ambergate Reserve, Yoongarillup Water Reserve |
| 16 | Poorly reserved | No other saline flats known, saline heaths and estuarine vegetation poorly sampled. |
| 18 | Poorly reserved | No other remnants on calcareous silts known |
| 20b | Poorly reserved | Burnside Road, extensions to Yarloop NP, Brickwood Reserve |
| 22 | Poorly reserved | Proposed extensions Yeal Swamp NR (M5), Proposed Ridges extension to Yanchep N.P (M4), Proposed Melaleuca Park NR (M9), Gnangara Water Reserve |
| 25 | Poorly reserved | Paganoni area, C71, Lyons block (C57), Stirling block, Treasure block (C56) |
| 29a | Poorly reserved | VCL south of Seabird (part EPA recommendation 5.24), M91, Trigg reserve (M36), Garden Is (M96), Burns Beach reserve (part M1) |
| 29b | Poorly reserved | VCL south of Seabird (part EPA recommendation 5.24), Port Kennedy (M106), VCL west of Proposed Caraban NR |
| 30a | Poorly reserved | Garden Is (M96), Peppermint Grove Reserve (M54) |

What has been presented in this report is a regional overview of the floristic communities. Communities can be defined at a variety of scales depending on what questions are being asked. Undoubtedly finer subdivisions of our community types will be made in the future as these communities are studied in more detail. As more detailed information becomes available the classification will be refined. Seasonal wetlands are currently the most heterogeneous group and deserve more attention.

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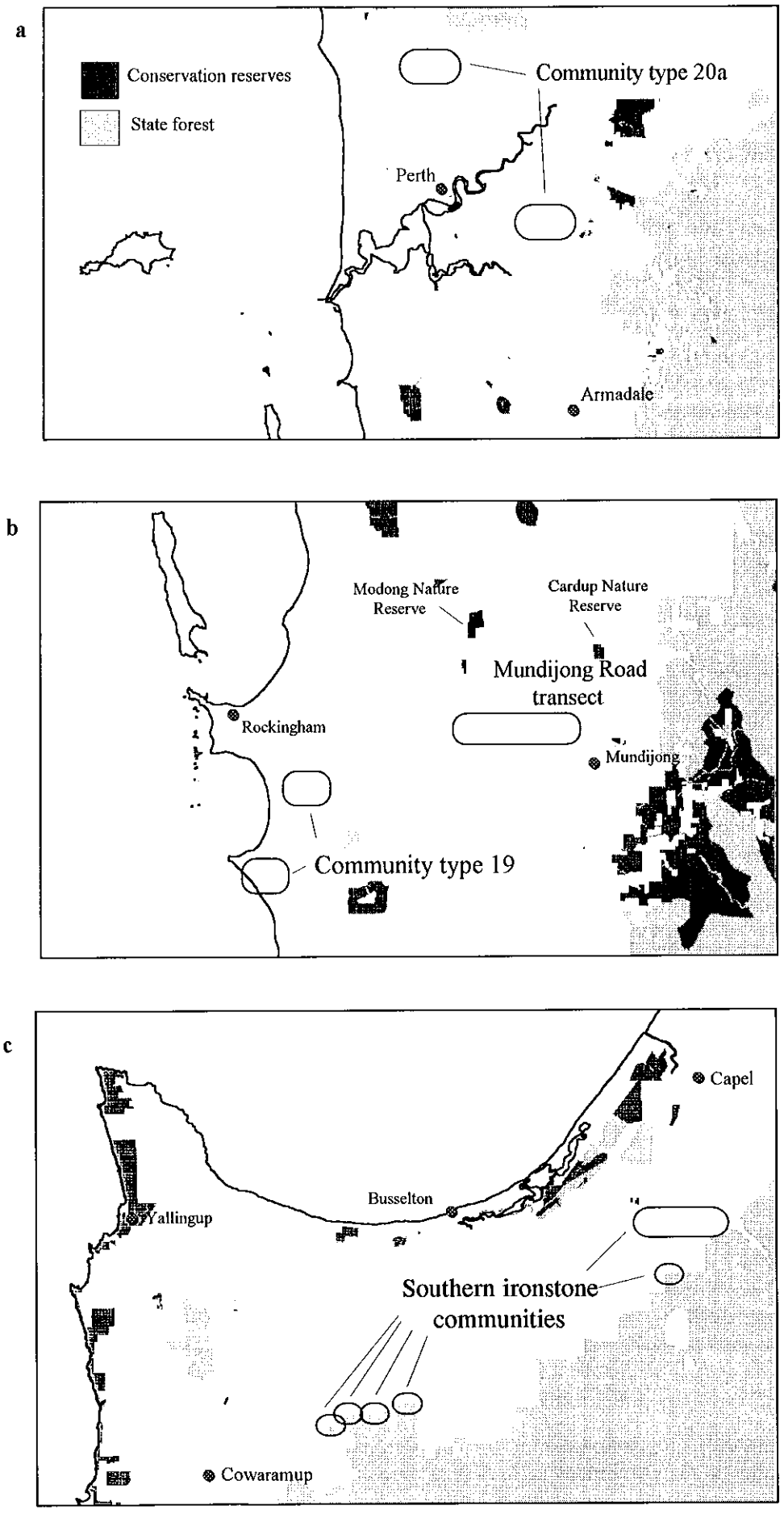


*Figure 9. General areas (circled) containing parcels of land recommended for reservation to protect critically threatened and endangered community types and the Mundijong Road vegetation transect.*

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# *Appendix 1*

The following maps show the distribution of the community types delineated during the survey. Accompanying each map is a description of each community.

**Typical and common taxa**

Typical taxa occur with a frequency of >75%, while taxa listed as common occur with frequencies between 50 and 75%.

**Reservation status**

| | |
|---|---|
| Well reserved | known from two or more A class National Parks or Nature Reserves |
| Poorly reserved | known from a single A class National Park or Nature Reserve |
| Unreserved | not known to occur in any A class National Park or Nature Reserve |

**Conservation status** (CALM unpublished)

| | |
|---|---|
| Presumed destroyed | A community that is totally destroyed or so extensively modified that it is unlikely to re-establish ecosystem processes in the foreseeable future. |
| Critical | A community with most or all of its known occurrences facing severe modification or destruction in the immediate future. |
| Endangered | A community in danger of severe modification or destruction throughout its range, if causal factors continue operating. |
| Vulnerable | A community likely to move into the endangered category in the near future if the causal factors continue operating. |
| Susceptible | A community of concern because there is evidence that it can be modified or destroyed by human activities, or would be vulnerable to new threatening process. |
| Low risk | A community that does not qualify for one of the above categories. |
| Insufficiently known | A community for which there is inadequate data to assign to one of the above categories |

**Structural units**

Units follow Muir (1977) and indicate the range of structural units these communities are known from.

**Community type:** 1a

## *Eucalyptus haemotoxylon - E. marginata* woodlands on Whicher foothills

**Reservation Status:** Unreserved
**Conservation Status:** Susceptible

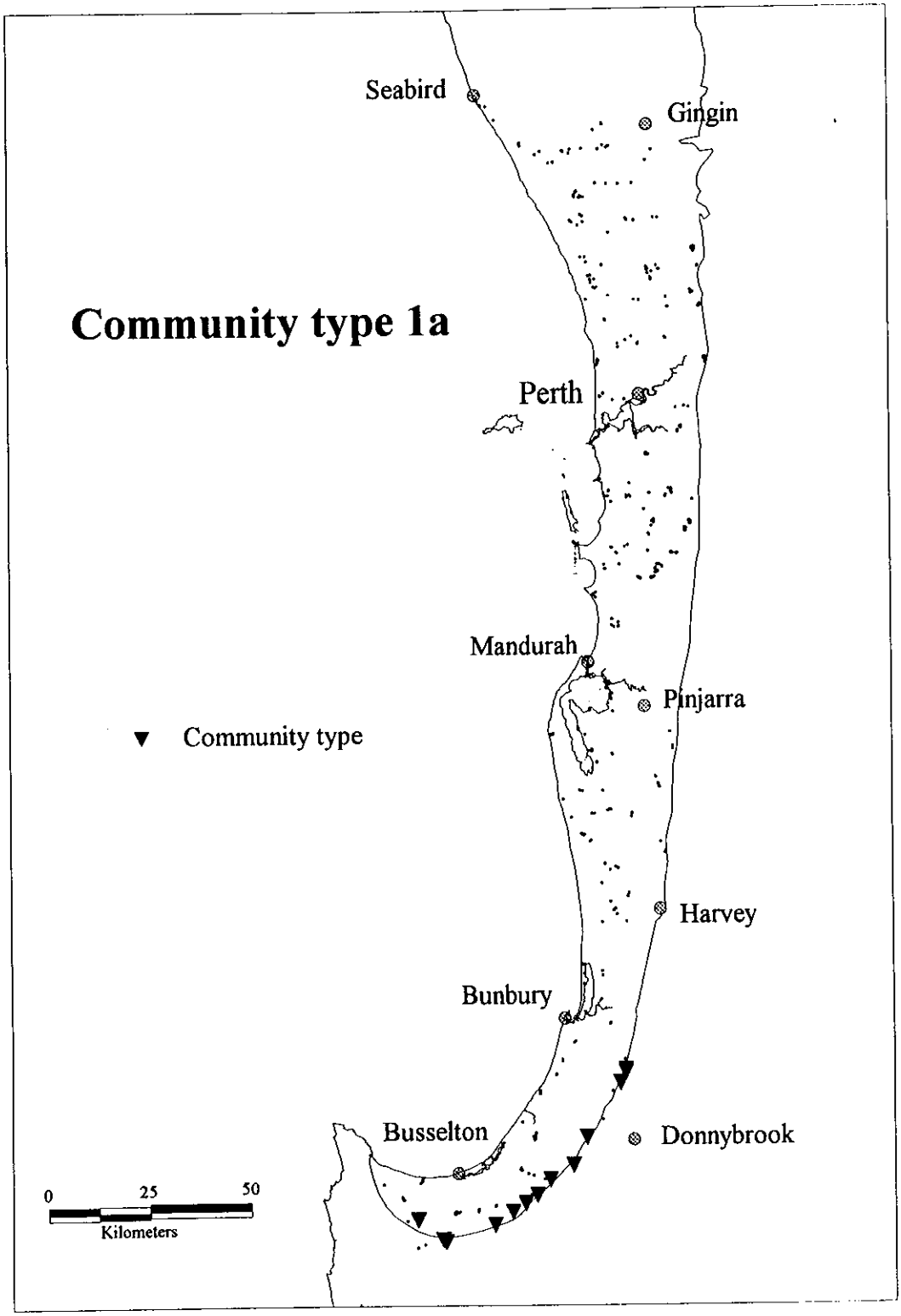
**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| *Eucalyptus marginata* | *Dryandra nivea* | *Amphipogon amphipogonoides* |
| | *Gompholobium knightianum* | *Dampiera linearis* |
| | *Hibbertia hypericoides* | *Lepidosperma angustatum* |
| | | *Lomandra sericea* |
| | | *Loxocarya fasciculata* |
| | | *Patersonia umbrosa* forma *xanthina* |
| | | *Tetraria octandra* |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| *Eucalyptus haematoxylon* | *Billardiera variifolia* | *Agrostocrinum scabrum* |
| *Xylomelum occidentale* | *Gompholobium confertum* | *Burchardia umbellata* |
| | *Gompholobium polymorphum* | *Chamaescilla corymbosa* |
| | *Hakea amplexicaulis* | *Conostylis setigera* |
| | *Hakea cyclocarpa* | *Eriochilus dilatatus* |
| | *Hibbertia amplexicaulis* | *Lomandra hermaphrodita* |
| | *Hovea chorizemifolia* | *Patersonia occidentalis* |
| | *Hypocalymma robustum* | *Pentapeltis peltigera* |
| | *Isopogon sphaerocephalus* | *Stylidium amoenum* |
| | *Logania serpyllifolia* | |
| | *Scaevola calliptera* | |
| | *Xanthorrhoea gracilis* | |
| | *Xanthorrhoea preissii* | |

| | | |
|---|---|---|
| **Mean species richness:** | 67.6 | **Structural units** |
| **Mean weed frequency:** | 0.3 | forest<br>woodland |
| **Mean vegetation condition:** | 1.7 | low woodland A<br>open woodland |
| **Number of quadrats:** | 13 | |


Seabird
Gingin
Community type 1a
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

## Community type: 1b

## Southern *Eucalyptus calophylla* woodlands on heavy soils

**Reservation Status:** Well reserved
**Conservation Status:** Vulnerable

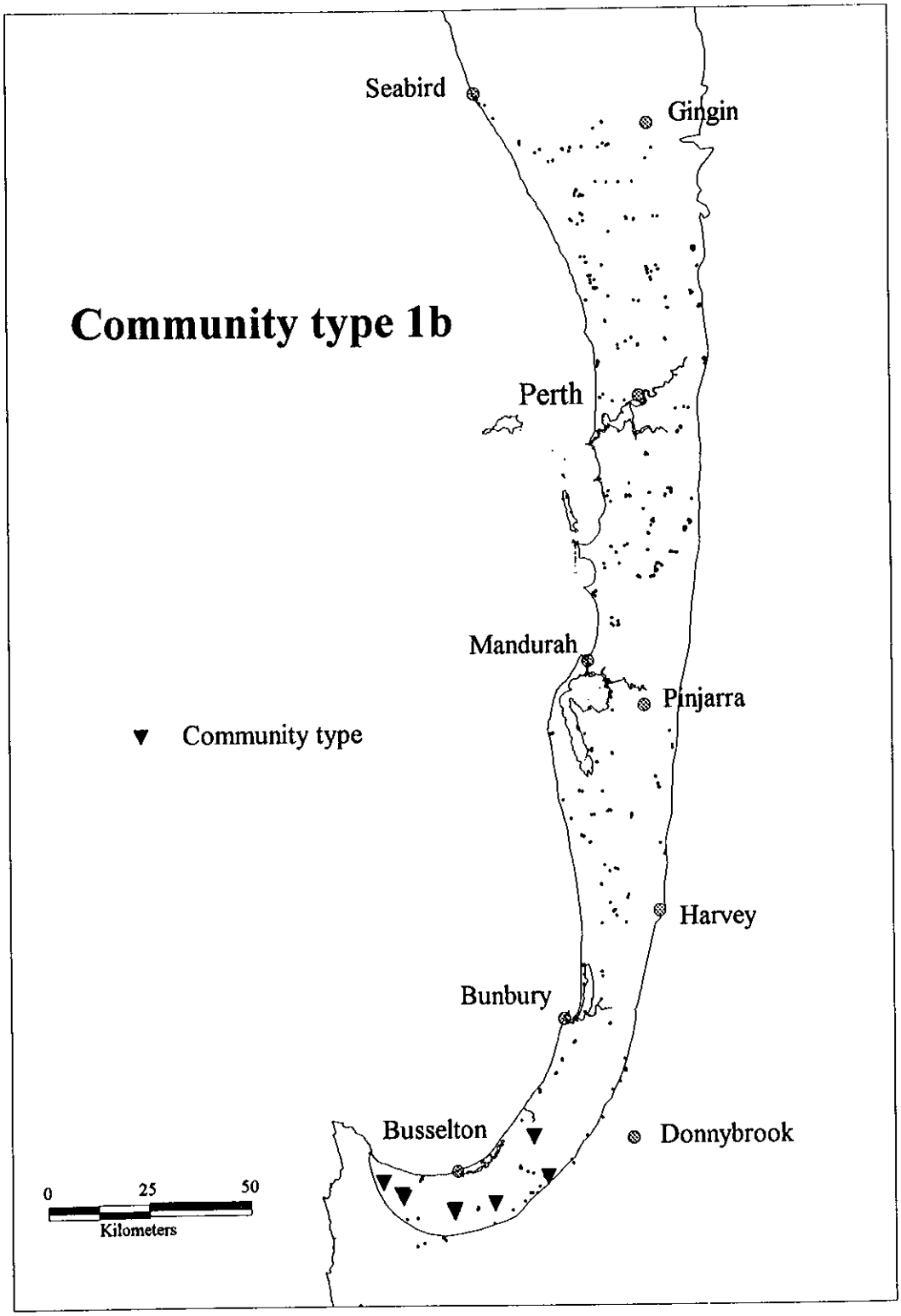
**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| *Eucalyptus calophylla* | *Acacia extensa* | *Dampiera linearis* |
| *Eucalyptus marginata* | *Gompholobium polymorphum* | * *Hypochaeris glabra* |
| | *Hibbertia hypericoides* | *Lepidosperma angustatum* |
| | *Hypocalymma angustifolium* | *Lomandra hermaphrodita* |
| | *Scaevola calliptera* | *Loxocarya fasciculata* |
| | *Xanthorrhoea preissii* | *Mesomelaena tetragona* |
| | | *Stipa semibarbata/campylachne* |
| | | *Tetraria octandra* |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Acacia pulchella* | *Agrostocrinum scabrum* |
| | *Adenanthos obovatus* | *Burchardia umbellata* |
| | *Billardiera variifolia* | *Caesia micrantha* |
| | *Dryandra nivea* | *Chamaescilla corymbosa* |
| | *Eriostemon spicatus* | *Drosera menziesii* subsp. |
| | *Hovea trisperma* | *penicillaris* |
| | *Kingia australis* | *Hypolaena exsulca* |
| | | *Lagenifera huegelii* |
| | | *Lomandra purpurea* |
| | | *Lomandra sericea* |
| | | *Opercularia apiciflora* |
| | | *Patersonia umbrosa* forma |
| | | *xanthina* |
| | | *Tetrarrhena laevis* |
| | | *Thysanotus manglesianus* |
| | | */patersonii* complex |
| | | *Xanthosia candida* |
| | | *Xanthosia huegelii* |

| | | |
|---|---|---|
| **Mean species richness:** | **67.8** | **Structural units** |
| **Mean weed frequency:** | **2.4** | forest<br>low forest A |
| **Mean vegetation condition:** | **2** | woodland<br>open low woodland A |
| **Number of quadrats:** | **12** | |


Seabird
Gingin
Community type 1b
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

## Community type: 2

## Southern wet shrublands

**Reservation Status:** Poorly reserved
**Conservation Status:** Vulnerable

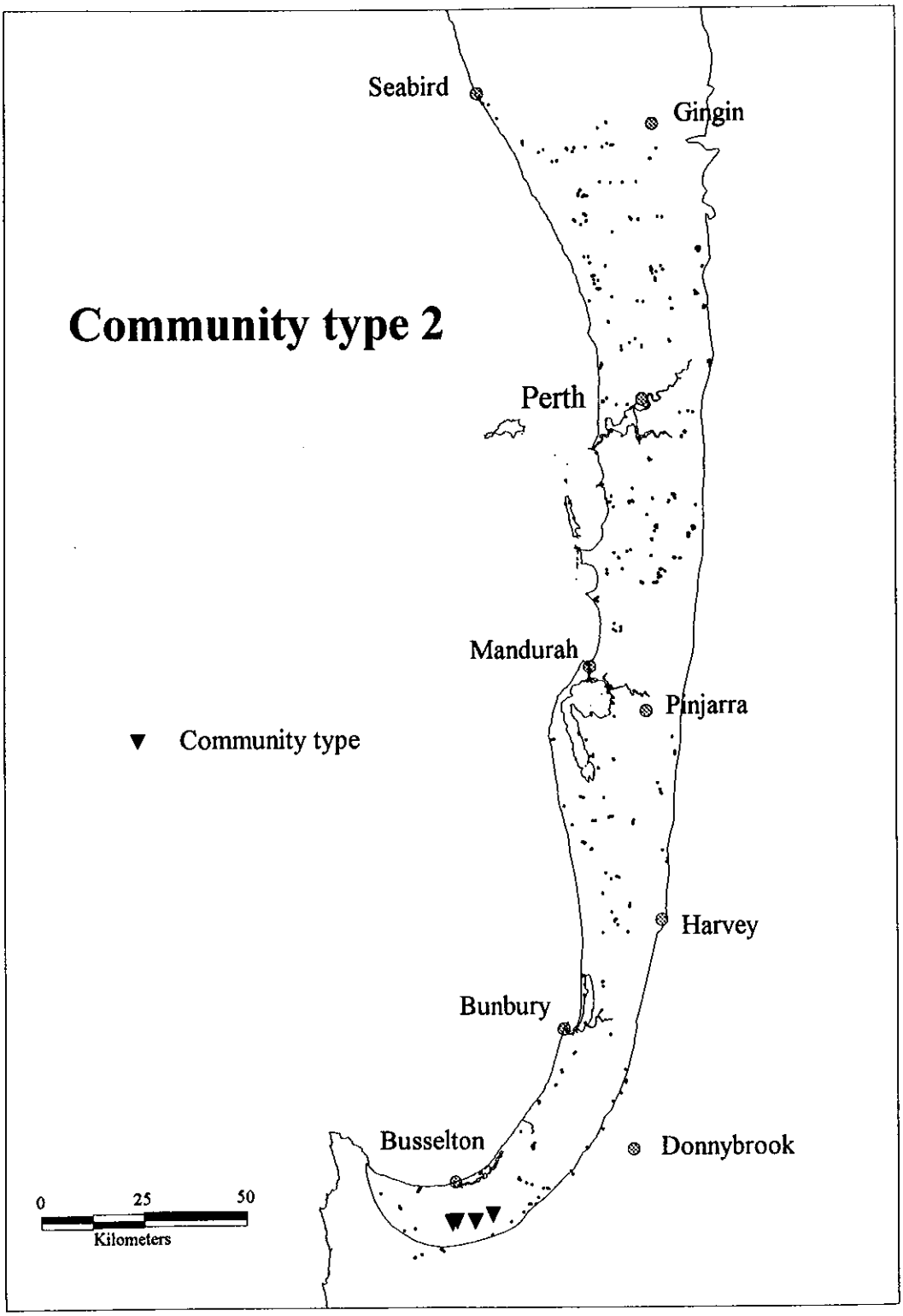
**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Calothamnus lateralis* | *Comesperma virgatum* |
| | *Eutaxia virgata* | *Dampiera linearis* |
| | *Hakea ceratophylla* | *Leptocarpus tenax* |
| | *Hakea varia* | *Loxocarya fasciculata* |
| | *Isopogon scaber* | *Mesomelaena tetragona* |
| | *Kingia australis* | *Stylidium brunonianum* |
| | *Pericalymma ellipticum* | *Thysanotus multiflorus* |
| | *Synaphea petiolaris* | |
| | *Xanthorrhoea preissii* | |

**Other common species**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Acacia stenoptera* | *Agrostocrinum scabrum* |
| | *Astartea* aff. *fascicularis* | *Cassytha glabella* |
| | *Boronia spathulata* | *Haemodorum sparsiflorum* |
| | *Daviesia preissii* | *Hypocalymma angustifolium* |
| | *Dryandra nivea* | **Hypochaeris glabra* |
| | *Grevillea brachystylis* | *Hypolaena exsulca* |
| | *Hakea sulcata* | *Lyginia barbata* |
| | *Hibbertia rhadinopoda* | *Thelymitra crinita* |
| | *Kunzea* aff. *micrantha* (BJK & NG 040) | |
| | *Stirlingia latifolia* | |

| | | |
|---|---|---|
| **Mean species richness:** | **51** | **Structural units** |
| **Mean weed frequency:** | **0.8** | open low woodland B thicket |
| **Mean vegetation condition:** | **1.9** | open scrub<br>open low scrub A |
| **Number of quadrats:** | **5** | open low scrub B |


Seabird
Gingin
Community type 2
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

**Community type:** 3a

## *Eucalyptus calophylla - Kingia australis* woodlands on heavy soils

**Reservation Status:** Unreserved
**Conservation Status:** Vulnerable

**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| *Eucalyptus calophylla* | *Dryandra nivea* | **Briza maxima* |
| | *Eriostemon spicatus* | *Cyathochaeta avenacea* |
| | *Kingia australis* | *Dampiera linearis* |
| | *Xanthorrhoea preissii* | *Haemodorum laxum* |
| | | *Loxocarya fasciculata* |
| | | *Mesomelaena tetragona* |
| | | *Tetraria octandra* |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Goodenia caerulea* | *Borya scirpoidea* |
| | *Synaphea petiolaris* | *Cassytha glabella* |
| | *Hakea ceratophylla* | *Conostylis setigera* |
| | *Pericalymma ellipticum* | *Drosera menziesii* subsp. *menziesii* |
| | | **Hypochaeris glabra* |
| | | *Hypolaena exsulca* |
| | | *Neurachne alopecuroidea* |
| | | *Patersonia occidentalis* |
| | | *Thysanotus manglesianus /patersonii* complex |
| | | *Tricoryne elatior* |
| | | *Xanthosia huegelii* |

**Mean species richness:** 58.9

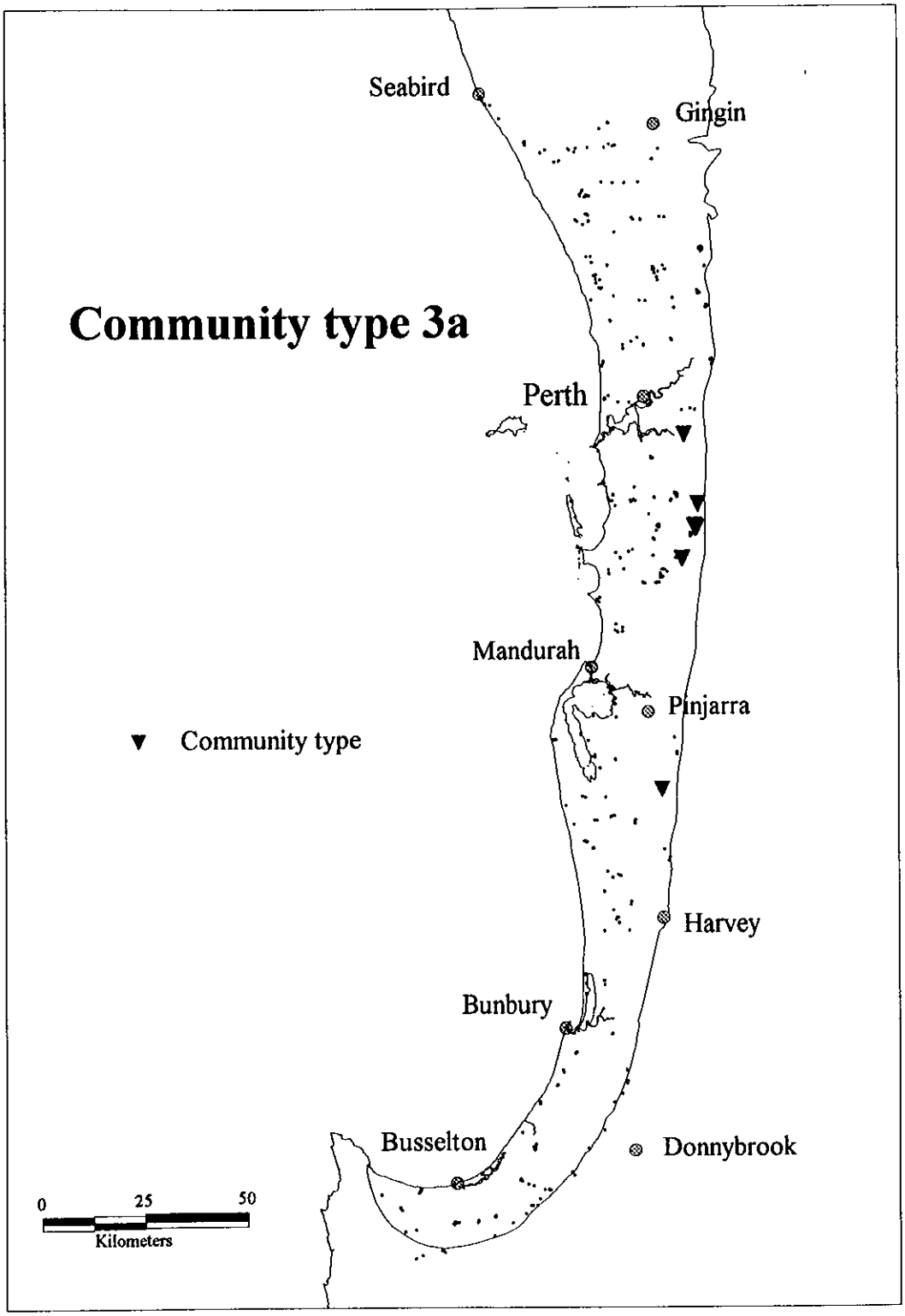
**Mean weed frequency:** 3.9

**Mean vegetation condition:** 2

**Number of quadrats:** 13

**Structural units**

woodland
low woodland A
open woodland
open low woodland A
low heath D
low scrub A
low scrub B
open scrub
open low scrub A


Seabird
Gingin
Community type 3a
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

## Community type: 3b

### *Eucalyptus calophylla - E. marginata* woodlands on sandy clay soils

**Reservation Status:** Well reserved
**Conservation Status:** Vulnerable

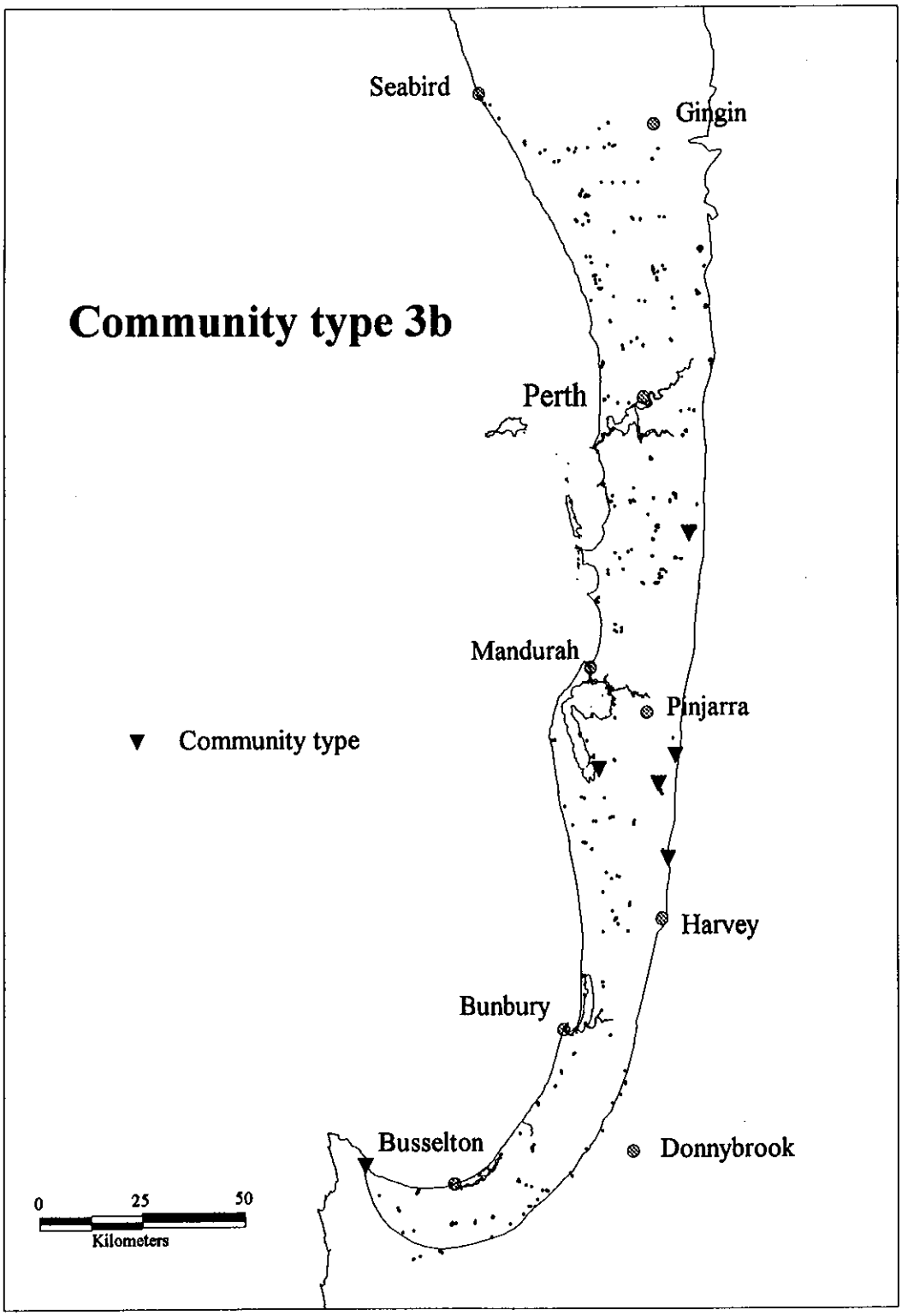
**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| *Eucalyptus calophylla* | *Bossiaea eriocarpa* | **Briza maxima* |
| *Eucalyptus marginata* | *Dryandra nivea* | **Briza minor* |
| | *Hibbertia hypericoides* | *Burchardia umbellata* |
| | *Xanthorrhoea preissii* | *Caesia micrantha* |
| | | *Chamaescilla corymbosa* |
| | | *Conostylis juncea* |
| | | *Drosera erythrorhiza* |
| | | *Drosera stolonifera* |
| | | **Hypochaeris glabra* |
| | | *Lepidosperma angustatum* |
| | | *Lomandra hermaphrodita* |
| | | *Loxocarya fasciculata* |
| | | *Mesomelaena tetragona* |
| | | *Sowerbaea laxiflora* |
| | | *Tetraria octandra* |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Acacia willdenowiana* | **Aira caryophyllea* |
| | *Baeckea camphorosmae* | *Anigozanthos manglesii* |
| | *Eriostemon spicatus* | *Caladenia flava* |
| | *Gompholobium marginatum* | *Cyathochaeta avenacea* |
| | *Kennedia prostrata* | *Haemodorum laxum* |
| | *Pronaya fraseri* | *Homalosciadium homalocarpum* |
| | | *Hypolaena exsulca* |
| | | *Lagenifera huegelii* |
| | | *Stylidium piliferum* |
| | | *Thysanotus thyrsoideus* |
| | | *Xanthosia huegelii* |

| | | |
|---|---|---|
| **Mean species richness:** | **61.2** | **Structural units** |
| **Mean weed frequency:** | **5.7** | low forest A<br>woodland |
| **Mean vegetation condition:** | **2.4** | low woodland A<br>open woodland |
| **Number of quadrats:** | **8** | open low woodland A |


Seabird
Gingin
Community type 3b
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

**Community type:** 3c

## *Eucalyptus calophylla - Xanthorrhoea preissii* woodlands and shrublands

**Reservation Status:** Well reserved
**Conservation Status:** Vulnerable

**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| *Eucalyptus calophylla* | *Xanthorrhoea preissii* | * *Briza maxima* |
| | | *Burchardia umbellata* |
| | | *Cyathochaeta avenacea* |
| | | *Neurachne alopecuroidea* |
| | | * *Romulea rosea* |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Acacia pulchella* | *Caesia micrantha* |
| | *Dryandra nivea* | *Drosera menziesii* subsp. *penicillaris* |
| | *Gompholobium marginatum* | * *Hypochaeris glabra* |
| | *Hypocalymma angustifolium* | *Lepidosperma sp.* (eastern terete) |
| | | *Loxocarya flexuosa* |
| | | *Mesomelaena tetragona* |
| | | *Opercularia vaginata* |
| | | *Sowerbaea laxiflora* |
| | | *Stipa pycnostachya* |
| | | *Tetraria octandra* |
| | | *Thysanotus manglesianus/ patersonii* complex |

**Mean species richness:** 48

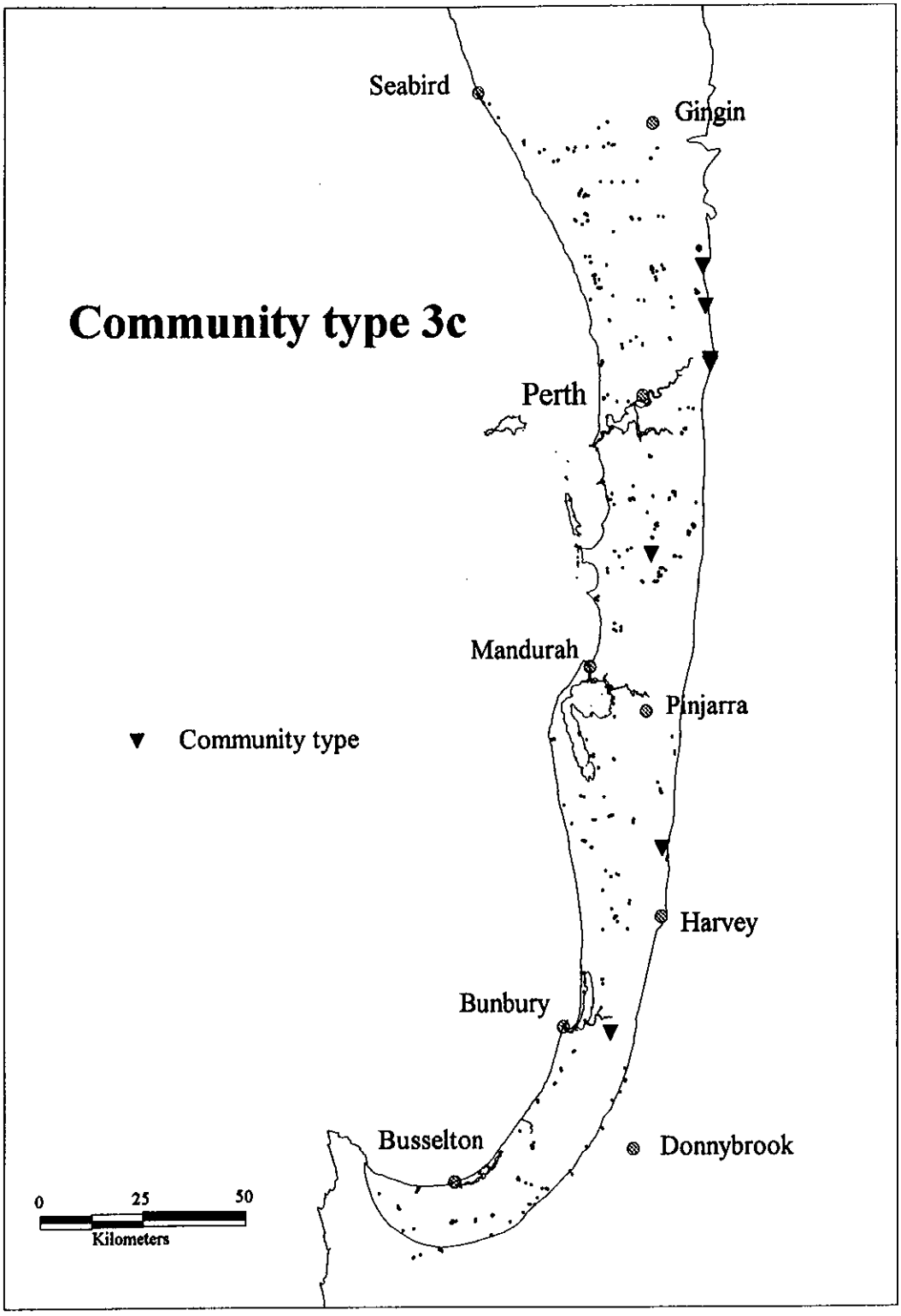
**Mean weed frequency:** 6

**Mean vegetation condition:** 2.6

**Number of quadrats:** 10

**Structural units**

forest
low forest A
heath A
low woodland A
open low woodland A
open scrub
low scrub B


Community type 3c
Seabird
Gingin
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

## Community type: 4

## *Melaleuca preissiana* damplands

**Reservation Status:** Well reserved
**Conservation Status:** Low risk

**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| *Melaleuca preissiana* | *Hypocalymma angustifolium* | *Dampiera linearis* |
| | *Pericalymma ellipticum* | *Dasypogon bromeliifolius* |
| | *Xanthorrhoea preissii* | *Hypolaena exsulca* |
| | | *Stylidium brunonianum* |
| | | *Stylidium repens* |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Adenanthos obovatus* | **Briza maxima* |
| | *Astartea* aff. *fascicularis* | **Hypochaeris glabra* |
| | | *Lyginia barbata* |
| | | *Phlebocarya ciliata* |
| | | *Schoenus rodwayanus* |
| | | *Xanthosia huegelii* |

**Mean species richness:** 36.9

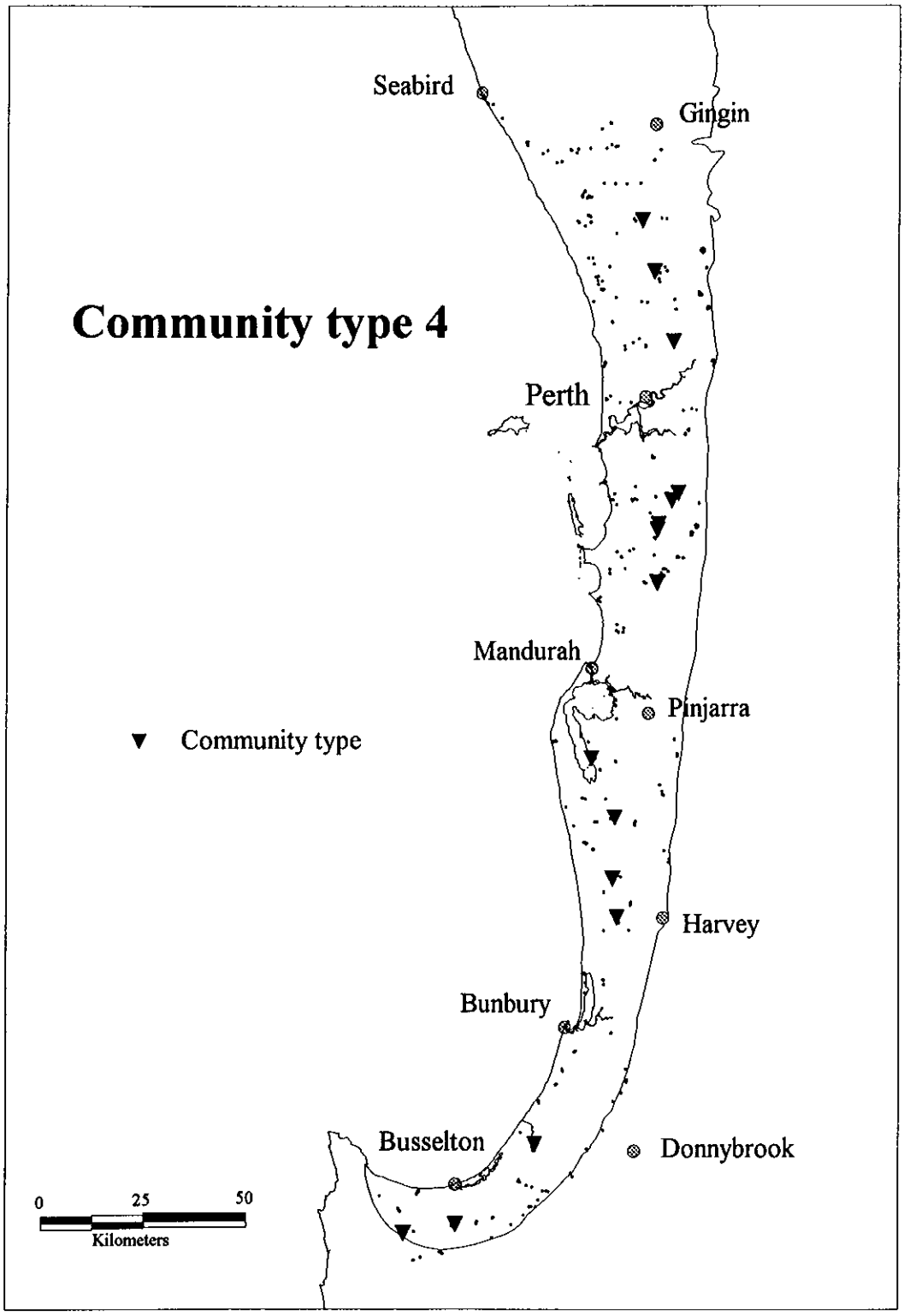
**Mean weed frequency:** 3.3

**Mean vegetation condition:** 2

**Number of quadrats:** 16

**Structural units**

dense low heath C
low woodland A
open woodland
open low woodland A
heath A
heath B
low heath C
low scrub A
dense low sedges


Seabird
Gingin
Community type 4
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

## Community type: 5

## Mixed Shrub damplands

**Reservation Status:** Well reserved
**Conservation Status:** Low risk

**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | | **Hypochaeris glabra* |
| | | *Hypolaena exsulca* |
| | | *Siloxerus humifusus* |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Kunzea ericifolia* | **Aira caryophyllea* |
| | *Pericalymma ellipticum* | **Briza maxima* |
| | | **Briza minor* |
| | | *Caladenia flava* |
| | | *Mitrasacme paradoxa* |
| | | *Quinetia urvillei* |
| | | *Trachymene pilosa* |
| | | **Ursinia anthemoides* |

**Mean species richness:** 38.4

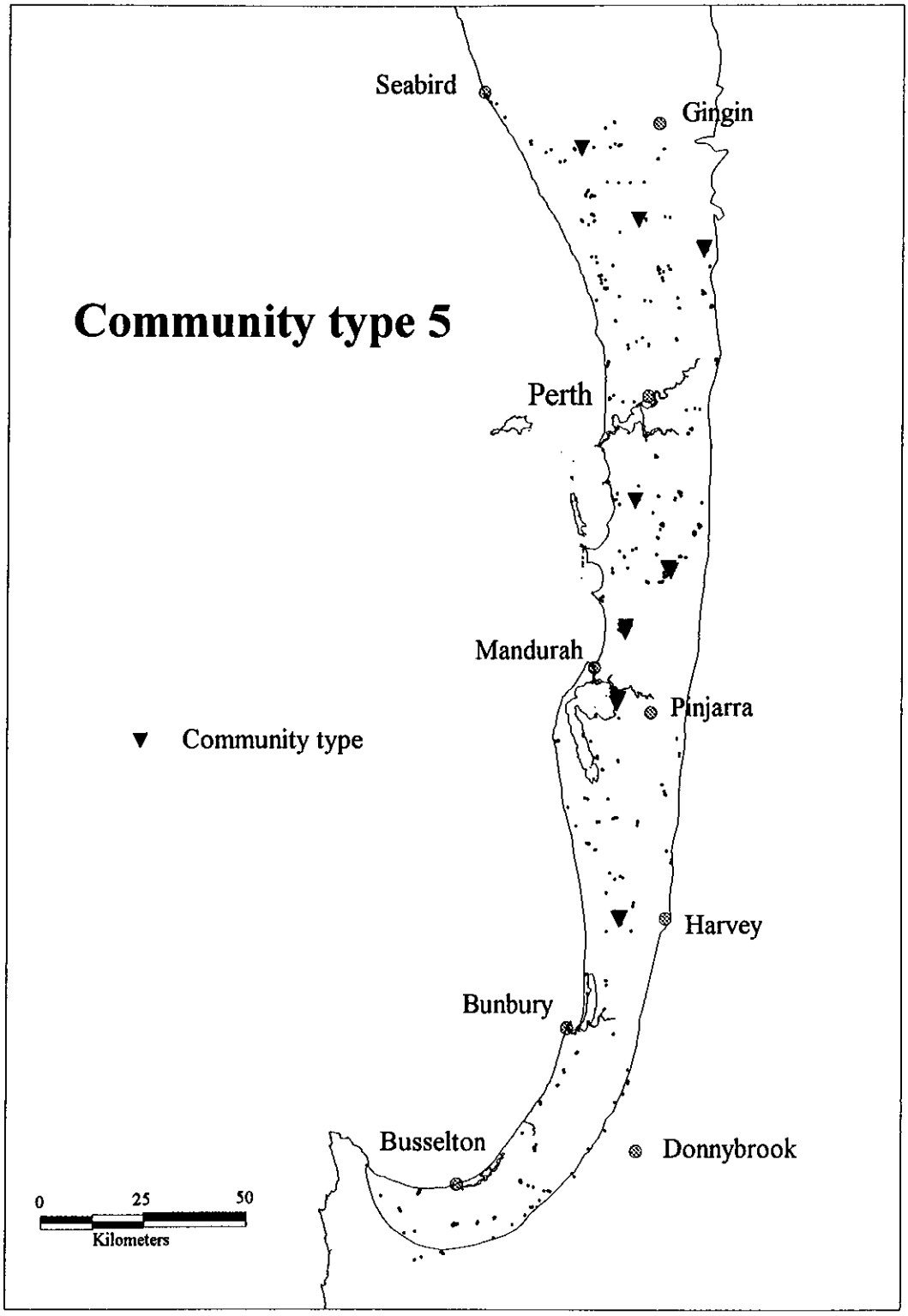
**Mean weed frequency:** 5.8

**Mean vegetation condition:** 2.1

**Number of quadrats:** 15

**Structural units**

low forest A
low woodland A
open woodland
open low woodland A
dense heath B
dense low heath C
thicket
heath B
low heath C
scrub


Seabird
Gingin
Community type 5
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

## Community type: 6

## Weed dominated wetlands on heavy soils

**Reservation Status:** Well reserved
**Conservation Status:** Low risk

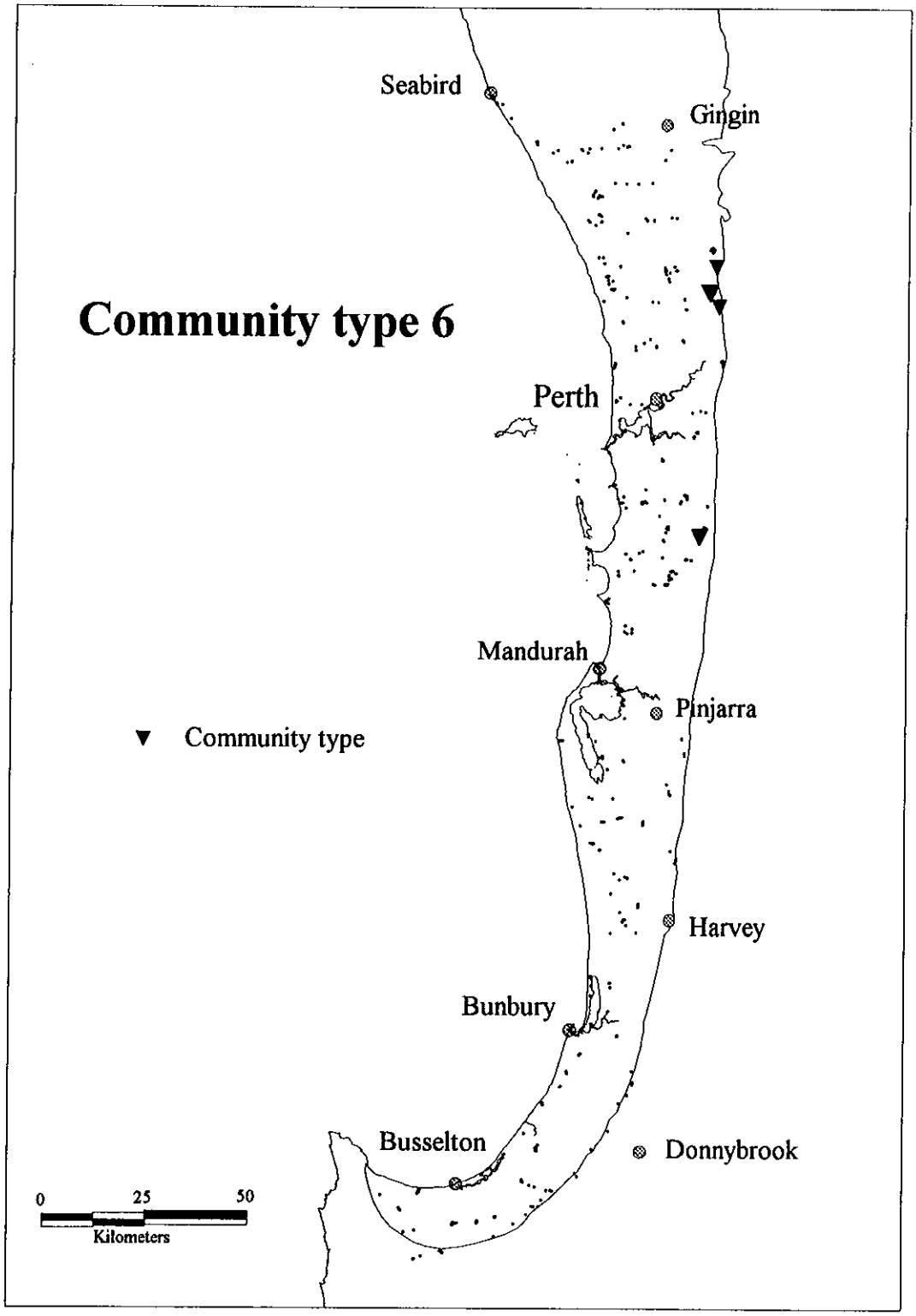
**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | | * *Briza maxima* |
| | | * *Hypochaeris glabra* |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Hypocalymma angustifolium* | * *Ehrharta calycina* |
| | | * *Ehrharta longiflora* |
| | | * *Monadenia bracteata* |
| | | * *Romulea rosea* |
| | | * *Ursinia anthemoides* |

| | | |
|---|---|---|
| **Mean species richness:** | **26.6** | **Structural units** |
| **Mean weed frequency:** | **7.9** | low forest A<br>woodland |
| **Mean vegetation condition:** | **3.6** | open low woodland A<br>heath A |
| **Number of quadrats:** | **9** | low heath C<br>scrub |


Community type 6
Seabird
Gingin
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

**Community type: 8**

## Herb rich shrublands in clay pans

**Reservation Status:** Well reserved
**Conservation Status:** Vulnerable

**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | | **Briza maxima* |
| | | **Briza minor* |
| | | *Centrolepis aristata* |
| | | **Cicendia filiformis* |
| | | **Cyperus tenellus* |
| | | **Romulea rosea* |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Viminaria juncea* | **Aira caryophyllea* |
| | | *Chorizandra enodis* |
| | | *Drosera menziesii* subsp. *menziesii* |
| | | *Drosera rosulata* |
| | | *Goodenia micrantha* |
| | | *Haemodorum simplex* |
| | | *Hyalosperma cotula* |
| | | ** Hypochaeris glabra* |
| | | ** Juncus capitatus* |
| | | ** Monopsis debilis* |
| | | ** Parentucellia viscosa* |
| | | *Schoenus odontocarpus* |

**Mean species richness:** 52

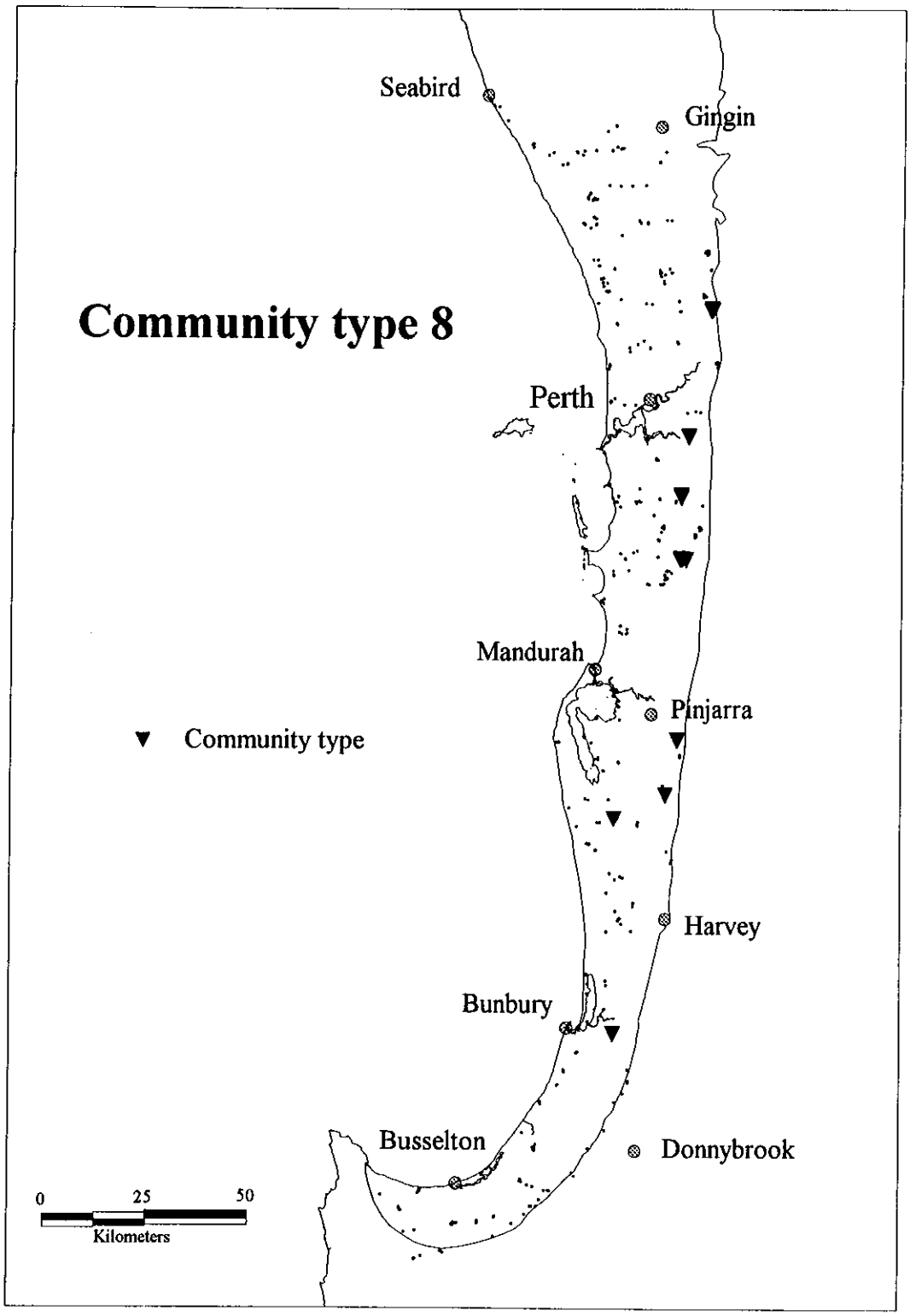
**Mean weed frequency:** 11

**Mean vegetation condition:** 2.7

**Number of quadrats:** 21

**Structural units**

woodland
low woodland B
dense thicket
dense low heath D
thicket
scrub
low scrub A
low scrub B
open scrub
open low scrub B
herbs


Seabird
Gingin
Community type 8
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

## Community type: 9

## Dense shrublands on clay flats

**Reservation Status:** Well reserved
**Conservation Status:** Vulnerable

**Common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Astartea* aff. *fascicularis* | *Burchardia multiflora* |
| | *Eutaxia virgata* | *Cassytha racemosa* |
| | *Hakea varia* | *Chorizandra enodis* |
| | *Melaleuca viminea* | *Cyathochaeta avenacea* |
| | | **Cyperus tenellus* |
| | | *Dampiera linearis* |
| | | *Drosera gigantea* |
| | | *Drosera rosulata* |
| | | ** Hypochaeris glabra* |
| | | *Lepidosperma longitudinale* |
| | | *Leptocarpus coangustatus* |

**Mean species richness:** 35.5

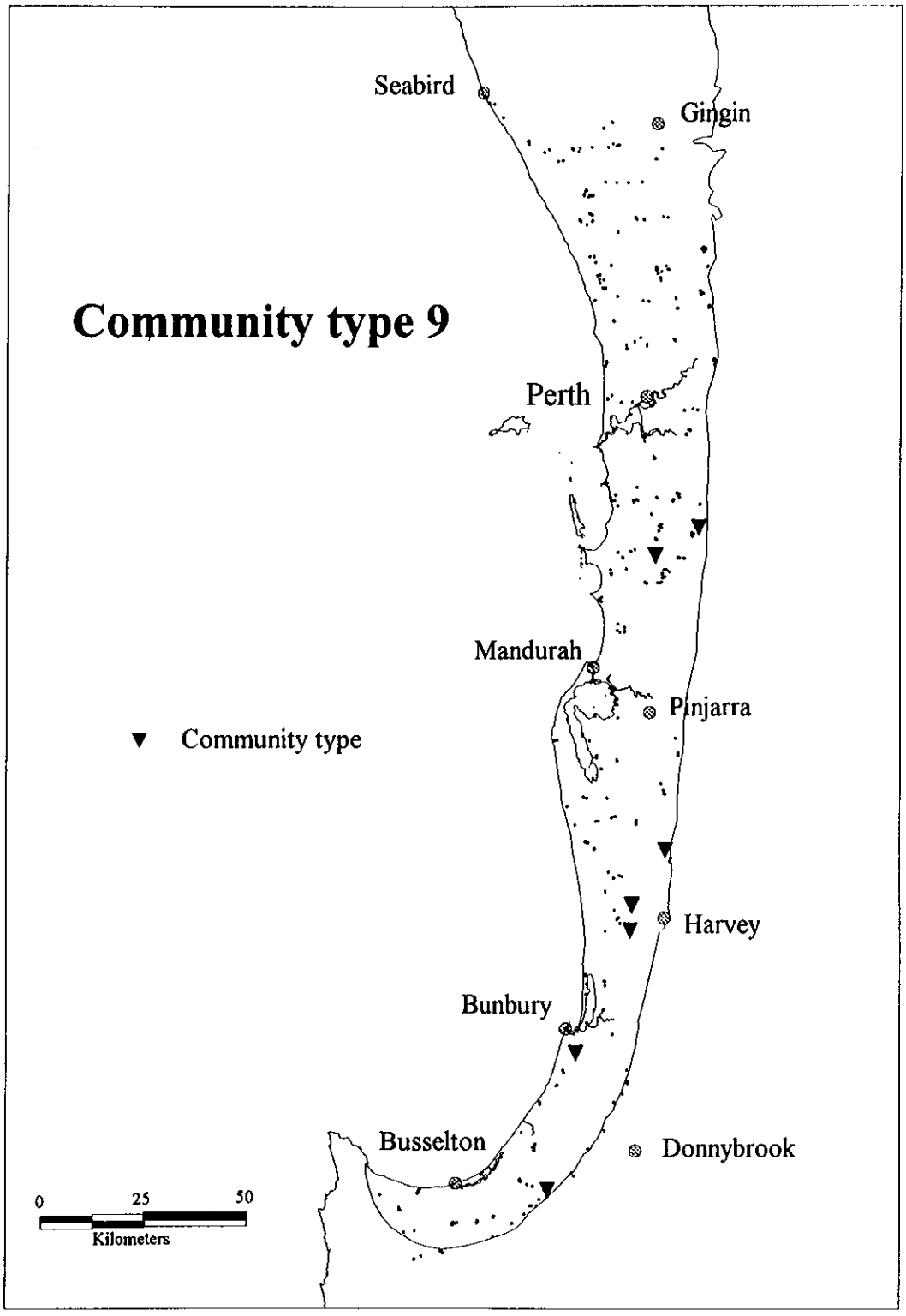
**Mean weed frequency:** 2.2

**Mean vegetation condition:** 2

**Number of quadrats:** 8

**Structural units**

low woodland A
dense heath B
thicket
heath A
heath B
low heath C
scrub
open scrub


Seabird
Gingin
Community type 9
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

**Community type:** **10a**

**Shrublands on dry clay flats**

**Reservation Status:** Well reserved
**Conservation Status:** Vulnerable

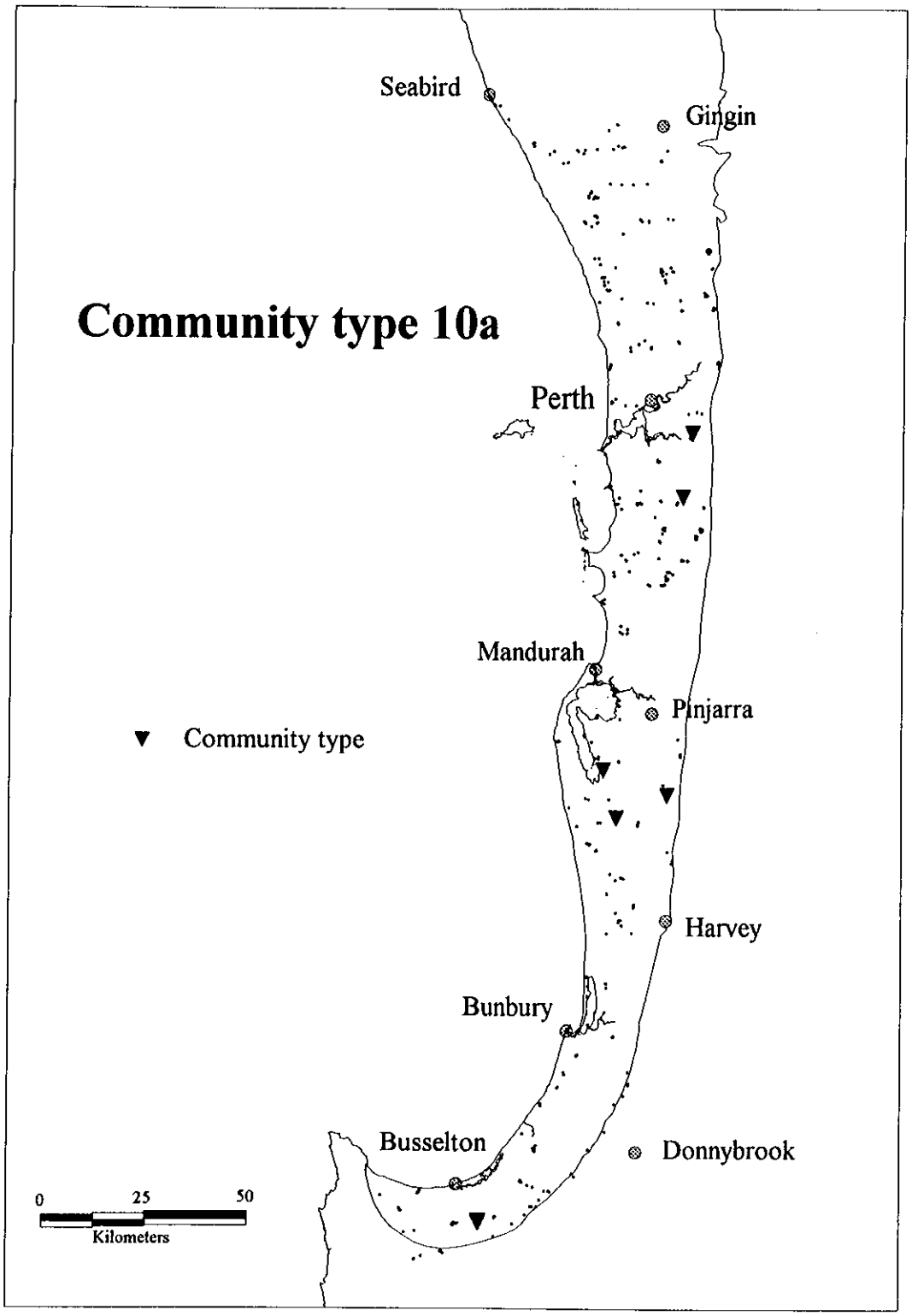
**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Hakea sulcata* | *Aphelia cyperoides* |
| | *Verticordia densiflora* | *Centrolepis aristata* |
| | | **Cyperus tenellus* |
| | | *Drosera gigantea* subsp. *gigantea* |
| | | *Drosera menziesii* subsp. *menziesii* |
| | | *Schoenolaena juncea* |
| | | *Schoenus rigens* |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Hakea varia* | *Burchardia multiflora* |
| | *Pericalymma ellipticum* | **Briza minor* |
| | *Viminaria juncea* | *Centrolepis drummondiana* |
| | | **Cicendia filiformis* |
| | | *Conostylis aculeata* |
| | | **Hypochaeris glabra* |
| | | **Juncus capitatus* |
| | | *Patersonia occidentalis* |
| | | *Polypompholyx multifida* |
| | | *Schoenus odontocarpus* |
| | | *Stylidium calcaratum* |
| | | *Thelymitra antennifera* |
| | | *Thysanotus thyrsoideus* |
| | | *Philydrella pygmaea* |
| | | *Siloxerus humifusus* |

| | | |
|---|---|---|
| **Mean species richness:** | **51.8** | **Structural units** |
| **Mean weed frequency:** | **5.8** | dense heath B<br>thicket |
| **Mean vegetation condition:** | **2.1** | heath B<br>scrub |
| **Number of quadrats:** | **8** | dwarf scrub C<br>open scrub<br>open low scrub B |


Seabird
Gingin
Community type 10a
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

## Community type: 10b

## Shrublands on southern ironstones

**Reservation Status:** Unreserved
**Conservation Status:** Critical

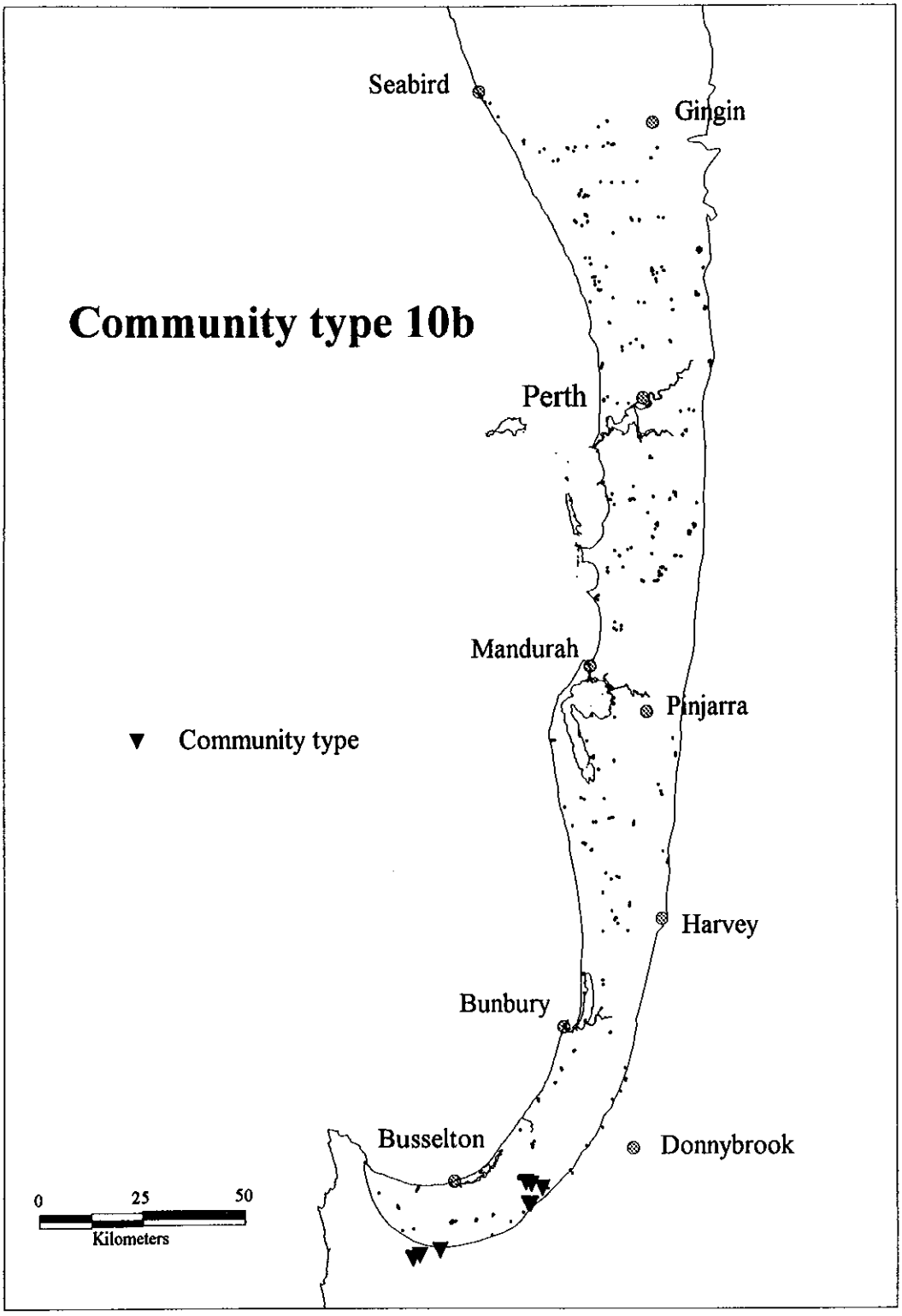
**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Kunzea aff. micrantha* (BJK & NG 040) | *Aphelia cyperoides* |
| | *Pericalymma ellipticum* | *Centrolepis aristata* |
| | | **Hypochaeris glabra* |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Acacia stenoptera* | *Borya scirpoidea* |
| | *Hakea varia* (Yellow flowered ironstone form) | *Caladenia marginata* |
| | *Hemiandra pungens* | *Caustis dioica* |
| | *Viminaria juncea* | *Centrolepis drummondiana* |
| | | *Dampiera linearis* |
| | | *Drosera glanduligera* |
| | | *Drosera rosulata* |
| | | *Loxocarya fasciculata* |
| | | *Loxocarya magna* Ms |
| | | *Mitrasacme paradoxa* |
| | | *Opercularia vaginata* (Ironstone form) |
| | | *Philydrella pygmaea* |
| | | *Polypompholyx multifida* |
| | | *Schoenus odontocarpus* |
| | | *Stylidium calcaratum* |
| | | *Thelymitra antennifera* |
| | | *Thysanotus thyrsoideus* |

| | | |
|---|---|---|
| **Mean species richness:** | **53.7** | **Structural units** |
| **Mean weed frequency:** | **4.9** | dense heath B<br>scrub |
| **Mean vegetation condition:** | **2.2** | low scrub A<br>open scrub |
| **Number of quadrats:** | **9** | open low scrub A |


Seabird
Gingin
Community type 10b
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

**Community type: 11**

**Wet forests and woodlands**

**Reservation Status:** Well reserved
**Conservation Status:** Low risk

**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | | **Briza maxima* |
| | | *Lepidosperma longitudinale* |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| *Eucalyptus rudis* | *Astartea* aff. *fascicularis* | * *Hypochaeris glabra* |

**Mean species richness:** 27.2

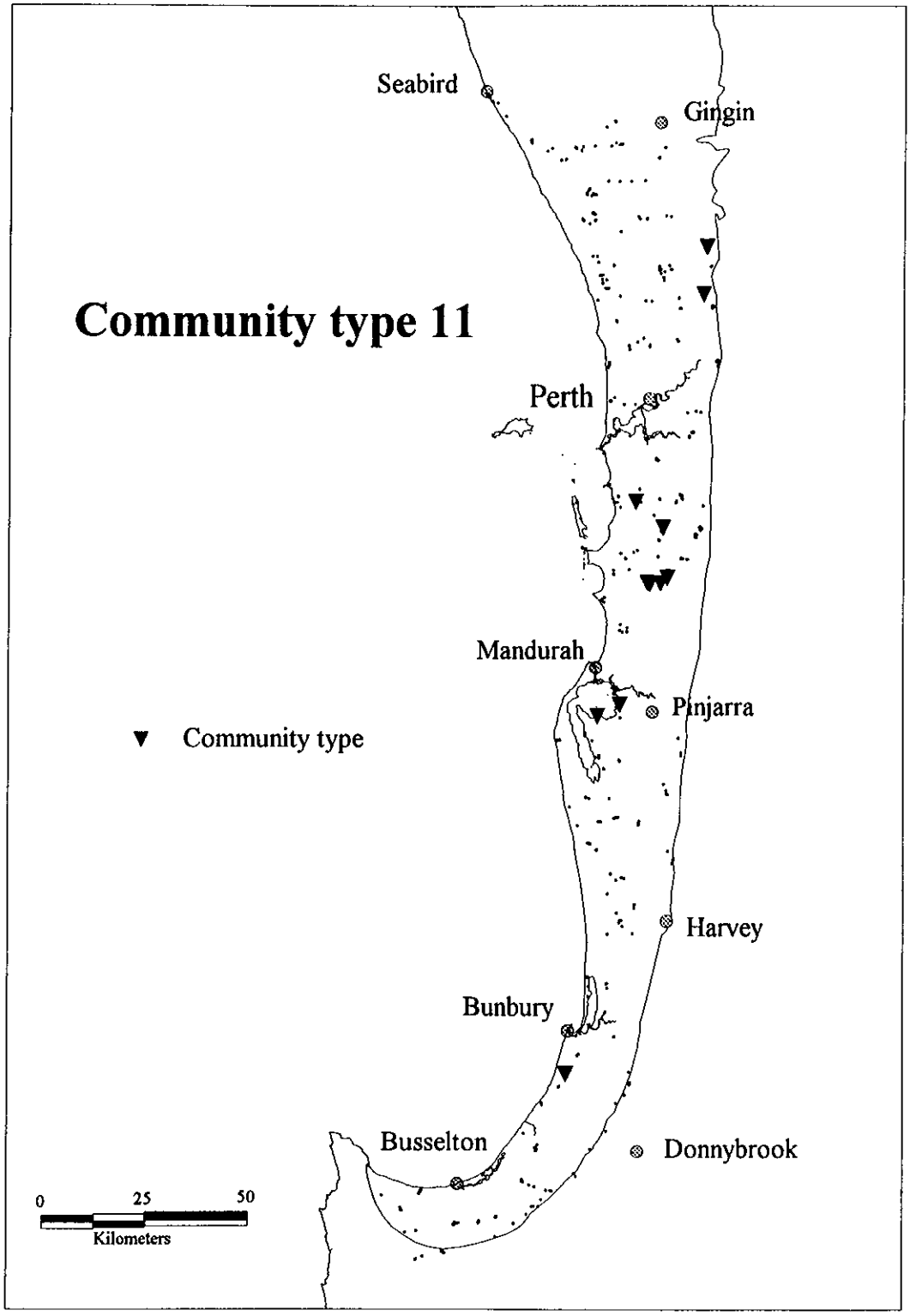
**Mean weed frequency:** 6.9

**Mean vegetation condition:** 2.7

**Number of quadrats:** 13

**Structural units**

dense low forest A
forest
low forest A
low forest B
low woodland A
low woodland B
open low woodland A
dense heath B
low scrub A


Seabird
Gingin
Community type 11
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

**Community type: 12**

***Melaleuca teretifolia* and/or *Astartea* aff. *fascicularis* shrublands**

**Reservation Status:** Well reserved
**Conservation Status:** Low risk

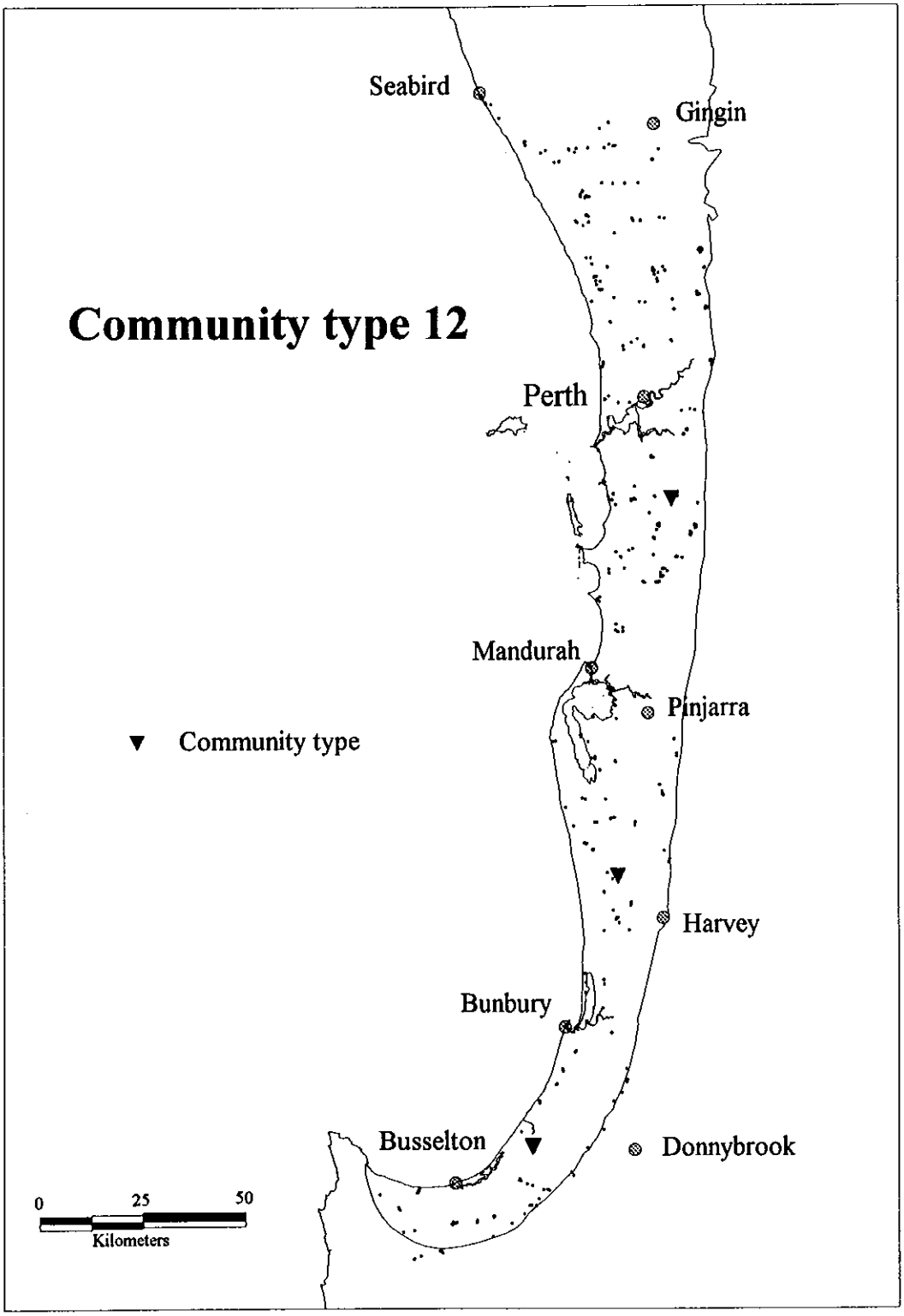
**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Astartea* aff. *fascicularis* | **Aira caryophyllea* |
| | *Melaleuca teretifolia* | *Cassytha racemosa* |
| | | *Lepidosperma longitudinale* |
| | | **Parentucellia viscosa* |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Epilobium billardierianum* | *Baumea articulata* |
| | *Oxylobium lineare* | *Siloxerus humifusus* |
| | | *Villarsia latifolia* |
| | | *Waitzia citrina* |

| | | |
|---|---|---|
| **Mean species richness:** | **26.4** | **Structural units** |
| **Mean weed frequency:** | **5.5** | dense thicket<br>thicket |
| **Mean vegetation condition:** | **2.9** | heath A<br>heath B |
| **Number of quadrats:** | **5** | |


Seabird
Gingin
Community type 12
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

## Community type: 13

## Deeper wetlands on heavy soils

**Reservation Status:** Well reserved
**Conservation Status:** Low risk

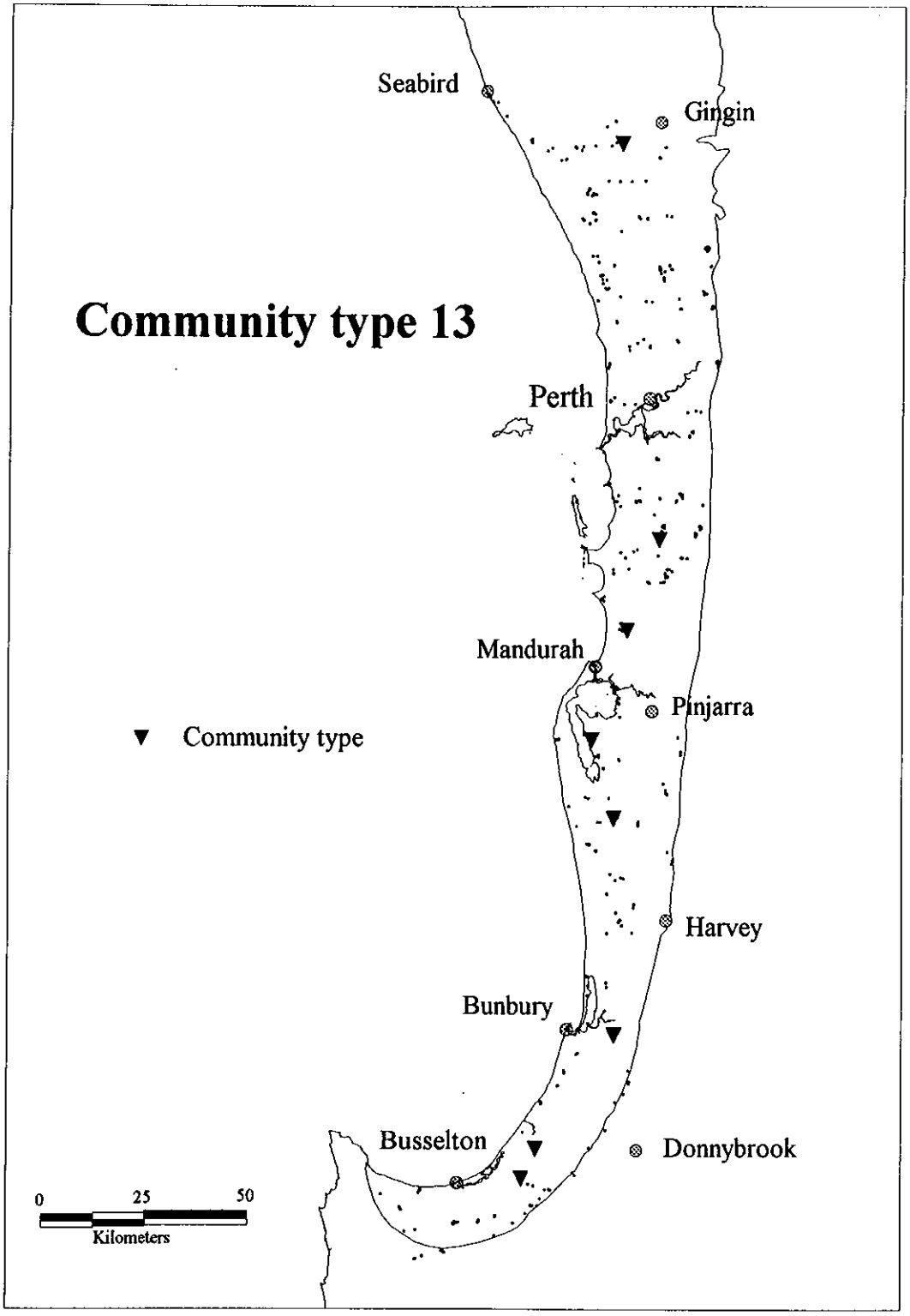
**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | | *Triglochin procerum* |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Hakea varia* | *Cassytha racemosa* |
| | *Melaleuca lateritia* | |
| | *Melaleuca rhaphiophylla* | |

| | | |
|---|---|---|
| **Mean species richness:** | **17.4** | **Structural units** |
| **Mean weed frequency:** | **1.4** | dense low forest A |
| | | low forest A |
| **Mean vegetation condition:** | **1.8** | low woodland B |
| | | open low woodland A |
| **Number of quadrats:** | **9** | dense heath A |
| | | scrub |
| | | low scrub A |
| | | low scrub B |
| | | dwarf scrub D |


Seabird
Gingin
Community type 13
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

## Community type: 14

## Deeper wetlands on sandy soils

**Reservation Status:** Unreserved
**Conservation Status:** Insufficiently known

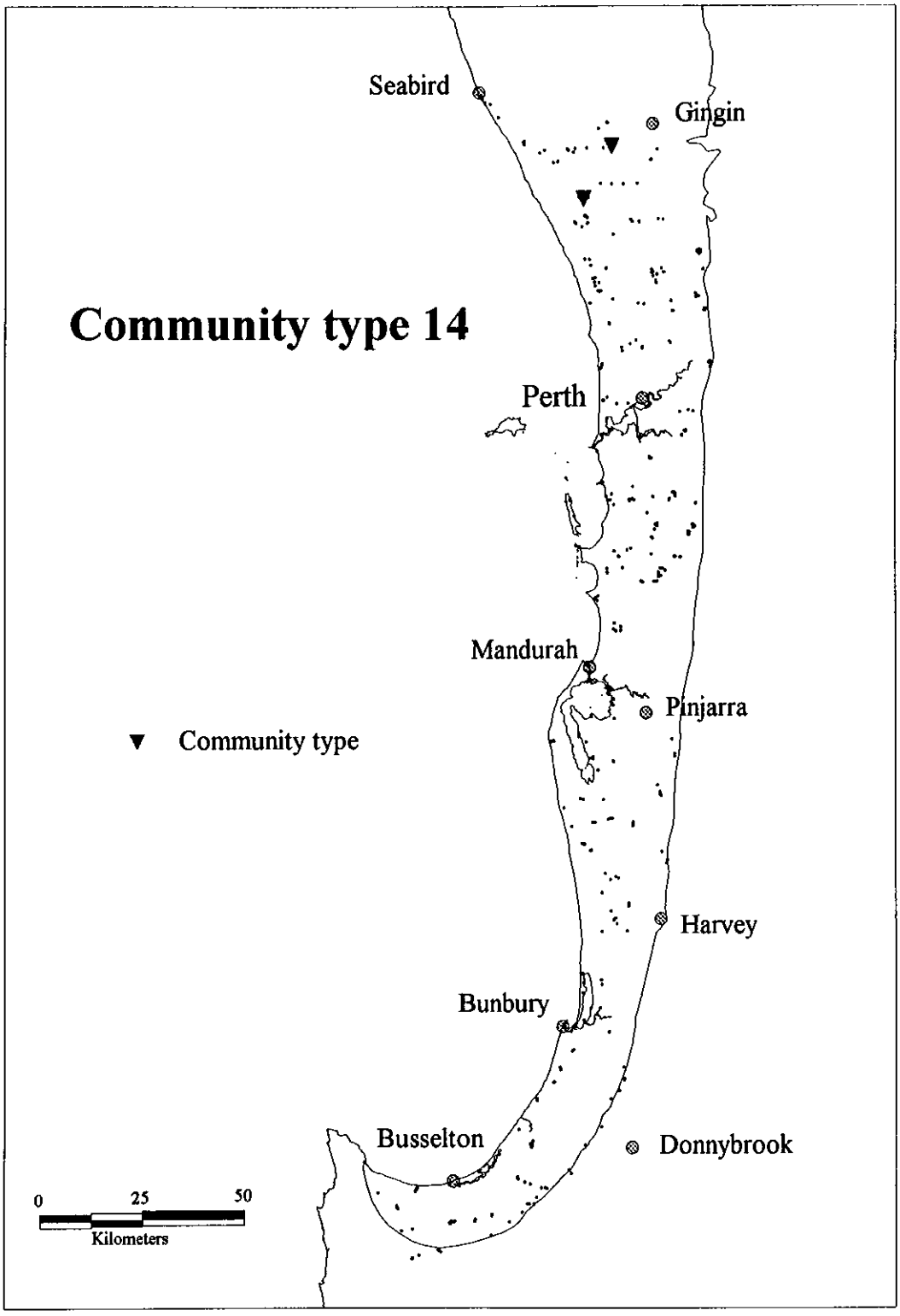
**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Jacksonia furcellata* | *Baumea vaginalis* |
| | *Kunzea ericifolia* | |
| | *Melaleuca preissiana* | |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| *Eucalyptus rudis* | *Acacia pulchella* var. *pulchella* | **Anagallis arvensis* |
| | *Acacia saligna* | **Briza minor* |
| | *Kennedia prostrata* | *Burchardia umbellata* |
| | *Melaleuca lateritia* | *Dianella revoluta* |
| | *Melaleuca rhaphiophylla* | *Homalosciadium homalocarpum* |
| | | **Hypochaeris glabra* |
| | | *Lagenifera huegelii* |
| | | *Lyperanthus nigricans* |
| | | *Thelymitra crinita* |

| | | |
|---|---|---|
| **Mean species richness:** | **16.5** | **Structural units** |
| **Mean weed frequency:** | **0.7** | woodland<br>open low woodland A |
| **Mean vegetation condition:** | **2.3** | |
| **Number of quadrats:** | **2** | |


Seabird
Gingin
Community type 14
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

## Community type: 15

## Forests and woodlands of deep seasonal wetlands

**Reservation Status:** Well reserved
**Conservation Status:** Vulnerable

**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| *Melaleuca rhaphiophylla* | | *Cotula coronopifolia* |
| | | *Crassula natans* |
| | | **Cynodon dactylon* |
| | | *Isolepis producta* |
| | | *Lemna disperma* |
| | | *Triglochin procerum* |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Melaleuca teretifolia* | |

**Mean species richness:** 17.5

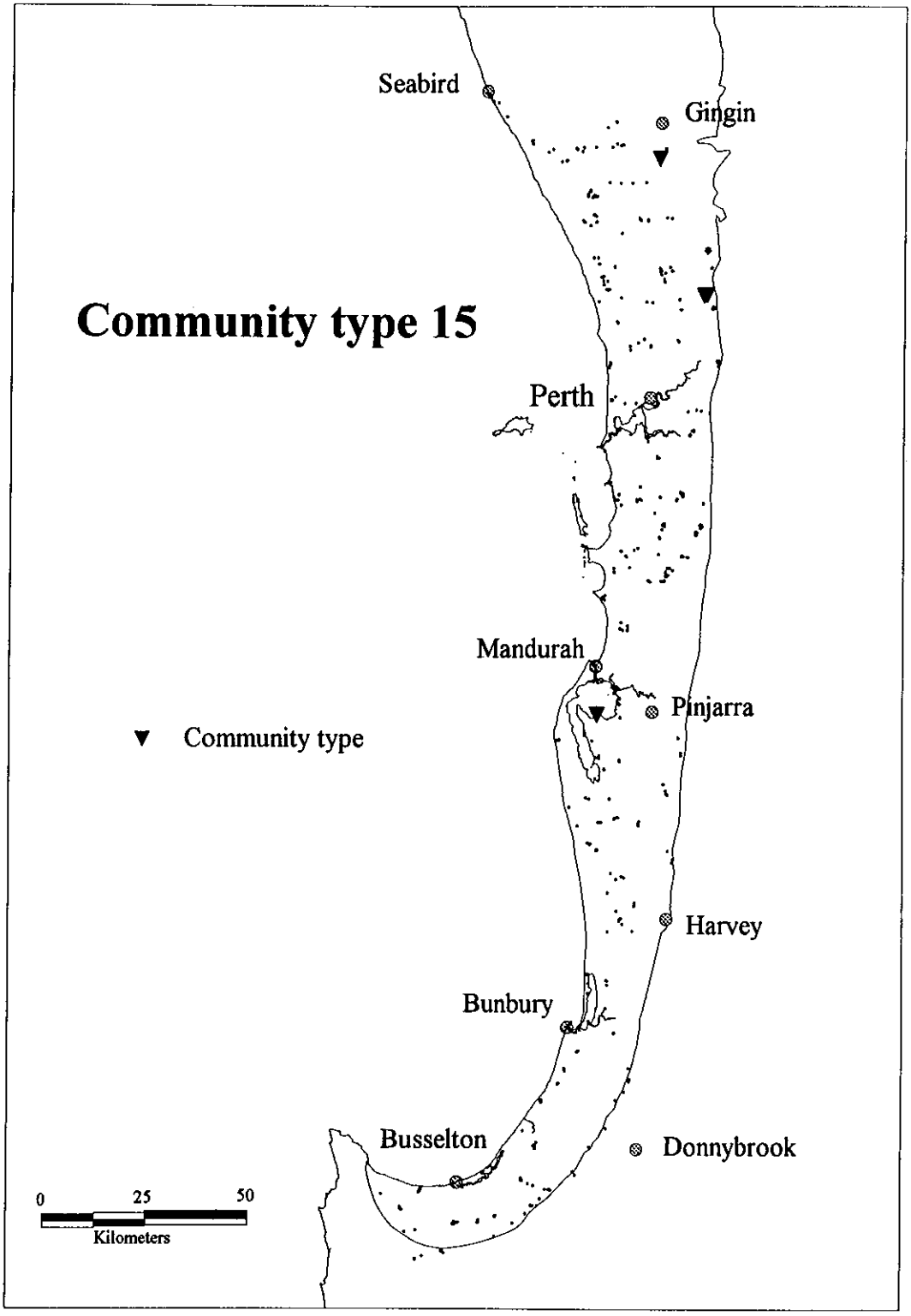
**Mean weed frequency:** 4.3

**Mean vegetation condition:** 2.9

**Number of quadrats:** 4

**Structural units**

low forest A
low forest B
low woodland B
dense thicket


Seabird
Gingin
Community type 15
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

## Community type: 16

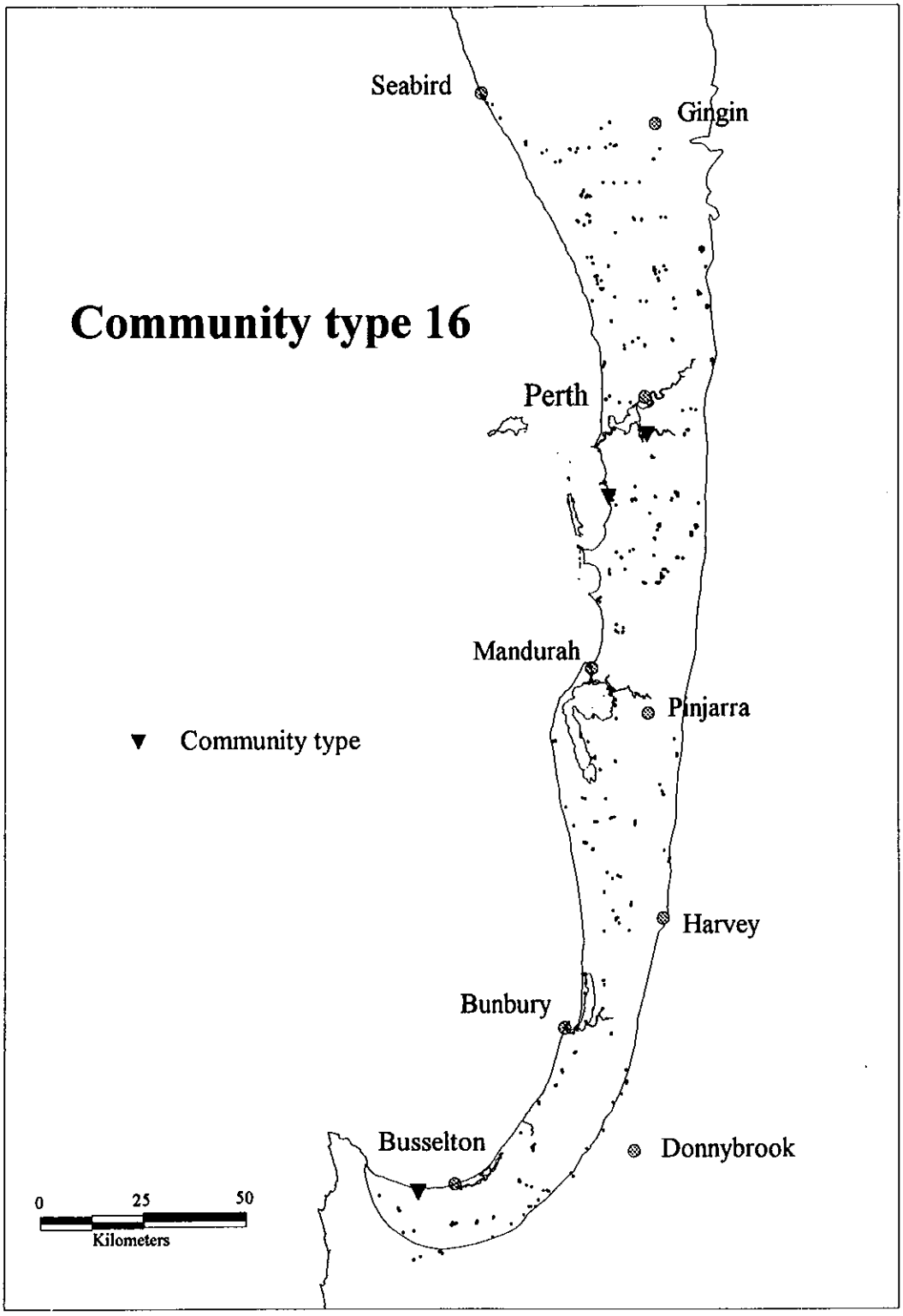
## Highly saline seasonal wetlands

**Reservation Status:** Poorly reserved
**Conservation Status:** Vulnerable

**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Atriplex cinerea* | *Samolus repens* |
| | **Atriplex prostrata* | *Sporobolus virginicus* |
| | *Sarcocornia quinqueflora* | |

| | | |
|---|---|---|
| **Mean species richness:** | **13.5** | **Structural units** |
| **Mean weed frequency:** | **3.7** | low forest A<br>low forest B |
| **Mean vegetation condition:** | **2.9** | dense low heath D<br>low heath C |
| **Number of quadrats:** | **4** | |


Seabird
Gingin
Community type 16
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

**Community type: 17**

***Melaleuca raphiophylla - Gahnia trifida* seasonal wetlands**

**Reservation Status:** Well reserved
**Conservation Status:** Low risk

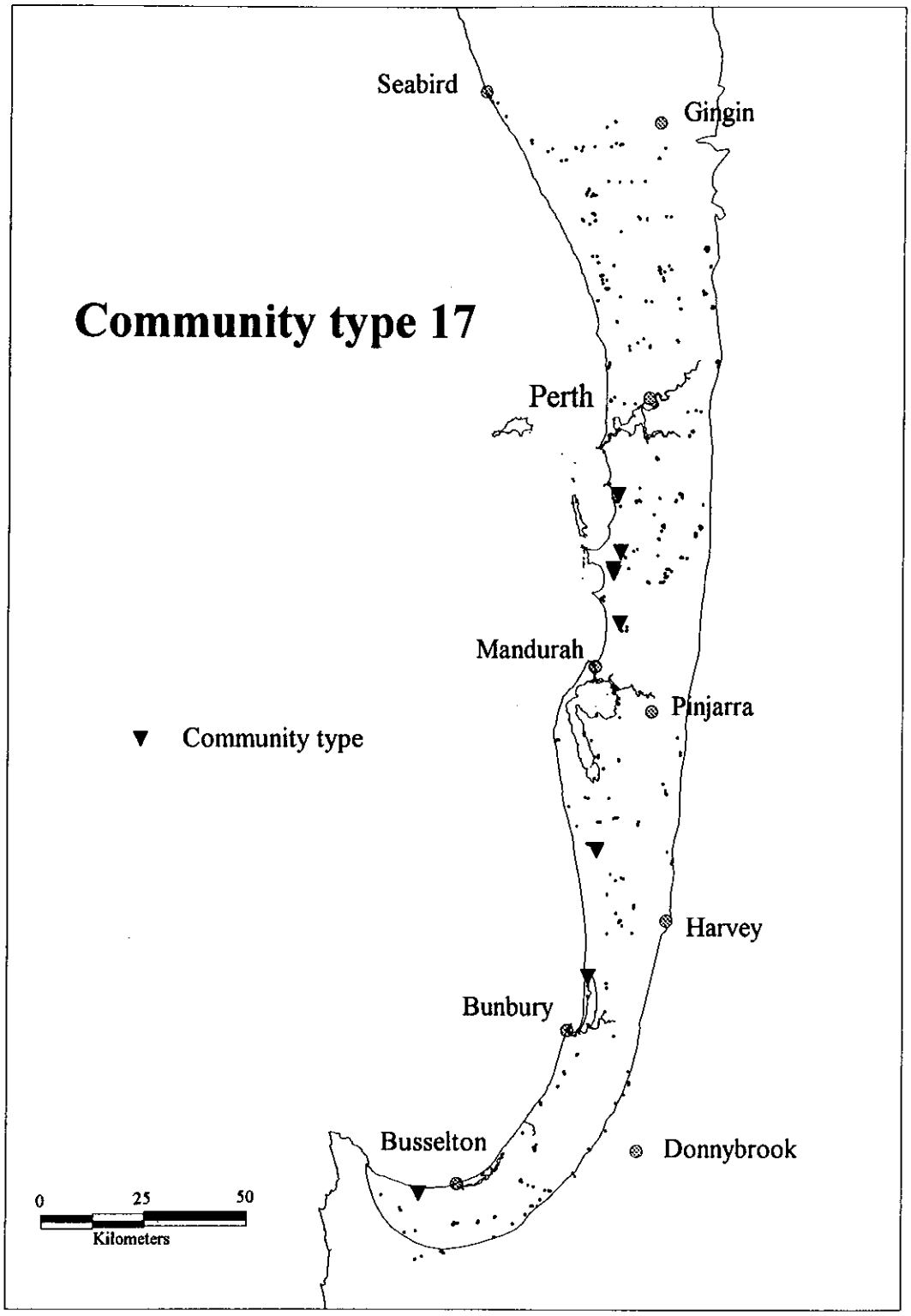
**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| *Melaleuca rhaphiophylla* | | *Gahnia trifida* |
| | | *Lobelia alata* |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | | *Baumea juncea* |
| | | *Lepidosperma longitudinale* |
| | | **Sonchus oleraceus* |

| | | |
|---|---|---|
| **Mean species richness:** | **13.6** | **Structural units** |
| **Mean weed frequency:** | **1.7** | dense forest |
| | | dense low forest A |
| **Mean vegetation condition:** | **2.3** | forest |
| | | low forest A |
| **Number of quadrats:** | **8** | low forest B |


Seabird
Gingin
Community type 17
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

**Community type: 18**

**Shrublands on calcareous silts**

**Reservation Status:** Poorly reserved
**Conservation Status:** Vulnerable

**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Acacia saligna* | *Drosera stolonifera* |
| | *Hakea varia* | *Gahnia trifida* |
| | *Leucopogon parviflorus* | *Lepidosperma longitudinale* |
| | *Melaleuca incana* | *Leptocarpus canus* |
| | *Melaleuca teretifolia* | *Leptomeria cunninghamii* |
| | *Melaleuca viminea* | *Leptomeria lehmannii* |
| | *Xanthorrhoea preissii* | *Opercularia vaginata* |
| | | * *Parentucellia viscosa* |
| | | *Patersonia occidentalis* |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Logania serpyllifolia* | * *Anagallis arvensis* |
| | | *Brachyscome bellidioides* |
| | | * *Briza minor* |
| | | *Cassytha glabella* |
| | | *Cassytha racemosa* |
| | | * *Cerastium glomeratum* |
| | | *Daucus glochidiatus* |
| | | *Dianella revoluta* |
| | | * *Hypochaeris glabra* |
| | | *Isolepis marginata* |
| | | *Lepidosperma angustatum* |
| | | *Mitrasacme paradoxa* |
| | | *Schoenus rodwayanus* |
| | | *Schoenus* sp. 2 (GJK 5739) |
| | | * *Sonchus oleraceus* |
| | | * *Trifolium campestre* |
| | | *Thysanotus manglesianus/ patersonii* complex |
| | | *Thysanotus multiflorus* |
| | | *Tricoryne elatior* |
| | | * *Vulpia myuros* |
| | | *Wurmbea monantha* |

**Mean species richness:** 39.5

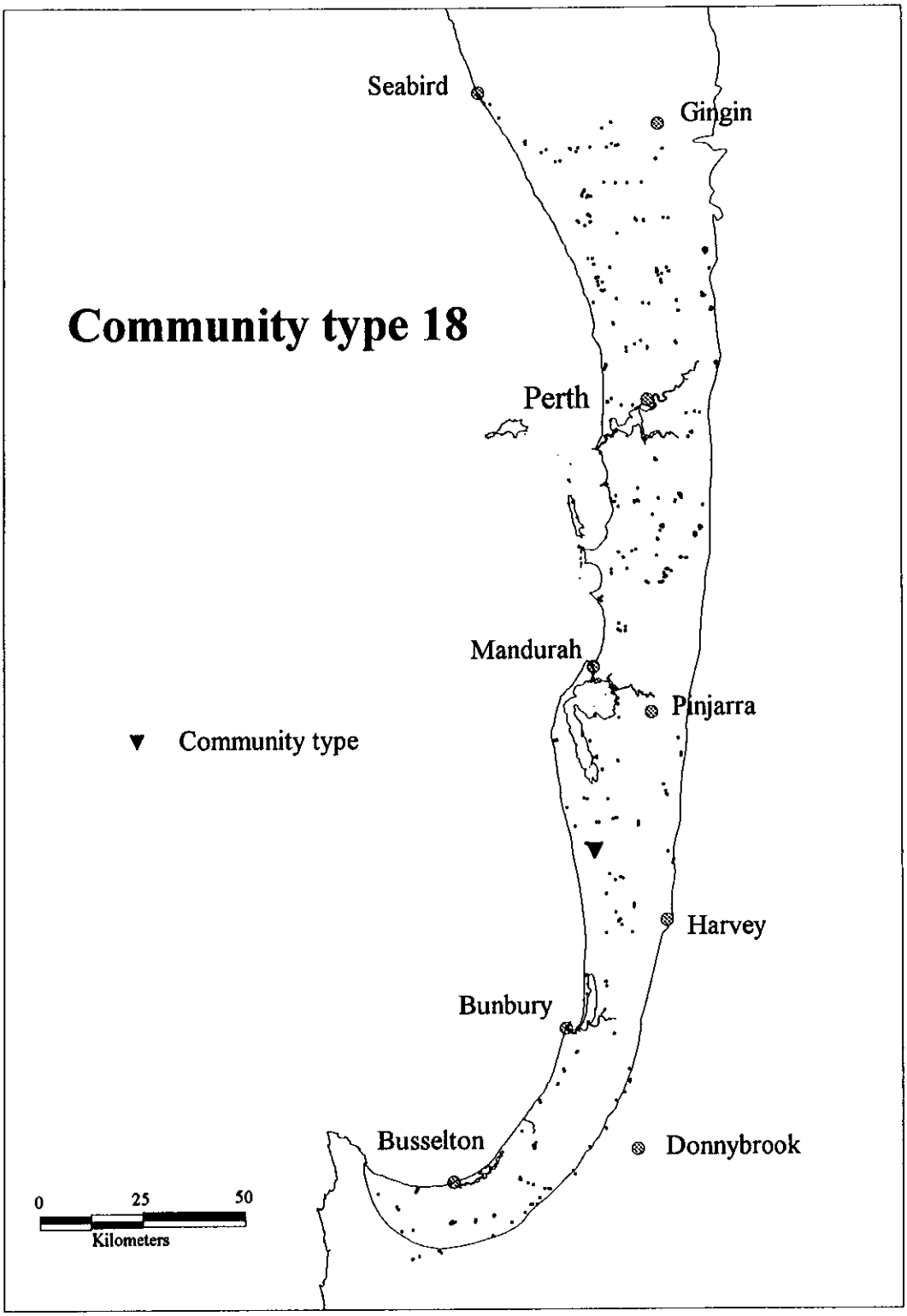
**Mean weed frequency:** 5.6

**Mean vegetation condition:** 2.5

**Number of quadrats:** 2

**Structural units**

open low scrub A
open low scrub B


Seabird
Gingin
Community type 18
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

**Community type: 20a**

***Banksia attenuata* woodlands over species rich dense shrublands**

**Reservation Status:** Unreserved
**Conservation Status:** Endangered

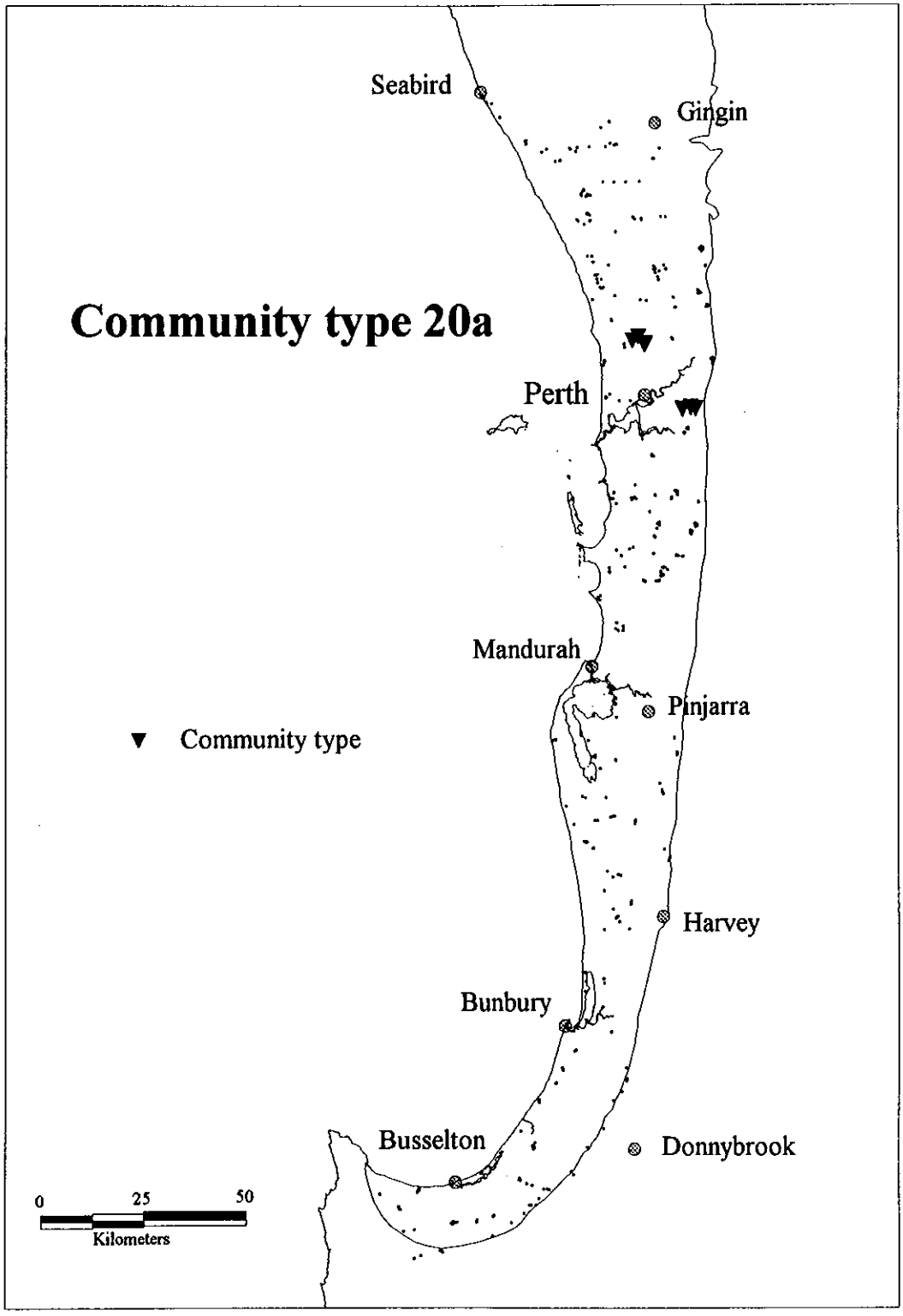
**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| *Banksia attenuata* | *Bossiaea eriocarpa* | *Alexgeorgea nitens* |
| | *Conostephium pendulum* | *Burchardia umbellata* |
| | *Hibbertia huegelii* | *Drosera erythrorhiza* |
| | *Hibbertia hypericoides* | *Drosera menziesii* subsp. *penicillaris* |
| | *Petrophile linearis* | *Haemodorum laxum* |
| | *Scaevola repens* var. *repens* | *Lomandra hermaphrodita* |
| | *Stirlingia latifolia* | *Loxocarya fasciculata* |
| | | *Lyginia barbata* |
| | | *Mesomelaena pseudostygia* |
| | | *Patersonia occidentalis* |
| | | *Stylidium piliferum* |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Astroloma pallidum* | *Amphipogon turbinatus* |
| | *Daviesia nudiflora* | *Conostylis aurea* |
| | *Daviesia triflora* | *Conostylis setigera* |
| | *Eremaea pauciflora* | *Cyathochaeta clandestina* |
| | *Eriostemon spicatus* | *Dampiera linearis* |
| | *Gompholobium tomentosum* | *Danthonia occidentalis* |
| | *Allocasuarina humilis* | **Gladiolus caryophyllaceus* |
| | *Hemiandra pungens* | *Hypolaena exsulca* |
| | *Jacksonia densiflora / floribunda* complex | *Lepidosperma sp.* (coastal terete) |
| | *Petrophile macrostachya* | *Lomandra caespitosa* |
| | *Synaphea spinulosa* | *Loxocarya flexuosa* |
| | | *Monotaxis grandiflora* |
| | | *Schoenus curvifolius* |
| | | *Stylidium brunonianum* |
| | | *Stylidium calcaratum* |
| | | *Tetraria octandra* |
| | | *Thysanotus triandrus* |
| | | *Xanthosia huegelii* |

| | | |
|---|---|---|
| **Mean species richness:** | **67.4** | **Structural units** |
| **Mean weed frequency:** | **1** | low forest A<br>low woodland A |
| **Mean vegetation condition:** | **1.7** | low woodland B<br>open low woodland A |
| **Number of quadrats:** | **7** | |


Seabird
Gingin
Community type 20a
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

**Community type: 20b**

**Eastern *Banksia attenuata* and/or *Eucalyptus margianta* woodlands**

**Reservation Status:** Well reserved
**Conservation Status:** Vulnerable

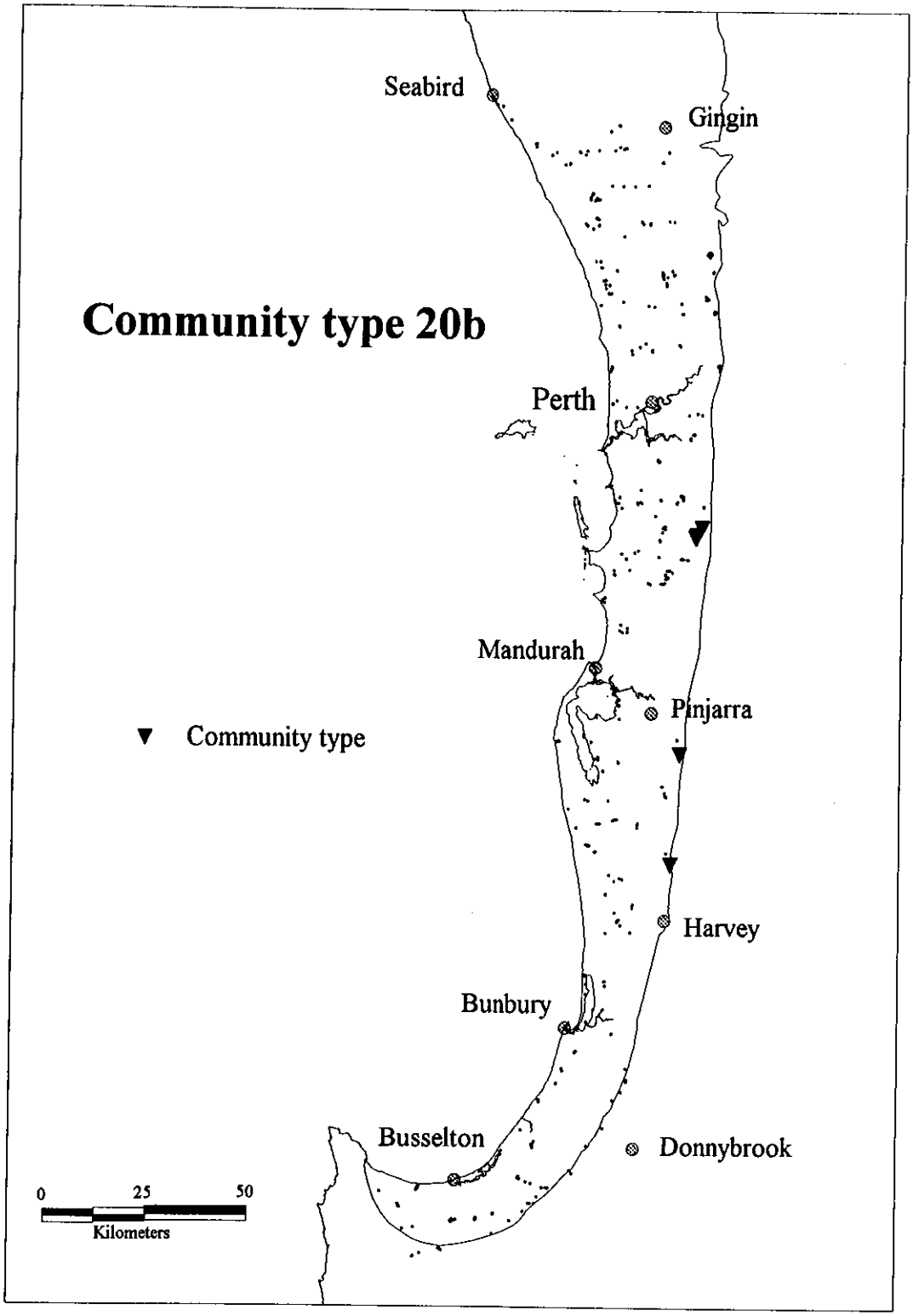
**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| *Banksia attenuata* | *Bossiaea eriocarpa* | *Burchardia umbellata* |
| | *Conostephium pendulum* | *Chamaescilla corymbosa* |
| | *Dryandra nivea* | *Dasypogon bromeliifolius* |
| | *Hibbertia huegelii* | *Drosera erythrorhiza* |
| | *Hibbertia hypericoides* | *Lomandra hermaphrodita* |
| | *Petrophile linearis* | *Loxocarya fasciculata* |
| | *Xanthorrhoea preissii* | *Mesomelaena tetragona* |
| | | *Restio sinosus Ms* |
| | | *Tetraria octandra* |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| *Eucalyptus marginata* | *Allocasuarina humilis* | *Amphipogon turbinatus* |
| *Xylomelum occidentale* | *Astroloma pallidum* | *Caladenia flava* |
| | *Baeckea camphorosmae* | *Conostylis juncea* |
| | *Calectasia cyanea* | *Mesomelaena pseudostygia* |
| | *Eriostemon spicatus* | *Conostylis setigera* |
| | *Gompholobium tomentosum* | *Drosera macrantha* |
| | *Grevillea pilulifera* | *Drosera paleacea* |
| | *Hakea ruscifolia* | *Haemodorum laxum* |
| | *Hibbertia vaginata* | *Lepidosperma angustatum* |
| | *Hypocalymma robustum* | *Leporella fimbriata* |
| | *Labichea punctata* | *Lomandra sericea* |
| | *Stirlingia latifolia* | *Lyperanthus nigricans* |
| | | *Stylidium brunonianum* |
| | | *Stylidium piliferum* |
| | | **Ursinia anthemoides* |
| | | *Xanthosia huegelii* |

| | | |
|---|---|---|
| **Mean species richness:** | **62.7** | **Structural units** |
| **Mean weed frequency:** | **1.4** | low forest A<br>low woodland A |
| **Mean vegetation condition:** | **2.6** | open low woodland A |
| **Number of quadrats:** | **9** | |


Seabird
Gingin
Community type 20b
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

**Community type: 20c**

## Eastern shrublands and woodlands

**Reservation Status:** Well reserved
**Conservation Status:** Low risk

**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Allocasuarina humilis* | *Amphipogon turbinatus* |
| | *Bossiaea eriocarpa* | *Burchardia umbellata* |
| | *Hibbertia hypericoides* | *Conostylis aculeata* |
| | *Scaevola repens* var. *repens* | *Conostylis aurea* |
| | *Stirlingia latifolia* | **Gladiolus caryophyllaceus* |
| | | *Haemodorum laxum* |
| | | *Lomandra hermaphrodita* |
| | | *Lyginia barbata* |
| | | *Mesomelaena pseudostygia* |
| | | *Neurachne alopecuroidea* |
| | | *Patersonia occidentalis* |
| | | *Podolepis gracilis* |
| | | *Schoenus* aff. *brevisetis* |
| | | *Stipa compressa* |
| | | *Trachymene pilosa* |
| | | **Ursinia anthemoides* |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Acacia auronitens* | *Anigozanthos manglesii* |
| | *Acacia sessilis* | *Arnocrinum preissii* |
| | *Acacia willdenowiana* | **Briza maxima* |
| | *Dryandra nivea* | *Chamaescilla corymbosa* |
| | *Eremaea asterocarpa* subsp. *asterocarpa* | *Dasypogon bromeliifolius* |
| | *Eriostemon spicatus* | *Drosera stolonifera* |
| | *Gompholobium tomentosum* | *Hybanthus calycinus* |
| | *Jacksonia densiflora / floribunda* complex | **Hypochaeris glabra* |
| | *Petrophile linearis* | *Isotropis cuneifolia* |
| | *Scaevola canescens* | *Laxmannia sessiliflora* subsp. *australis* |
| | | *Leporella fimbriata* |
| | | *Schoenus curvifolius* |
| | | *Stipa pycnostachya* |
| | | *Tetraria octandra* |

**Mean species richness:** 64

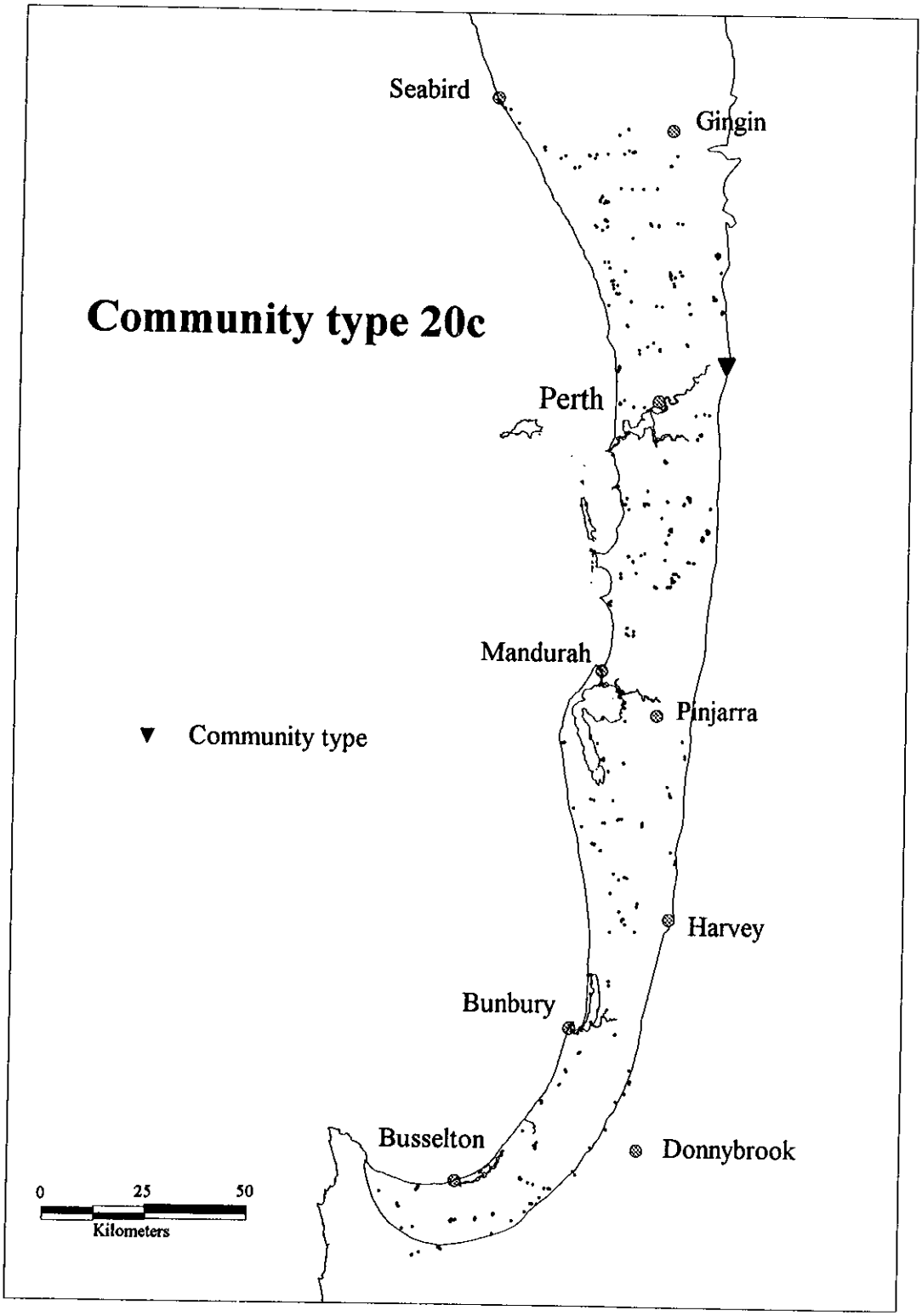
**Mean weed frequency:** 4

**Mean vegetation condition:** 2.2

**Number of quadrats:** 9

**Structural units**

woodland
low woodland A
open low woodland A
scrub
open scrub
open low scrub A
open low scrub B


Seabird
Gingin
Community type 20c
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

**Community type: 21a**

## Central *Banksia attenuata - Eucalyptus marginata* woodlands

**Reservation Status:** Well reserved
**Conservation Status:** Low risk

**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| *Banksia attenuata* | *Bossiaea eriocarpa* | **Briza maxima* |
| | *Gompholobium tomentosum* | *Burchardia umbellata* |
| | *Hibbertia hypericoides* | **Hypochaeris glabra* |
| | *Petrophile linearis* | *Lepidosperma angustatum* |
| | | *Trachymene pilosa* |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| *Eucalyptus marginata* | *Conostephium pendulum* | *Caladenia flava* |
| | *Eriostemon spicatus* | *Chamaescilla corymbosa* |
| | *Macrozamia riedlei* | *Conostylis aculeata* |
| | | *Conostylis juncea* |
| | | *Danthonia occidentalis* |
| | | *Dasypogon bromeliifolius* |
| | | *Drosera erythrorhiza* |
| | | *Drosera stolonifera* |
| | | *Lagenifera huegelii* |
| | | *Lomandra caespitosa* |
| | | *Lomandra hermaphrodita* |
| | | *Lomandra sericea* |
| | | *Loxocarya flexuosa* |
| | | *Lyginia barbata* |
| | | *Patersonia occidentalis* |
| | | *Phlebocarya ciliata* |
| | | **Ursinia anthemoides* |
| | | *Xanthosia huegelii* |

**Mean species richness:** 54.6

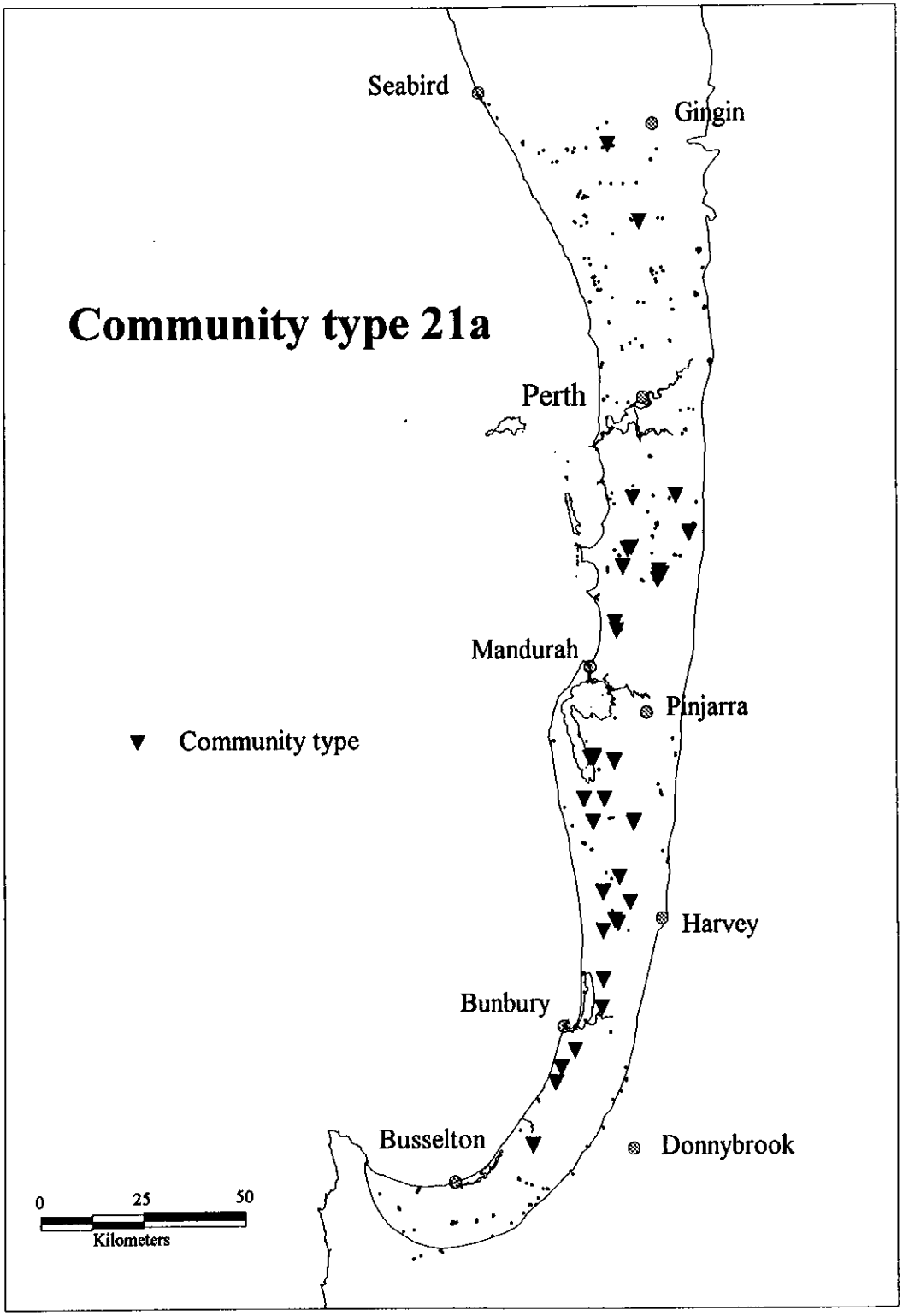
**Mean weed frequency:** 4.2

**Mean vegetation condition:** 2.5

**Number of quadrats:** 39

**Structural units**

dense forest
forest
low forest A
woodland
low woodland A
open woodland
open low woodland A
low heath C


Seabird
Gingin
Community type 21a
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

**Community type: 21b**

## Southern *Banksia attenuata* woodlands

**Reservation Status:** Well reserved
**Conservation Status:** Susceptible

**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| *Banksia attenuata* | *Bossiaea eriocarpa* | *Burchardia umbellata* |
| | *Calytrix flavescens* | *Chamaescilla corymbosa* |
| | *Conostephium pendulum* | *Dasypogon bromeliifolius* |
| | *Eriostemon spicatus* | *Drosera menziesii* subsp. *penicillaris* |
| | *Hibbertia hypericoides* | **Hypochaeris glabra* |
| | *Hypocalymma robustum* | *Laxmannia sessiliflora* subsp. *australis* |
| | *Jacksonia* sp. Busselton (G.J. Keighery 4482) | *Lepidosperma angustatum* |
| | *Leucopogon conostephioides* | *Leporella fimbriata* |
| | *Melaleuca thymoides* | *Lomandra hermaphrodita* |
| | *Petrophile linearis* | *Lyginia barbata* |
| | | *Patersonia occidentalis* |
| | | *Phlebocarya ciliata* |
| | | *Trachymene pilosa* |
| | | *Xanthosia huegelii* |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Acacia extensa* | **Briza maxima* |
| | *Acacia pulchella* var. *pulchella* | *Caladenia flava* |
| | *Boronia spathulata* | *Hypolaena exsulca* |
| | *Gompholobium tomentosum* | *Lomandra caespitosa* |
| | *Hibbertia vaginata* | *Lomandra sericea* |
| | *Hovea trisperma* | *Loxocarya fasciculata* |
| | *Lysinema ciliatum* | *Lyperanthus nigricans* |
| | *Stirlingia latifolia* | *Stipa compressa* |
| | | *Stylidium piliferum* |

**Mean species richness:** 61.3

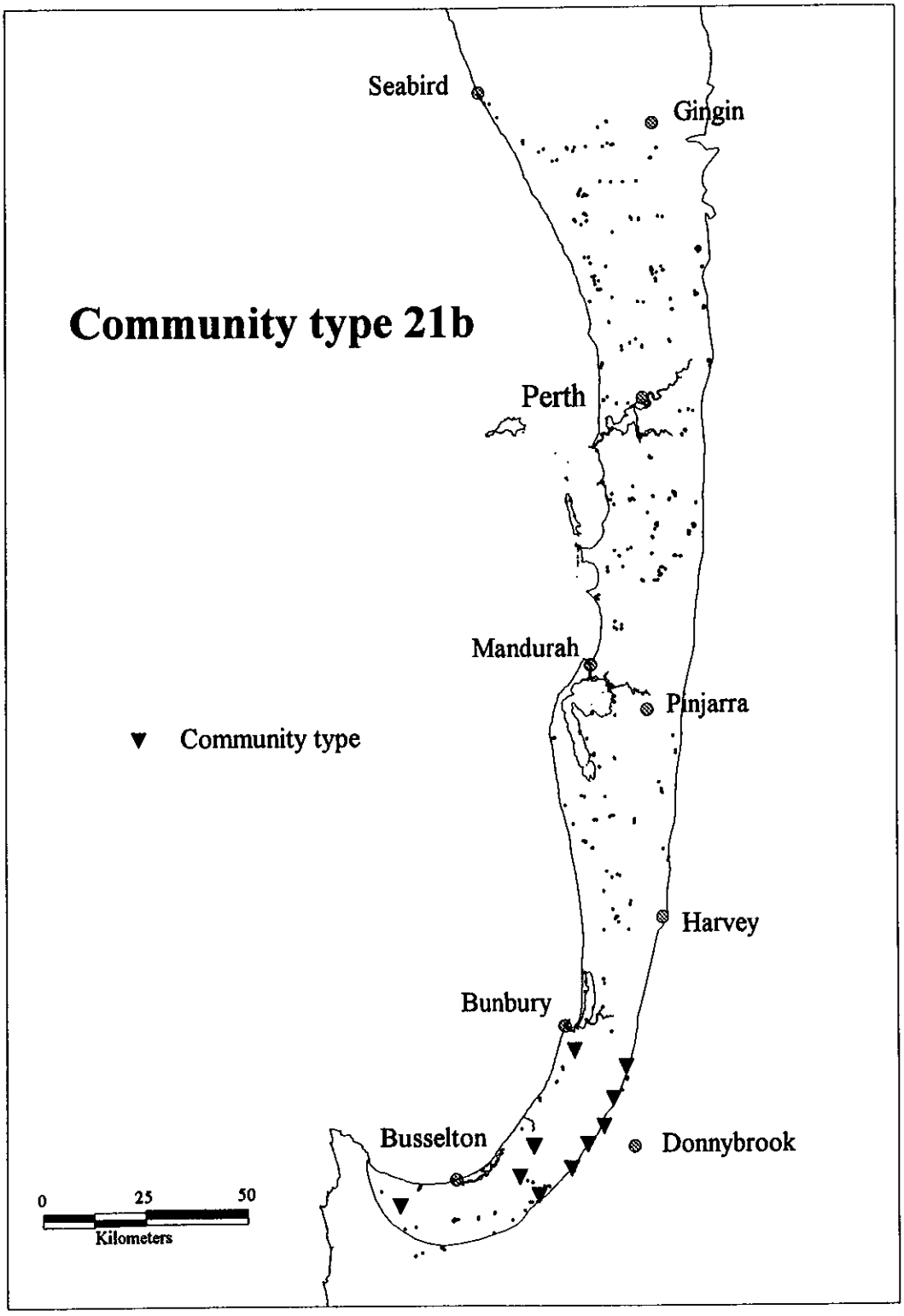
**Mean weed frequency:** 1.7

**Mean vegetation condition:** 2

**Number of quadrats:** 12

**Structural units**

forest
low forest A
woodland
low woodland A
open low woodland A


Seabird
Gingin
Community type 21b
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

**Community type: 21c**

## Low lying *Banksia attenuata* woodlands or shrublands

**Reservation Status:** Well reserved
**Conservation Status:** Low risk

**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| *Banksia attenuata* | | **Briza maxima*<br>**Hypochaeris glabra*<br>*Lomandra caespitosa*<br>*Lyginia barbata*<br>*Thysanotus manglesianus/ patersonii* complex<br>*Trachymene pilosa* |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| *Banksia menziesii* | *Gompholobium tomentosum*<br>*Kunzea ericifolia*<br>*Leucopogon conostephioides*<br>*Petrophile linearis*<br>*Scholtzia involucrata* | *Burchardia umbellata*<br>*Caladenia flava*<br>*Dasypogon bromeliifolius*<br>*Drosera erythrorhiza*<br>*Hypolaena exsulca*<br>*Lomandra hermaphrodita*<br>*Patersonia occidentalis*<br>*Stylidium brunonianum*<br>*Stylidium repens*<br>**Ursinia anthemoides* |

**Mean species richness:** 40.5

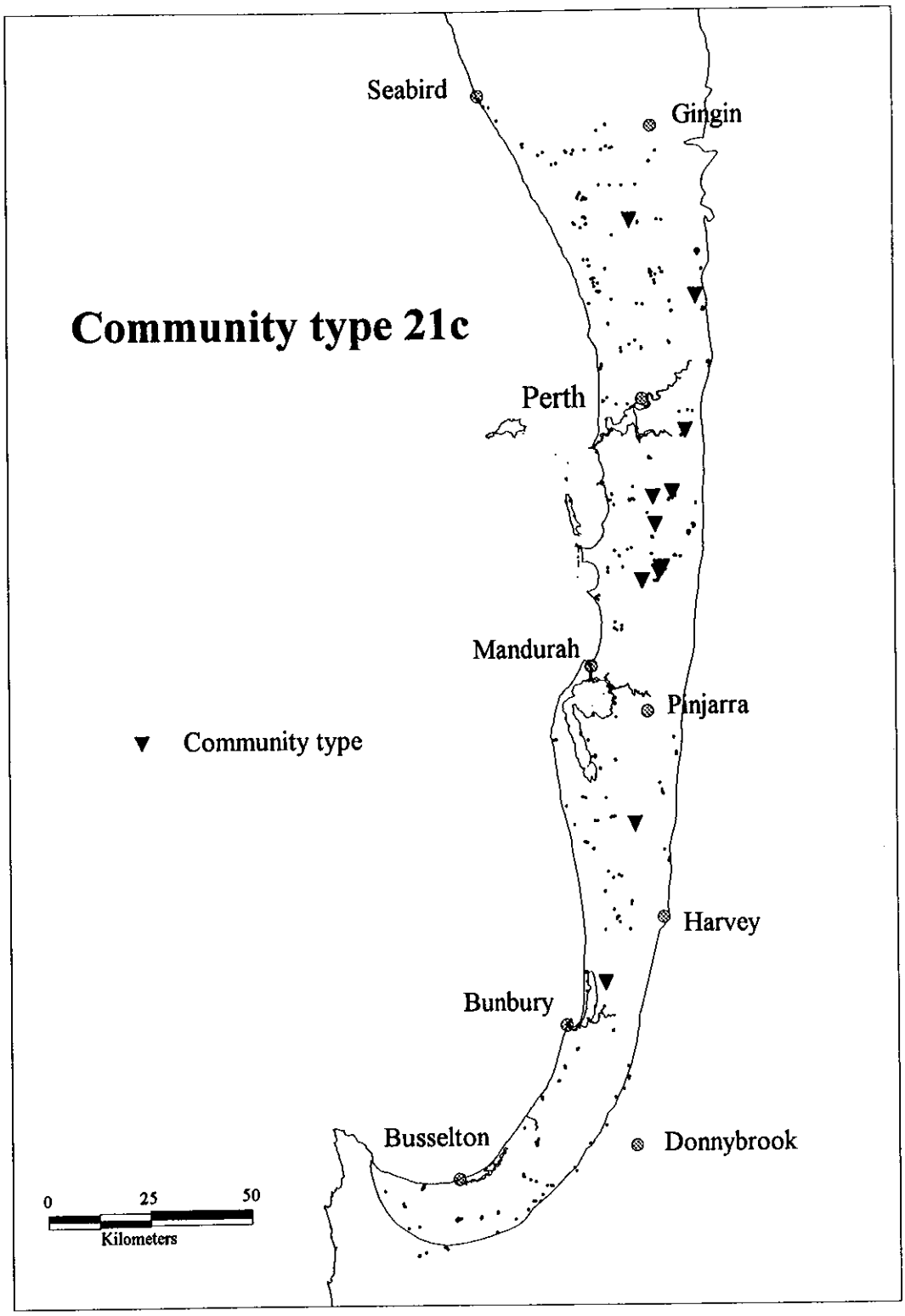
**Mean weed frequency:** 3.6

**Mean vegetation condition:** 2.6

**Number of quadrats:** 16

**Structural units**

forest
low forest A
woodland
low woodland A
open low woodland A
dense heath B
dwarf scrub C


Seabird
Gingin
Community type 21c
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

## Community type: 22

### *Banksia ilicifolia* woodlands

**Reservation Status:** Poorly reserved
**Conservation Status:** Low risk

**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| *Banksia attenuata* | *Petrophile linearis* | *Stylidium brunonianum* |
| *Banksia ilicifolia* | | *Stylidium repens* |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | | *Dasypogon bromeliifolius* |
| | | *Drosera paleacea* |
| | | *Lyginia barbata* |
| | | *Patersonia occidentalis* |
| | | *Phlebocarya ciliata* |
| | | *Stylidium piliferum* |

**Mean species richness:** 32.5

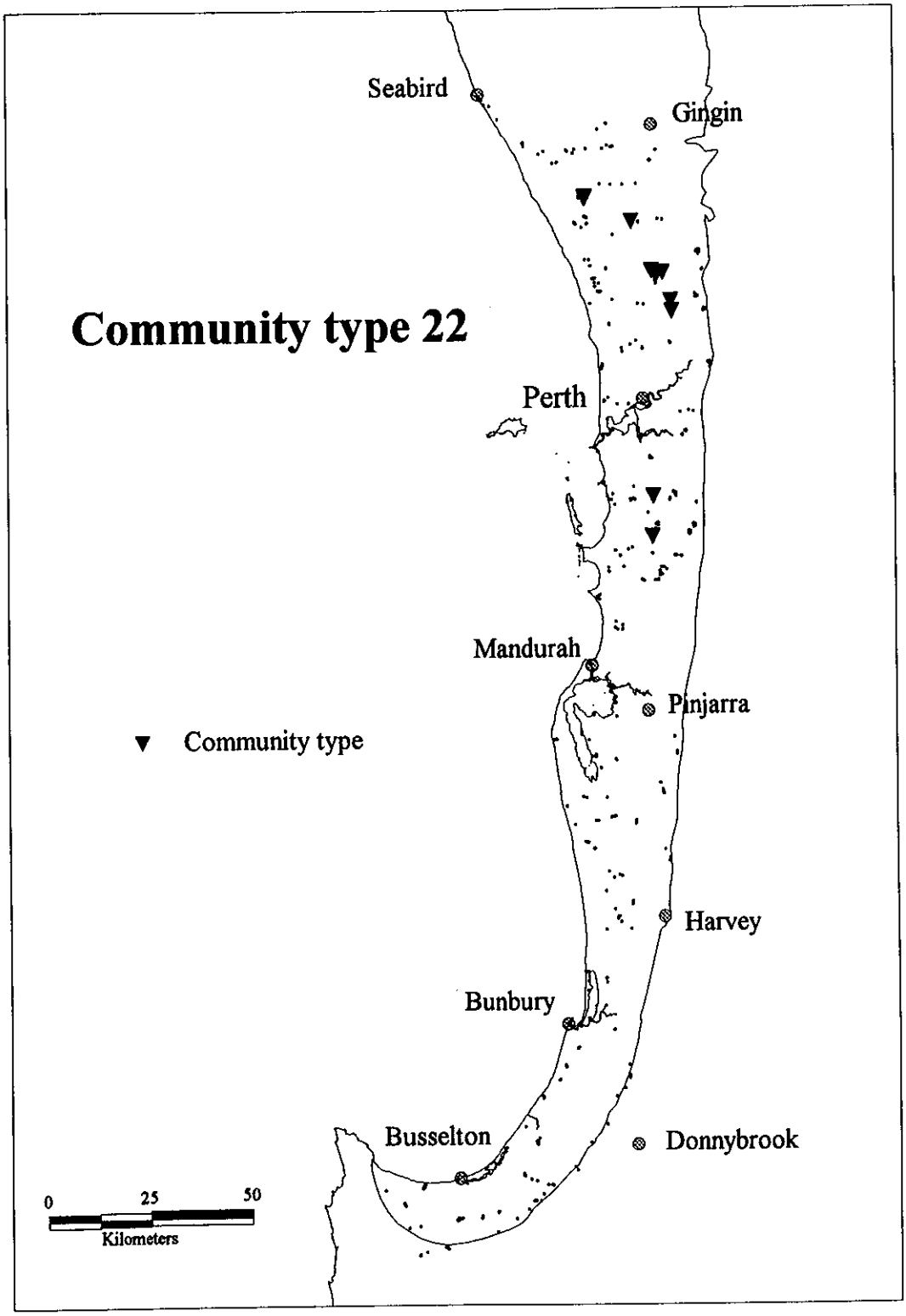
**Mean weed frequency:** 0.6

**Mean vegetation condition:** 2

**Number of quadrats:** 11

**Structural units**

low woodland A
open low woodland A
open scrub


Community type 22
Seabird
Gingin
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

**Community type: 23a**

## Central *Banksia attenuata - B. menziesii* woodlands

**Reservation Status:** Well reserved
**Conservation Status:** Low risk

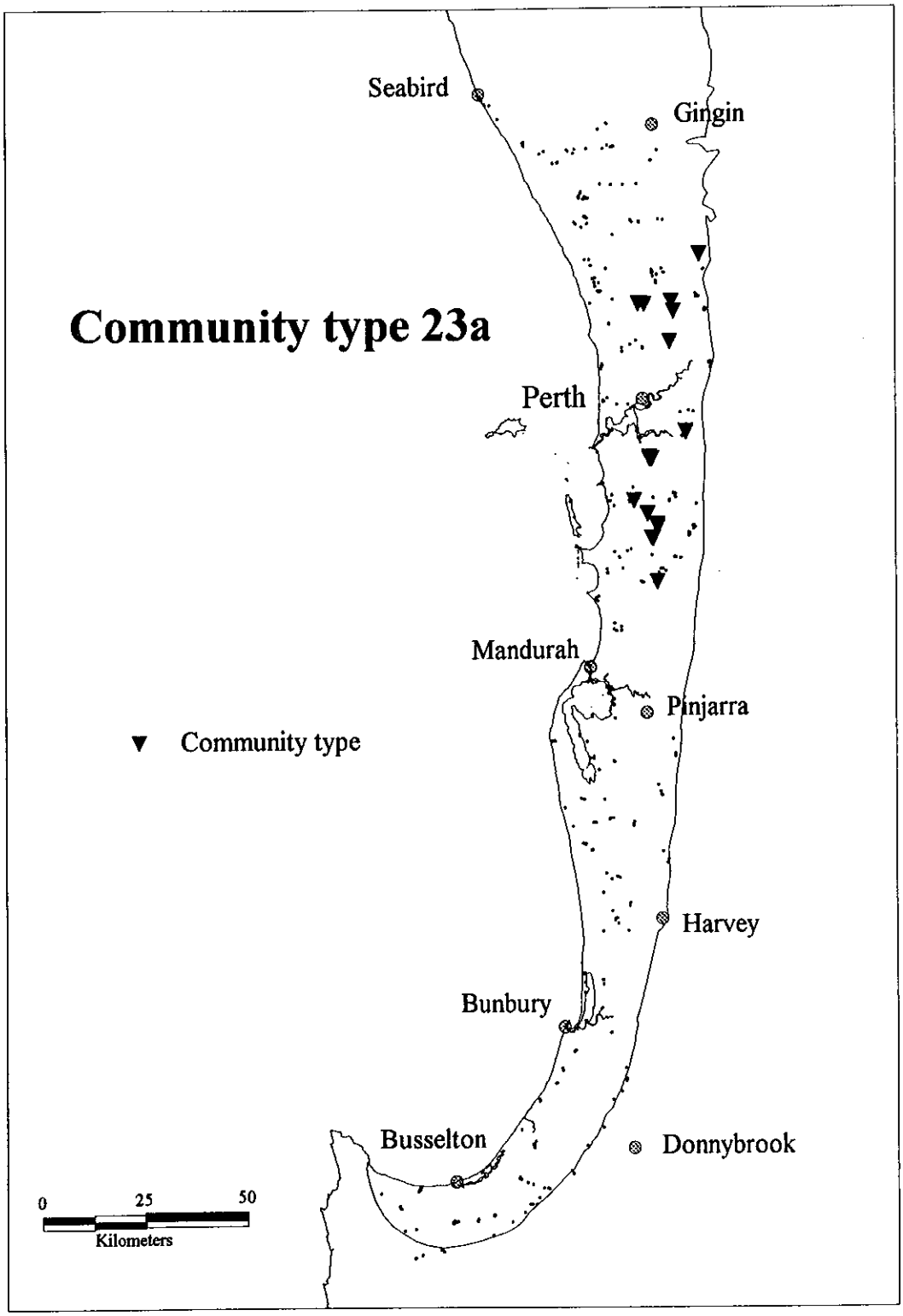
**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| *Banksia menziesii* | *Bossiaea eriocarpa* | **Briza maxima* |
| *Banksia attenuata* | *Gompholobium tomentosum* | *Burchardia umbellata* |
| | *Leucopogon conostephioides* | *Conostylis juncea* |
| | *Petrophile linearis* | *Dampiera linearis* |
| | *Scholtzia involucrata* | *Drosera erythrorhiza* |
| | | **Hypochaeris glabra* |
| | | *Lomandra hermaphrodita* |
| | | *Lyginia barbata* |
| | | *Patersonia occidentalis* |
| | | *Schoenus curvifolius* |
| | | *Stylidium piliferum* |
| | | *Trachymene pilosa* |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Adenanthos cygnorum* | **Aira caryophyllea* |
| | *Calytrix flavescens* | *Amphipogon turbinatus* |
| | *Conostephium pendulum* | *Centrolepis drummondiana* |
| | *Eriostemon spicatus* | *Danthonia occidentalis* |
| | *Hibbertia hypericoides* | *Dasypogon bromeliifolius* |
| | *Hibbertia subvaginata* | *Drosera menziesii* subsp. *penicillaris* |
| | *Hovea trisperma* | **Gladiolus caryophyllaceus* |
| | *Xanthorrhoea preissii* | *Laxmannia squarrosa* |
| | | *Lepidosperma angustatum* |
| | | *Loxocarya flexuosa* |
| | | *Phlebocarya ciliata* |
| | | *Stipa compressa* |
| | | *Stylidium brunonianum* |
| | | *Stylidium repens* |
| | | *Thysanotus manglesianus/ patersonii* complex |
| | | **Ursinia anthemoides* |
| | | *Waitzia suaveolens* |
| | | *Xanthosia huegelii* |

| | | |
|---|---|---|
| **Mean species richness:** | **62.8** | **Structural units** |
| **Mean weed frequency:** | **5.2** | low forest A<br>woodland |
| **Mean vegetation condition:** | **2** | low woodland A<br>low woodland B |
| **Number of quadrats:** | **19** | open low woodland A |


Seabird
Gingin
Community type 23a
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

**Community type: 23b**

## Northern *Banksia attenuata - B. menziesii* woodlands

**Reservation Status:** Unreserved
**Conservation Status:** Susceptible

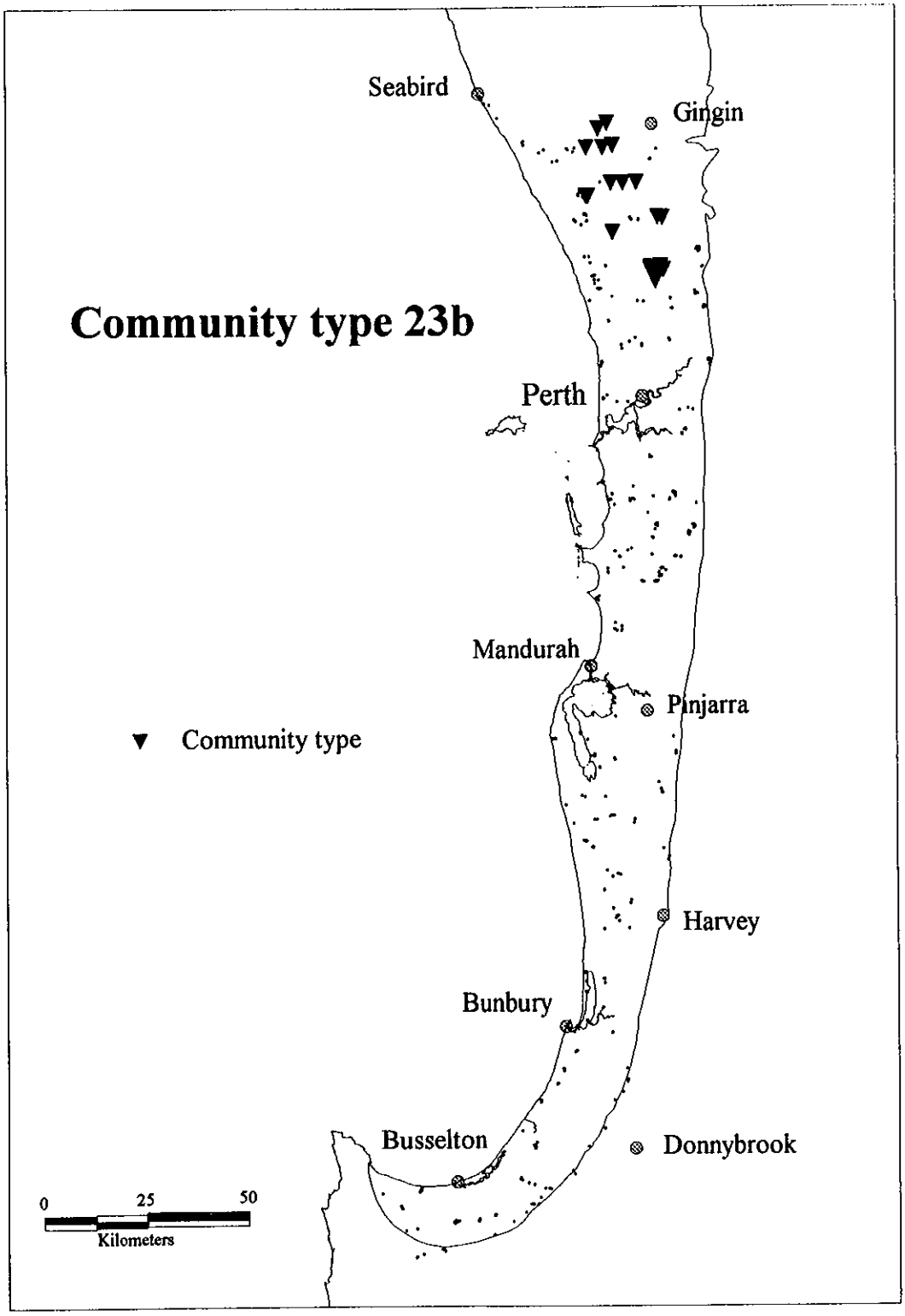
**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| *Banksia attenuata* | *Bossiaea eriocarpa* | *Alexgeorgea nitens* |
| *Banksia menziesii* | *Calytrix flavescens* | *Anigozanthos humilis* |
| | *Eremaea pauciflora* | *Burchardia umbellata* |
| | *Eriostemon spicatus* | *Lomandra hermaphrodita* |
| | *Hibbertia subvaginata* | *Lyginia barbata* |
| | *Jacksonia densiflora / floribunda* complex | *Patersonia occidentalis* |
| | *Petrophile linearis* | *Schoenus curvifolius* |
| | *Scholtzia involucrata* | *Stylidium repens* |
| | | *Xanthosia huegelii* |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Acacia pulchella* var. *pulchella* | *Amphipogon turbinatus* |
| | *Beaufortia elegans* | *Conostylis juncea* |
| | *Conostephium minus* | *Dasypogon bromeliifolius* |
| | *Conostephium pendulum* | *Drosera erythrorhiza* |
| | *Hibbertia hypericoides* | *Drosera menziesii* subsp. *penicillaris* |
| | *Leucopogon conostephioides* | *Mitrasacme paradoxa* |
| | *Melaleuca* aff. *trichophylla* | *Stylidium brunonianum* |
| | *Stirlingia latifolia* | *Stylidium diuroides* |
| | | *Stylidium piliferum* |

| | | |
|---|---|---|
| **Mean species richness:** | **53.8** | **Structural units** |
| **Mean weed frequency:** | **0.7** | low forest A<br>low woodland A |
| **Mean vegetation condition:** | **1.8** | low woodland B<br>open low woodland A |
| **Number of quadrats:** | **21** | |


Seabird
Gingin
Community type 23b
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

## Community type: 24

## Northern Spearwood shrublands and woodlands

**Reservation Status:** Well reserved
**Conservation Status:** Susceptible

**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | | **Anagallis arvensis* |
| | | **Briza maxima* |
| | | **Hypochaeris glabra* |
| | | *Lepidosperma angustatum* |
| | | *Loxocarya flexuosa* |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Hardenbergia comptoniana* | **Bromus diandrus* |
| | *Melaleuca acerosa* | **Cerastium glomeratum* |
| | *Phyllanthus calycinus* | *Conostylis aculeata* |
| | *Xanthorrhoea preissii* | *Dianella revoluta* |
| | | **Lagurus ovatus* |
| | | *Lomandra maritima* |
| | | **Petrorhagia velutina* |
| | | **Sonchus oleraceus* |
| | | *Stipa flavescens* |

**Mean species richness:** 41.8

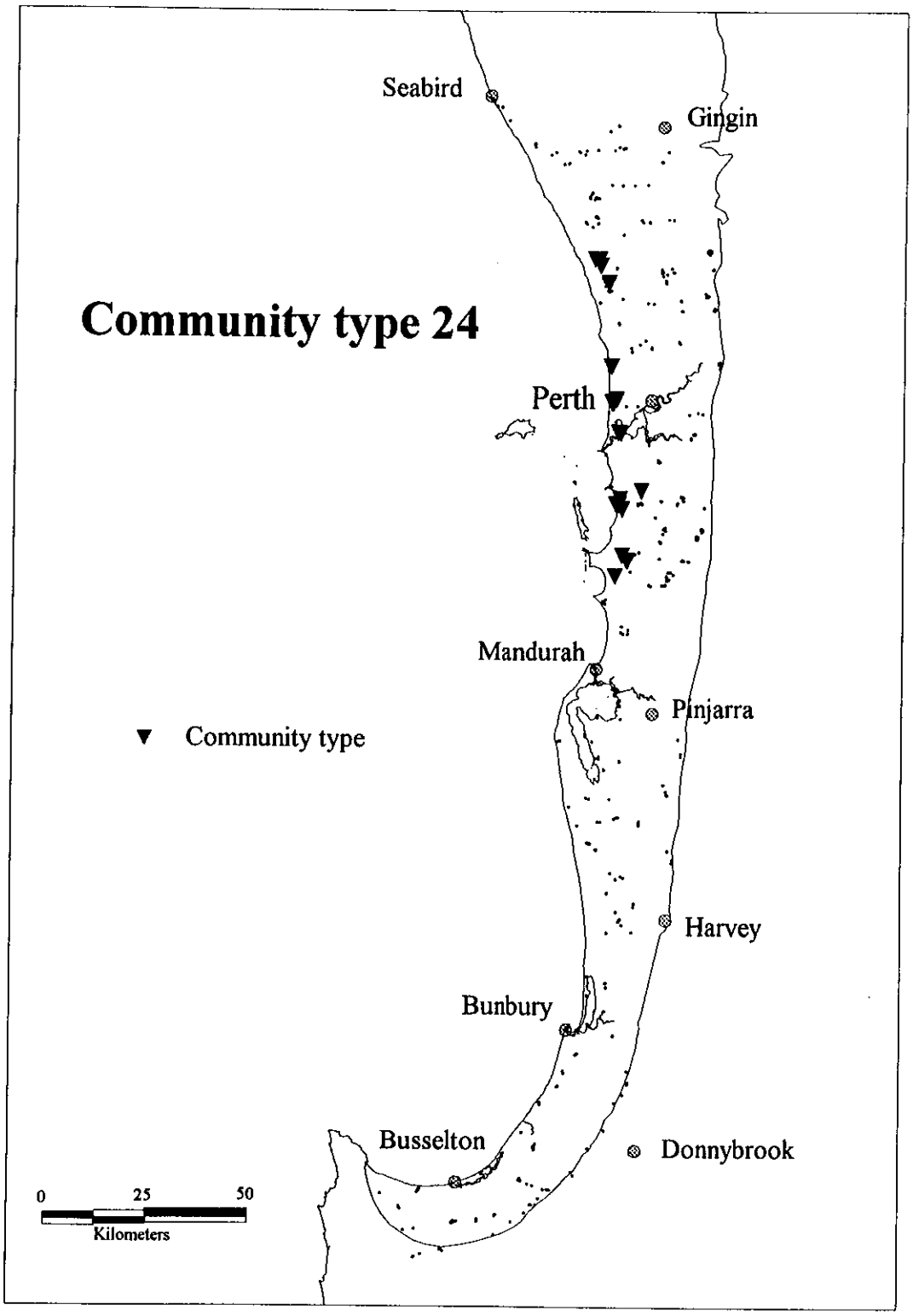
**Mean weed frequency:** 14.2

**Mean vegetation condition:** 3

**Number of quadrats:** 25

**Structural units**

dense low forest B
low forest A
woodland
low woodland A
dense shrub mallee
open shrub mallee
thicket
dense low heath C
dense low heath D
heath A
low heath C
low heath D
low scrub A
low scrub B


Seabird
Gingin
Community type 24
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

**Community type: 25**

## Southern *Eucalyptus gomphocephala - Agonis flexuosa* woodlands

**Reservation Status:** Poorly reserved
**Conservation Status:** Susceptible

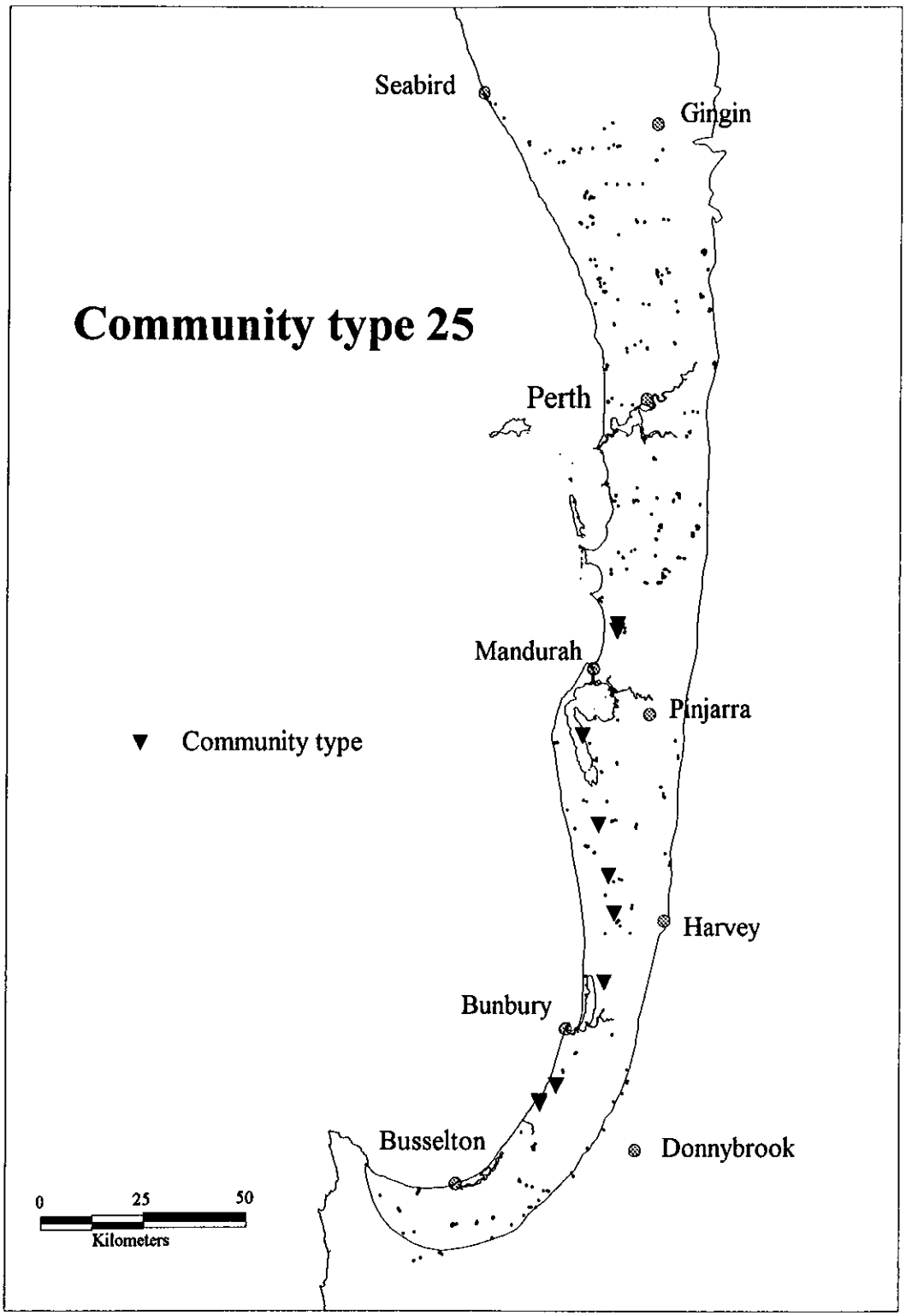
**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| *Eucalyptus gomphocephala* | *Hibbertia hypericoides* | **Briza maxima* |
| | *Macrozamia riedlei* | **Briza minor* |
| | *Phyllanthus calycinus* | *Daucus glochidiatus* |
| | | **Hypochaeris glabra* |
| | | *Oxalis perennans* |
| | | **Petrorhagia velutina* |
| | | *Sowerbaea laxiflora* |
| | | *Trachymene pilosa* |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| *Agonis flexuosa* | *Acacia willdenowiana* | **Aira caryophyllea* |
| | *Hardenbergia comptoniana* | **Bromus diandrus* |
| | *Leucopogon propinquus* | *Caladenia flava* |
| | | *Caladenia latifolia* |
| | | *Conostylis aculeata* |
| | | *Dichopogon capillipes* |
| | | *Drosera erythrorhiza* |
| | | *Geranium retrorsum* |
| | | *Lagenifera huegelii* |
| | | *Lepidosperma angustatum* |
| | | *Lomandra caespitosa* |
| | | *Microlaena stipoides* |
| | | **Orobanche minor* |
| | | **Sonchus oleraceus* |
| | | *Stipa flavescens* |
| | | **Trifolium campestre* |

| | | |
|---|---|---|
| **Mean species richness:** | **52.8** | **Structural units** |
| **Mean weed frequency:** | **12.9** | low forest A<br>woodland |
| **Mean vegetation condition:** | **3.3** | open woodland<br>open tree mallee |
| **Number of quadrats:** | **11** | |


Seabird
Gingin
Community type 25
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

**Community type: 26a**

## *Melaleuca huegelii - M. acerosa* shrublands of limestone ridges

**Reservation Status:** Unreserved
**Conservation Status:** Susceptible

**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Acacia lasiocarpa* | *Daucus glochidiatus* |
| | *Dryandra sessilis* | *Eriochilus dilatatus* |
| | *Grevillea thelemanniana* subsp. *preissii* | **Hypochaeris glabra* |
| | *Melaleuca acerosa* | *Loxocarya flexuosa* |
| | *Melaleuca huegelii* | *Millotia tenuifolia* |
| | *Trymalium albicans* | *Mitrasacme paradoxa* |
| | | **Sonchus oleraceus* |
| | | *Stipa flavescens* |
| | | *Thysanotus manglesianus/ patersonii* complex |
| | | *Trachymene pilosa* |
| | | **Vulpia myuros* |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Dryandra nivea* | **Aira caryophyllea* |
| | *Gompholobium tomentosum* | **Anagallis arvensis* |
| | *Hardenbergia comptoniana* | *Crassula colorata* |
| | *Leucopogon parviflorus* | *Danthonia occidentalis* |
| | *Templetonia retusa* | **Dischisma arenarium* |
| | | **Heliophila pusilla* |
| | | *Hydrocotyle hispidula* |
| | | *Opercularia vaginata* |
| | | *Parietaria debilis* |
| | | *Pterostylis* aff. *nana* |
| | | *Stipa compressa* |
| | | *Stylidium maritimum* Ms |
| | | *Wurmbea monantha* |

**Mean species richness:** **50.2**

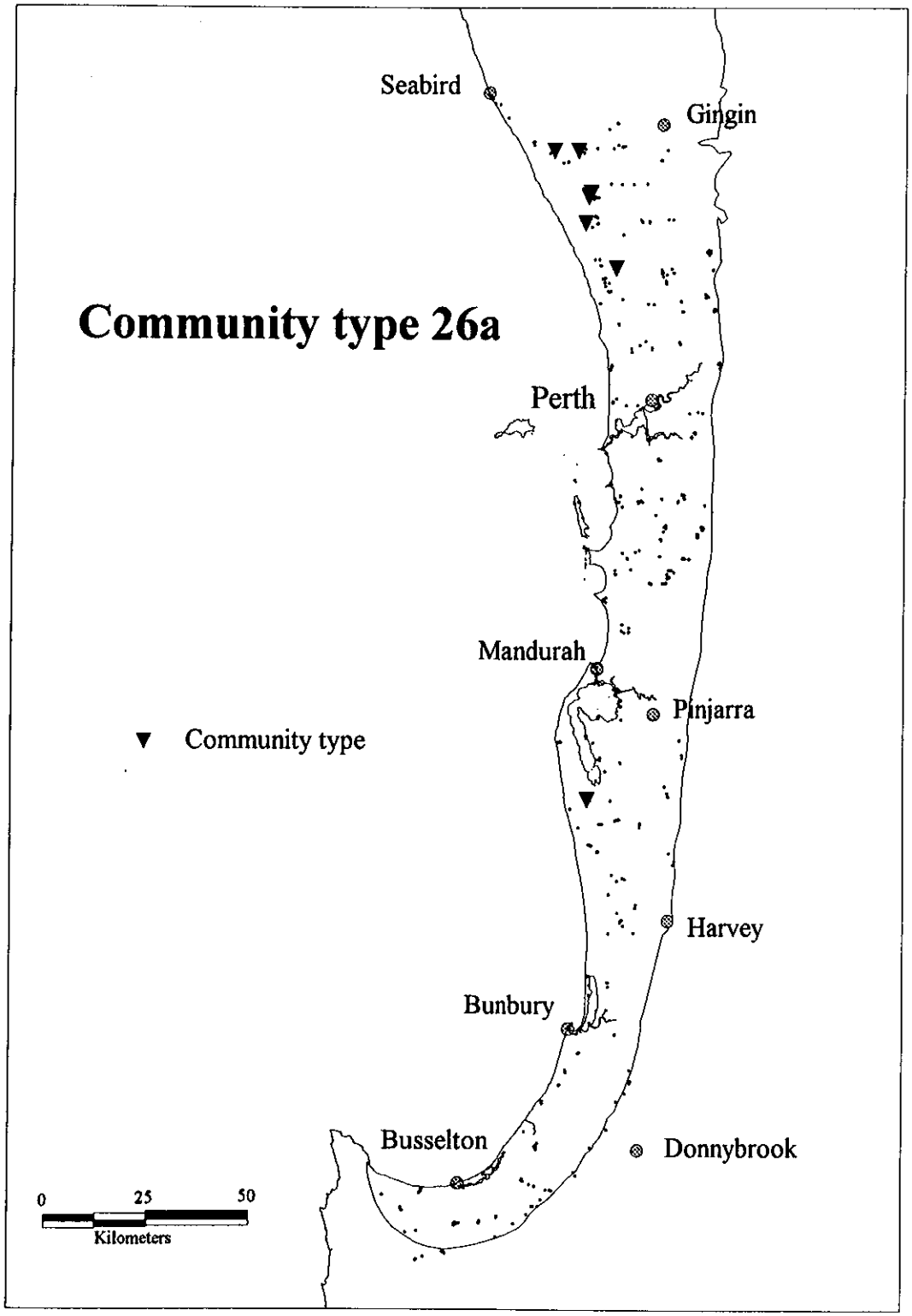
**Mean weed frequency:** **8**

**Mean vegetation condition:** **2.1**

**Number of quadrats:** **11**

**Structural units**

dense thicket
dense heath A
dense heath B
heath A
heath B
low heath C
low scrub B
open scrub
scrub


Community type 26a
Seabird
Gingin
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

## Community type: 26b

## Woodlands and mallees on limestone

**Reservation Status:** Well reserved
**Conservation Status:** Low risk

**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Hibbertia hypericoides* | **Aira caryophyllea* |
| | *Xanthorrhoea preissii* | *Daucus glochidiatus* |
| | | **Hypochaeris glabra* |
| | | *Lagenifera huegelii* |
| | | *Loxocarya flexuosa* |
| | | *Millotia tenuifolia* |
| | | *Trachymene pilosa* |

**Other common species**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Dryandra nivea* | **Anagallis arvensis* |
| | *Hardenbergia comptoniana* | *Centrolepis drummondiana* |
| | *Hibbertia racemosa* | **Cerastium glomeratum* |
| | *Kennedia prostrata* | *Crassula colorata* |
| | *Melaleuca acerosa* | *Drosera erythrorhiza* |
| | | **Heliophila pusilla* |
| | | *Homalosciadium homalocarpum* |
| | | *Isolepis marginata* |
| | | *Lepidosperma angustatum* |
| | | *Microlaena stipoides* |
| | | *Pterostylis* aff. *nana* |
| | | **Sonchus oleraceus* |
| | | *Sowerbaea laxiflora* |
| | | *Thysanotus manglesianus/ patersonii* complex |
| | | *Wahlenbergia preissii* |

**Mean species richness:** 52.7

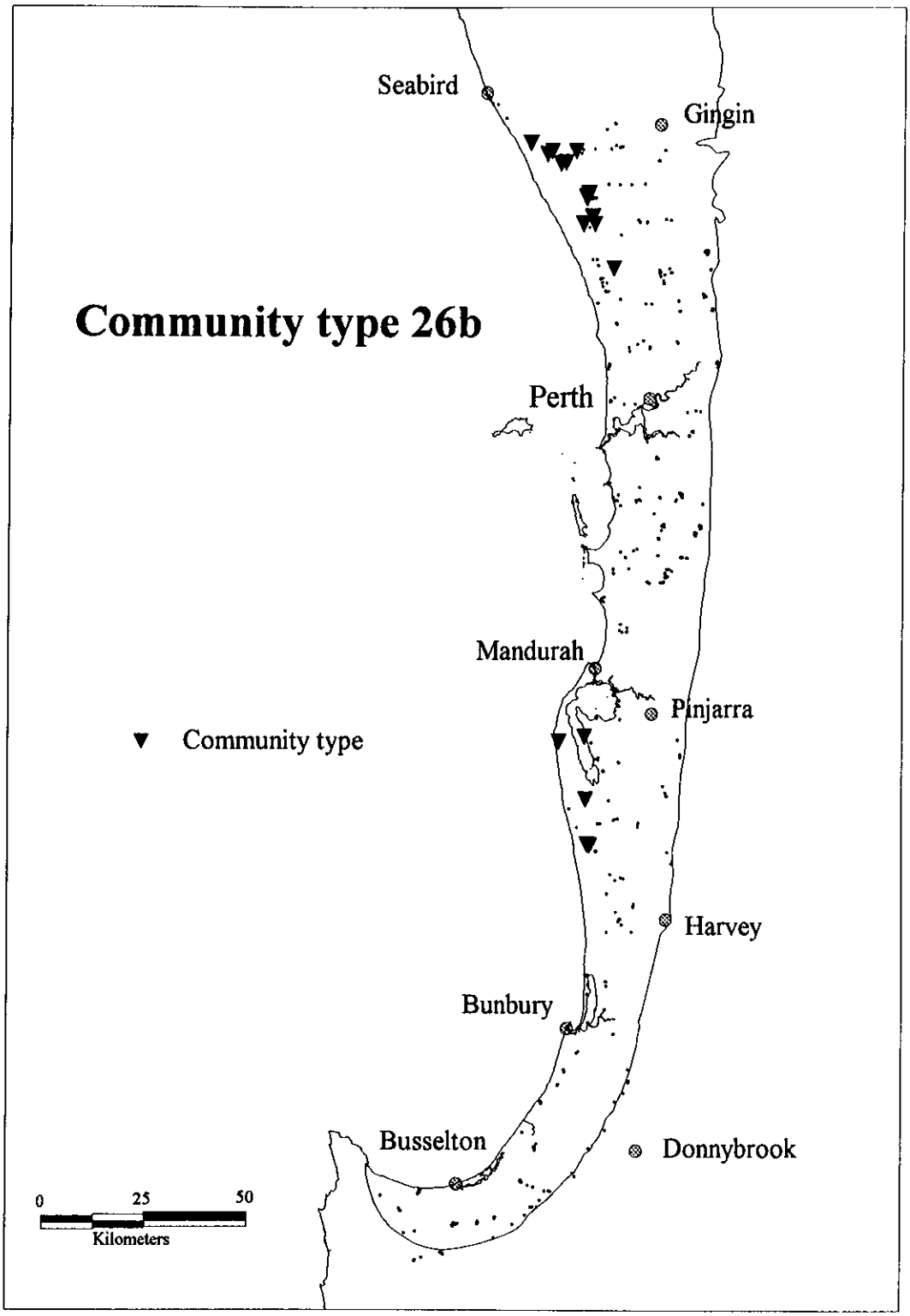
**Mean weed frequency:** 8.4

**Mean vegetation condition:** 2.5

**Number of quadrats:** 19

**Structural units**

forest
low forest A
woodland
low woodland A
tree mallee
open tree mallee
shrub mallee
very open scrub mallee
thicket
dense heath A
dense heath B
low scrub A


Seabird
Gingin
Community type 26b
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

## Community type: 27

## Species poor mallees and shrublands on limestone

**Reservation Status:** Well reserved
**Conservation Status:** Low risk

**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Acacia truncata* | *Comesperma confertum* |
| | *Astroloma microcalyx* | *Lepidosperma angustatum* |
| | *Dryandra nivea* | *Lomandra maritima* |
| | *Grevillea thelemanniana* subsp. *preissii* | *Loxocarya flexuosa* |
| | | *Trachymene pilosa* |
| | *Leucopogon parviflorus* | |
| | *Lysinema ciliatum* | |
| | *Melaleuca acerosa* | |
| | *Templetonia retusa* | |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Acacia lasiocarpa* | *Cassytha flava* |
| | *Hakea trifurcata* | *Cassytha glabella* |
| | *Hibbertia hypericoides* | *Conostylis aculeata* |
| | *Hibbertia racemosa* | *Daucus glochidiatus* |
| | *Hibbertia spicata* subsp. *leptotheca* | *Drosera macrantha* |
| | | *Opercularia vaginata* |
| | *Trymalium albicans* | *Poa drummondiana* |
| | *Xanthorrhoea preissii* | *Pterostylis* aff. *nana* |
| | | *Schoenus lanatus* |
| | | *Stylidium junceum* |
| | | *Thysanotus manglesianus/ patersonii* complex |
| | | *Tricoryne elatior* |

**Mean species richness:** 39

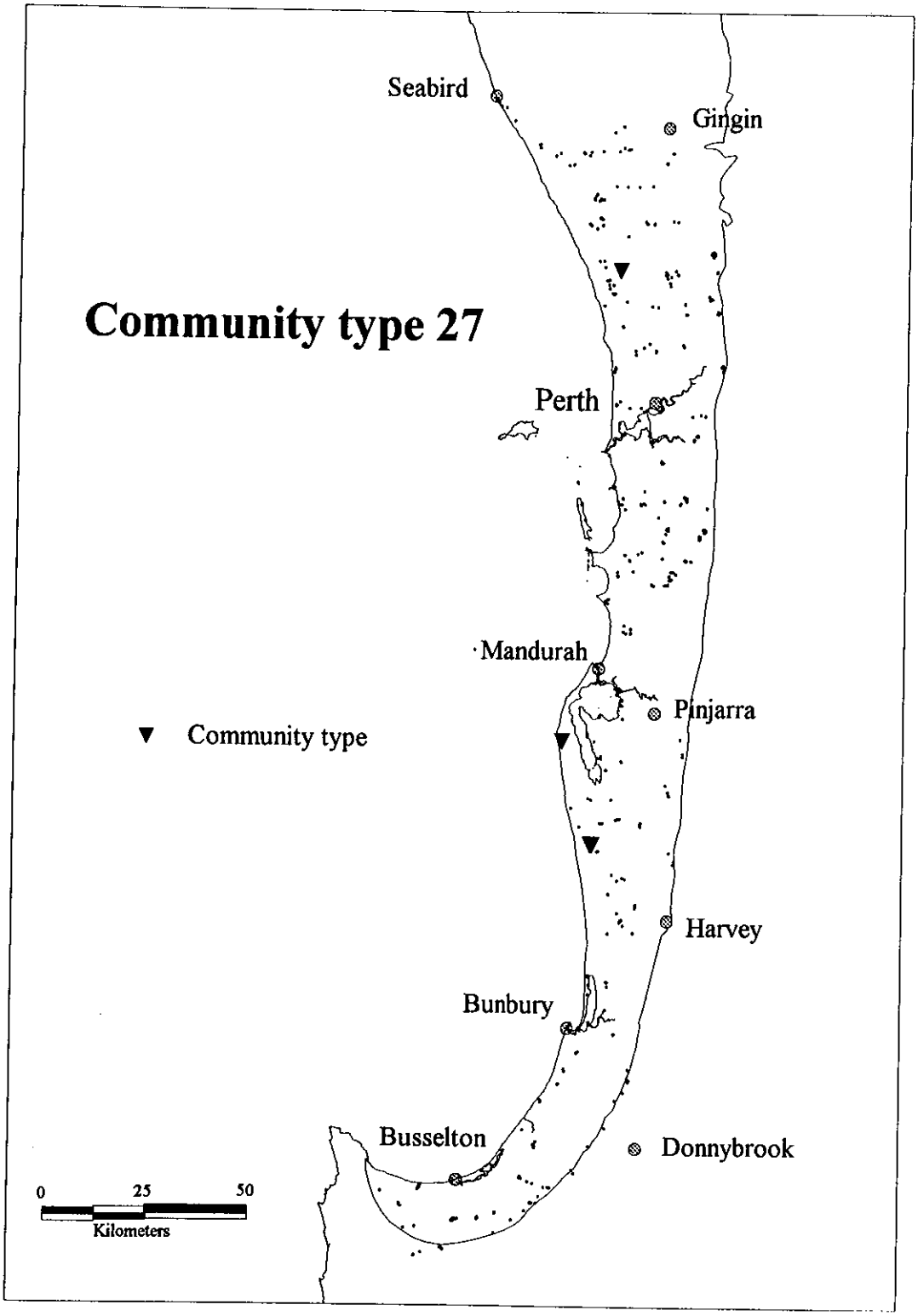
**Mean weed frequency:** 0

**Mean vegetation condition:** 1.7

**Number of quadrats:** 7

**Structural units**

dense shrub mallee
low heath C
low heath D
low scrub B
open shrub mallee
shrub mallee


Community type 27
Seabird
Gingin
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

## Community type: 28

## Spearwood *Banksia attenuata* or *Banksia attenuata - Eucalyptus* woodlands

**Reservation Status:** Well reserved
**Conservation Status:** Low risk

**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| *Banksia attenuata* | *Hibbertia hypericoides* | * *Hypochaeris glabra* |
| | *Xanthorrhoea preissii* | *Burchardia umbellata* |
| | | *Drosera erythrorhiza* |
| | | *Loxocarya flexuosa* |
| | | *Mesomelaena pseudostygia* |
| | | *Trachymene pilosa* |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Acacia pulchella* var. *pulchella* | **Aira caryophyllea* |
| | *Conostephium pendulum* | **Briza maxima* |
| | *Gompholobium tomentosum* | **Gladiolus caryophyllaceus* |
| | *Petrophile linearis* | *Centrolepis drummondiana* |
| | | *Conostylis aculeata* |
| | | *Conostylis setigera* |
| | | *Danthonia occidentalis* |
| | | *Daucus glochidiatus* |
| | | *Lagenifera huegelii* |
| | | *Lepidosperma angustatum* |
| | | *Lomandra hermaphrodita* |
| | | *Sowerbaea laxiflora* |
| | | *Stylidium brunonianum* |
| | | *Thysanotus manglesianus/ patersonii* complex |
| | | **Ursinia anthemoides* |

**Mean species richness:** 55.2

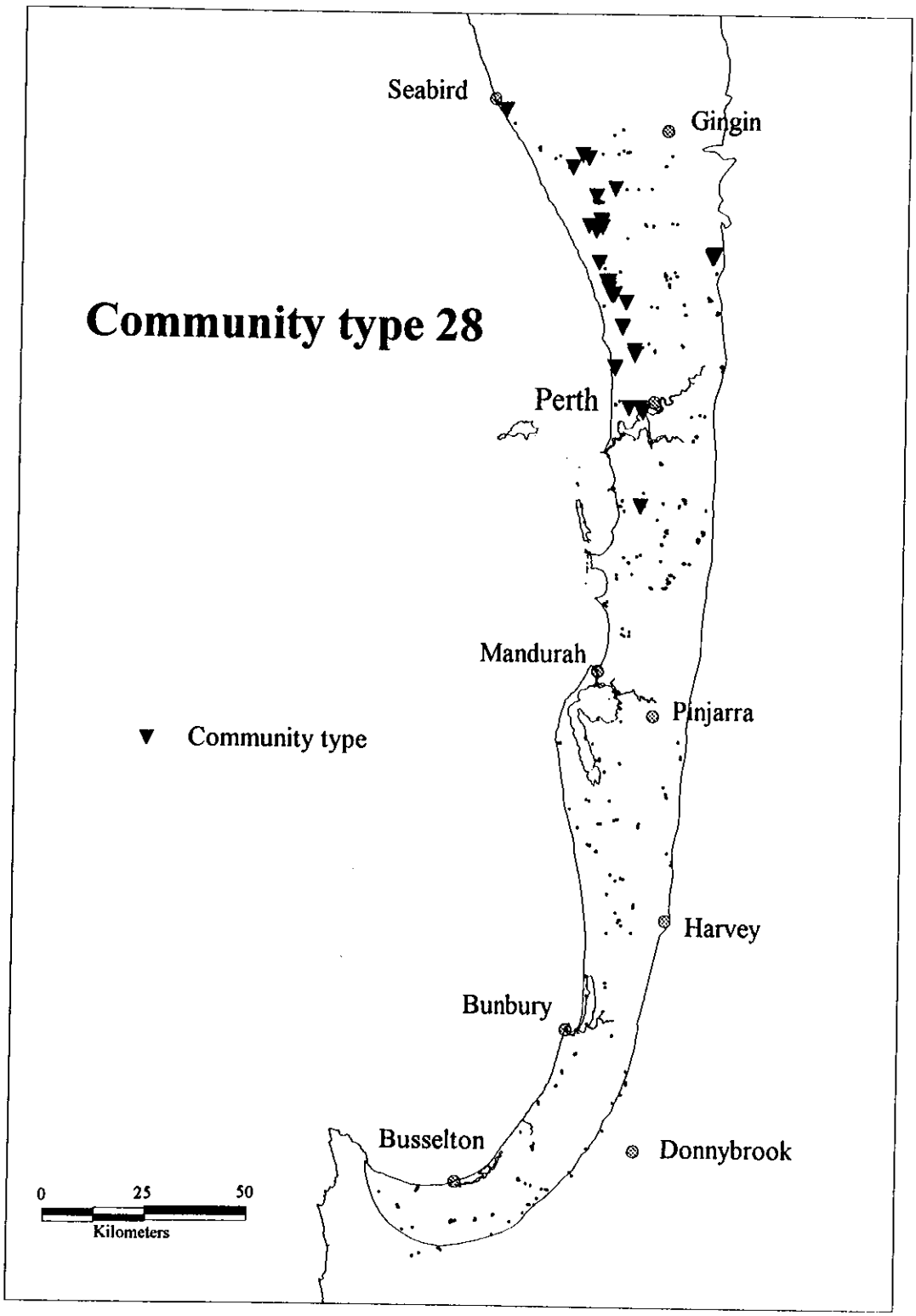
**Mean weed frequency:** 8

**Mean vegetation condition:** 2.5

**Number of quadrats:** 38

**Structural units**

forest
low forest A
low forest B
woodland
low woodland A
open woodland
open low woodland A
dense thicket
scrub
low scrub B


Seabird
Gingin
Community type 28
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

**Community type:** 29a

## Coastal shrublands on shallow sands

**Reservation Status:** Poorly reserved
**Conservation Status:** Susceptible

**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Acanthocarpus preissii* | *Crassula colorata* |
| | *Rhagodia baccata* | *Daucus glochidiatus* |
| | *Spyridium globulosum* | *Senecio lautus* |
| | | *Stipa flavescens* |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Eremophila glabra* | **Anagallis arvensis* |
| | *Hardenbergia comptoniana* | **Bromus diandrus* |
| | *Leucopogon parviflorus* | **Cerastium glomeratum* |
| | *Nemcia reticulata* | *Crassula glomerata* |
| | | **Galium murale* |
| | | *Parietaria debilis* |
| | | *Poa porphyroclados* |
| | | **Sonchus oleraceus* |
| | | *Trachymene pilosa* |

**Mean species richness:** 40.7

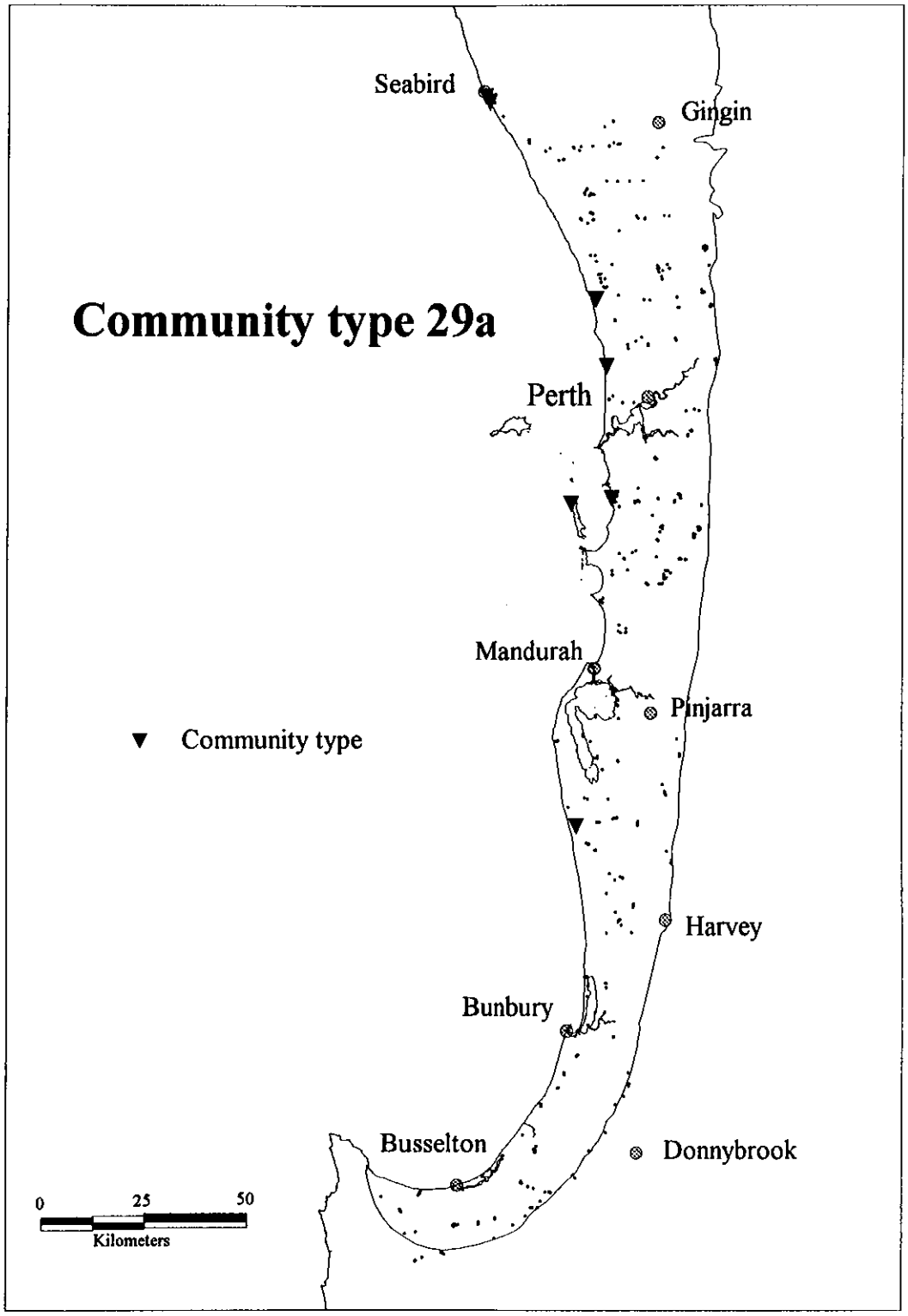
**Mean weed frequency:** 11.2

**Mean vegetation condition:** 2.3

**Number of quadrats:** 9

**Structural units**

low forest A
dense low forest A
dense heath B
dense low heath C
dense low heath D
low heath D


Seabird
Gingin
Community type 29a
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

**Community type: 29b**

***Acacia* shrublands on taller dunes**

**Reservation Status:** Poorly reserved
**Conservation Status:** Susceptible

**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Acacia lasiocarpa* | *Daucus glochidiatus* |
| | *Acanthocarpus preissii* | **Dischisma arenarium* |
| | *Melaleuca acerosa* | *Lepidosperma angustatum* |
| | *Rhagodia baccata* | *Lomandra maritima* |
| | | *Loxocarya flexuosa* |
| | | *Poa porphyroclados* |
| | | *Senecio lautus* |
| | | *Stipa flavescens* |
| | | *Trachymene pilosa* |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Acacia rostellifera* | *Bromus diandrus* |
| | *Gompholobium tomentosum* | *Conostylis candicans* |
| | *Hemiandra pungens* | *Danthonia occidentalis* |
| | *Leucopogon parviflorus* | **Heliophila pusilla* |
| | *Olearia axillaris* | *Opercularia vaginata* |
| | *Phyllanthus calycinus* | *Schoenus grandiflorus* |

**Mean species richness:** **35.6**

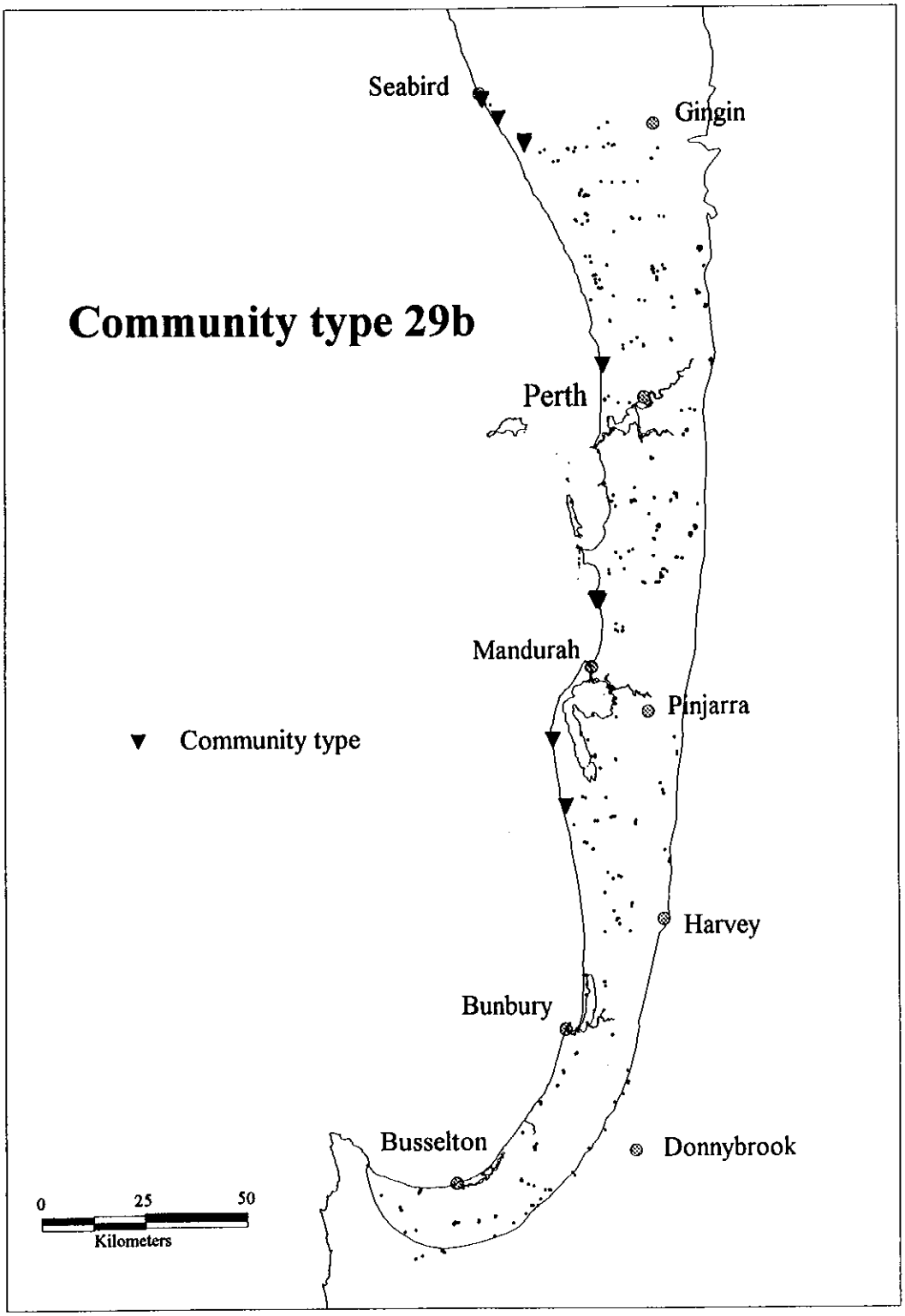
**Mean weed frequency:** **3.4**

**Mean vegetation condition:** **1.8**

**Number of quadrats:** **13**

**Structural units**

heath A
heath B
low heath C
low heath D
low scrub B
dwarf scrub C
dwarf scrub D
open low scrub A


Seabird
Gingin
Community type 29b
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

**Community type: 30a**

## *Callitris preissii* (or *Melaleuca lanceolata*) *forests* and woodlands

**Reservation Status:** Poorly reserved
**Conservation Status:** Vulnerable

**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| *Callitris preissii* | *Spyridium globulosum* | |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Acanthocarpus preissii* | **Galium murale* |
| | *Rhagodia baccata* | **Myrsiphyllum asparagoides* |
| | | *Stipa flavescens* |
| | | **Trachyandra divaricata* |
| | | *Trachymene pilosa* |

**Mean species richness:** **21.1**

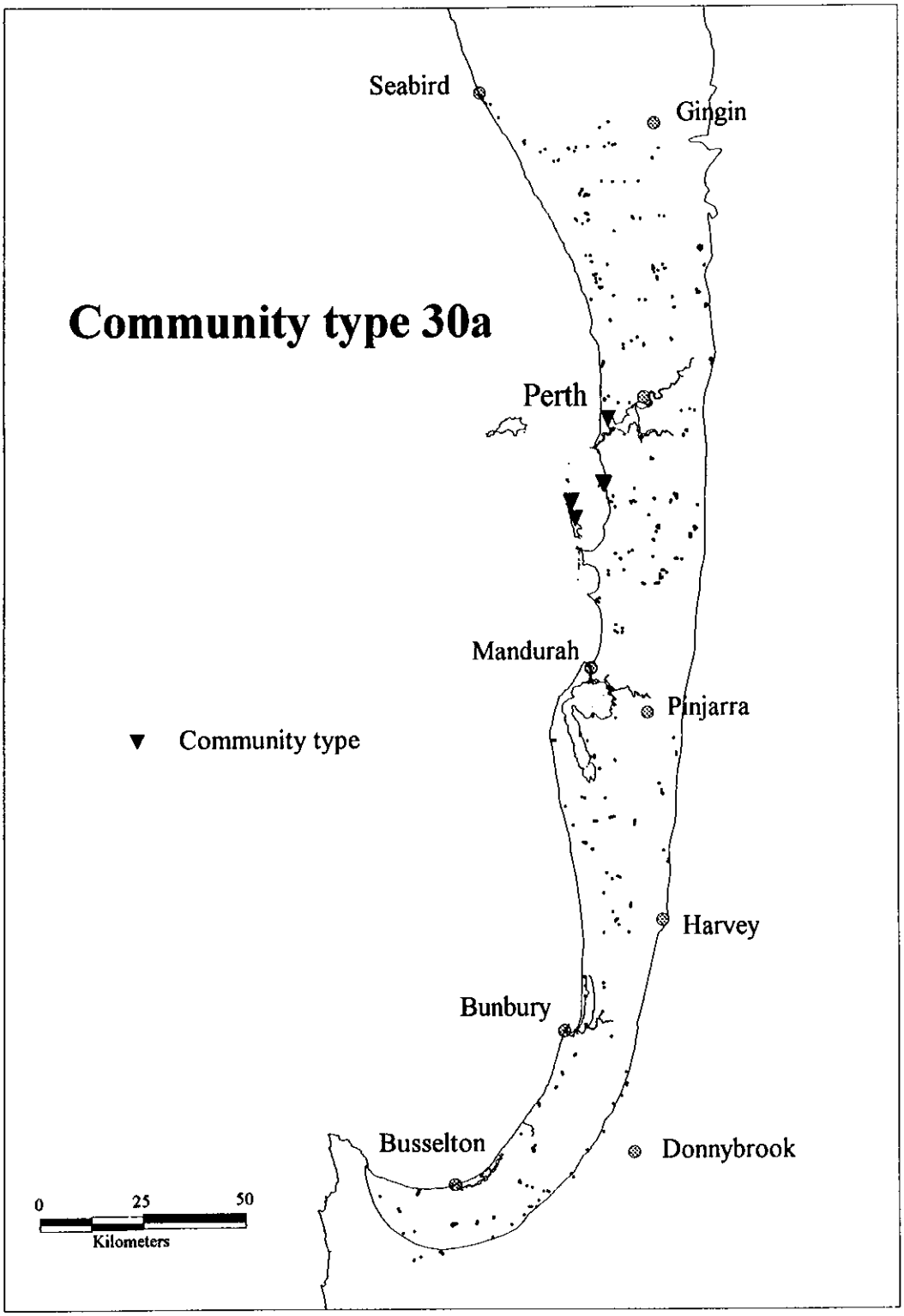
**Mean weed frequency:** **6.3**

**Mean vegetation condition:** **3.2**

**Number of quadrats:** **7**

**Structural units**

forest
dense low forest A
dense low forest B
low forest A
low woodland A
open woodland


Seabird
Gingin
Community type 30a
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

**Community type: 30b**

## Quinadalup *Eucalyptus gomphocephala* and / or *Agonis flexuosa* woodlands

**Reservation Status:** Well reserved
**Conservation Status:** Susceptible

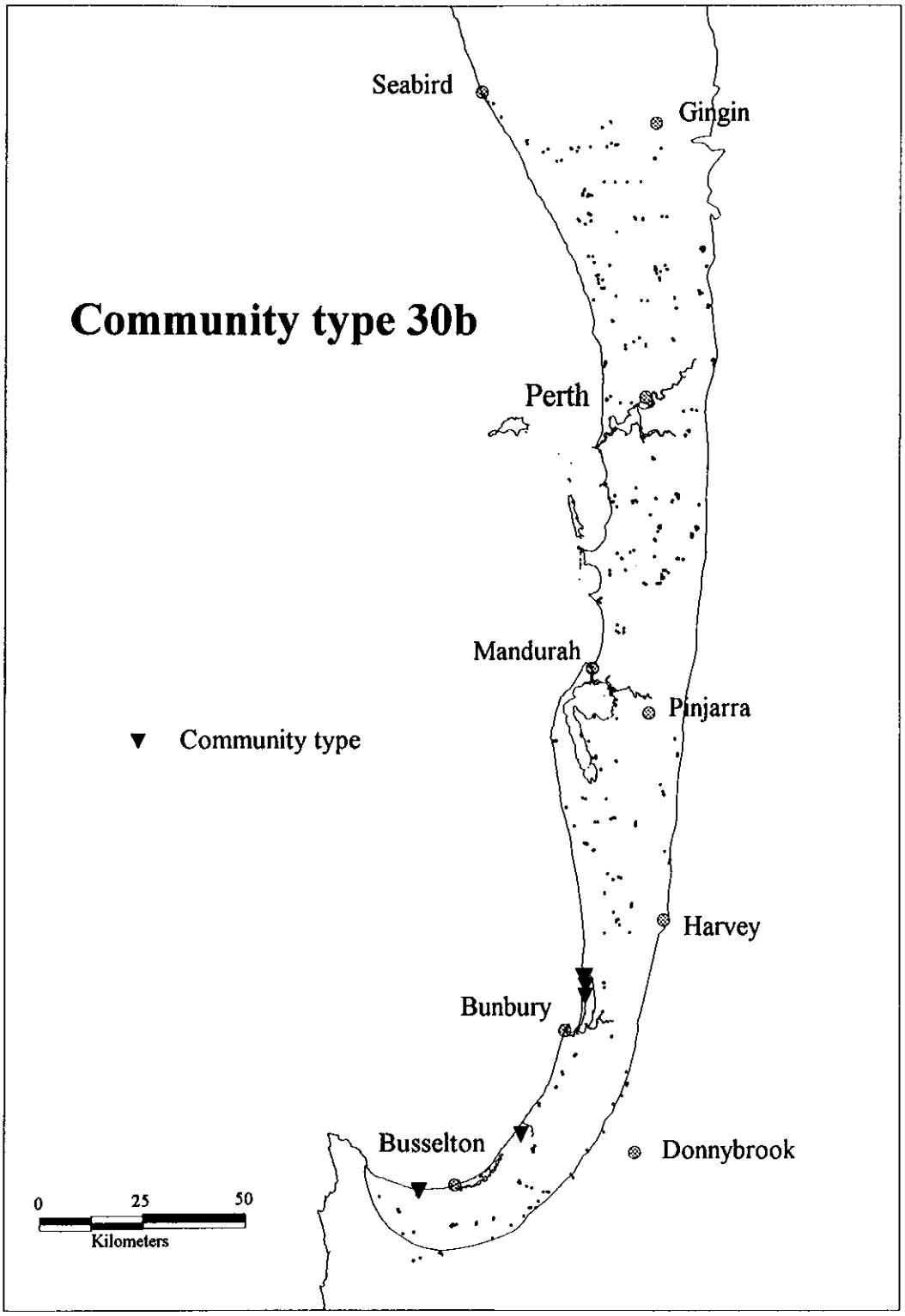
**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| *Agonis flexuosa* | *Hardenbergia comptoniana* | *Caladenia latifolia* |
| | *Hibbertia cuneiformis* | *Carex preissii* |
| | *Rhagodia baccata* | *Galium murale* |
| | *Spyridium globulosum* | *Geranium retrorsum* |
| | | *Oxalis perennans* |
| | | *Parietaria debilis* |
| | | *Trachymene pilosa* |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Acanthocarpus preissii* | **Anagallis arvensis* |
| | *Leucopogon parviflorus* | *Calandrinia brevipedata* |
| | *Phyllanthus calycinus* | **Cerastium glomeratum* |
| | *Templetonia retusa* | *Dichondra repens* |
| | | *Eriochilus dilatatus* |
| | | *Lepidosperma angustatum* |
| | | *Microlaena stipoides* |
| | | *Pterostylis* aff. *nana* |
| | | *Sonchus oleraceus* |
| | | *Stipa flavescens* |
| | | **Trachyandra divaricata* |
| | | **Zantedeschia aethiopica* |

| | | |
|---|---|---|
| **Mean species richness:** | **37.6** | **Structural units** |
| **Mean weed frequency:** | **7.7** | low forest A |
| | | dense low forest A |
| **Mean vegetation condition:** | **3.1** | woodland |
| | | open woodland |
| **Number of quadrats:** | **8** | dense heath A |


Seabird
Gingin
Community type 30b
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

**Community type:** **30c**

**Other mallees or scrubs**

**Reservation Status:** Unreserved
**Conservation Status:** Insufficiently known

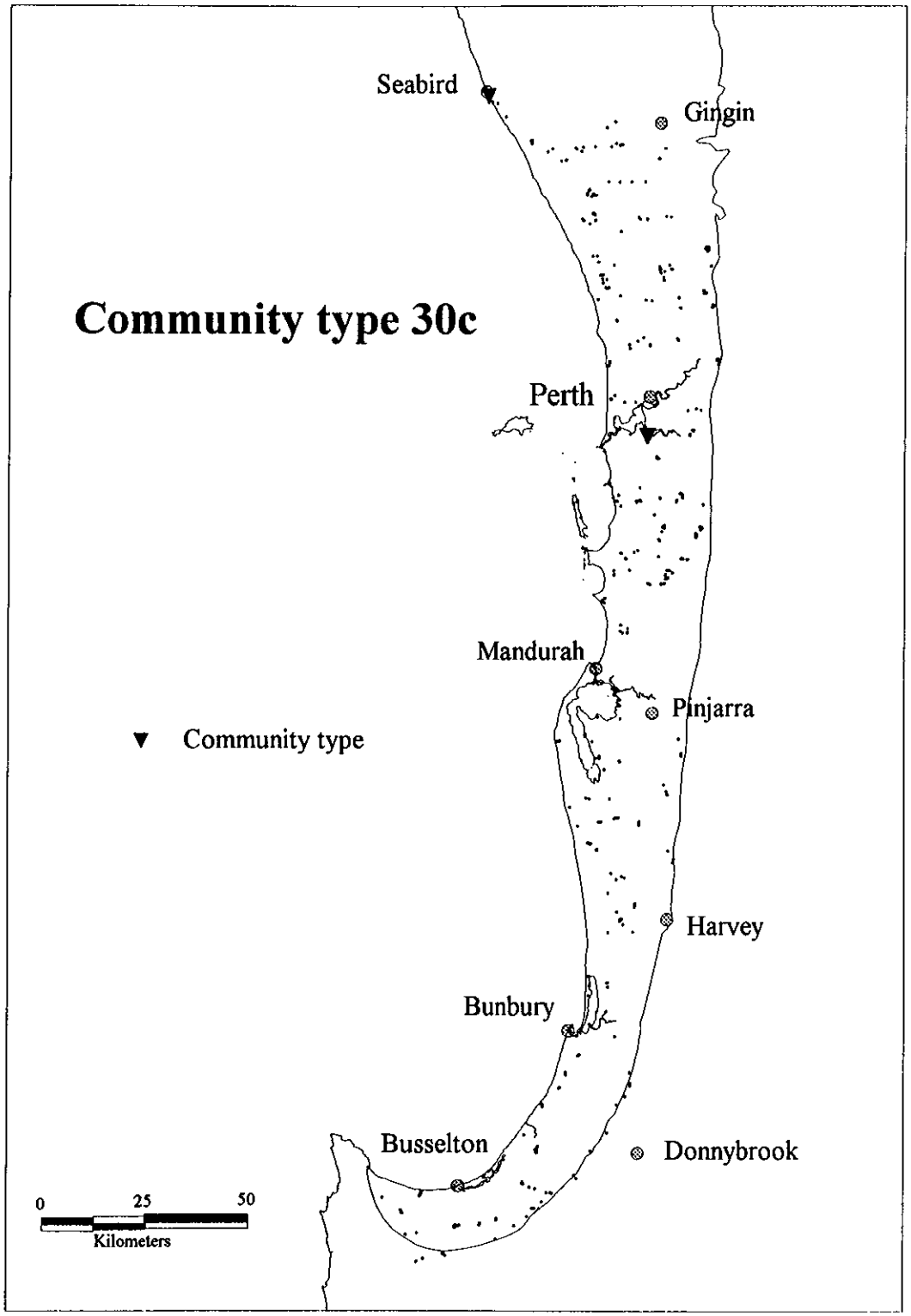
**Typical Species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Spyridium globulosum* | *Daucus glochidiatus*<br>*Dianella revoluta*<br>*Thysanotus manglesianus/ patersonii* complex |

**Other common species:**

| Trees | Shrubs | Herbs |
|---|---|---|
| | *Acacia lasiocarpa*<br>*Dryandra sessilis*<br>*Hardenbergia comptoniana*<br>*Olearia axillaris*<br>*Templetonia retusa* | *Caladenia latifolia*<br>**Cerastium glomeratum*<br>**Conyza albida*<br>**Hypochaeris glabra*<br>*Lepidosperma gladiatum*<br>**Oxalis pes-caprae*<br>*Poa porphyroclados*<br>*Pterostylis* aff. *nana*<br>* *Sonchus oleraceus*<br>*Trachymene pilosa* |

| | | |
|---|---|---|
| **Mean species richness:** | **27.3** | **Structural units** |
| **Mean weed frequency:** | **3.7** | shrub mallee<br>thicket |
| **Mean vegetation condition:** | **2.7** | scrub |
| **Number of quadrats:** | **3** | |


Seabird
Gingin
Community type 30c
Perth
Mandurah
Pinjarra
Community type
Harvey
Bunbury
Busselton
Donnybrook
0
25
50
Kilometers

*Appendix 2.*

# Flora list for the southern Swan Coastal Plain.

The list includes all taxa recognised in the survey (Appendix 3). When it was not possible to differentiate between species and subspecific ranks at sites both ranks are listed. See Appendix 3 for a list of taxa amalgamated for the purposes of the analysis.

## Explanation of column headings and codes

### Conservation code

As defined by the Western Australian Department of Conservation and Land Management (2/2/94).

**R:** Declared Rare Flora - Extant taxa (= Threatened Flora = Endangered + Vulnerable)
Taxa which have been adequately searched for, and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

**1:** Priority 1 - Poorly Known Taxa
Taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat from disease, grazing by feral animals etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need for further survey.

**2:** Priority Two - Poorly Known Taxa
Taxa which are currently known from one or a few (generally <5) populations, at least some of which are believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.

**3.** Priority Three - Poorly Known Taxa
Taxa which are known from several populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in need of further survey.

**4.** Priority Four - Poorly Known Taxa
Taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by identifiable factors. These taxa require monitoring every 5 -10 years.

### Proposed Conservation Code

Conservation code as recommended by the current survey. Codes as above.

### Endemics

Taxa endemic to the study area (the region south of Seabird and west of the Darling and Whicher Scarps including the colluvial soils along their margins). See Figure 1.

| | |
|---|---|
| **eC** | Coastal dunes |
| **eCl** | Coastal limestone |
| **eE** | Pinjarra plain |
| **ef** | Foothills |
| **eI** | Ironstone |
| **eP** | Entire study area |

### Range Ends

Taxa for which the study area contains:

| | |
|---|---|
| **N** | populations at the northern limit of their known geographic range. |
| **S** | populations at the southern limit of their known geographic range. |
| **ND** | populations disjunct and north of their known geographic range. |
| **SD** | populations disjunct and south of their known geographic range. |
| **D** | populations disjunct from their known geographic range. |

### Geographic limit

Location of range limits as defined above.

### Code

Codes used in Appendix 3

| Family/taxon | Cons. Code | Prop. Cons. Code | End-emic | Range end | Geographic limit | Code |
|---|---|---|---|---|---|---|
| **Adiantaceae** | | | | | | |
| Adiantum aethiopicum | | | | | | ADIAET |
| Cheilanthes austrotenuifolia | | | | | | CHEAUS |
| **Aizoaceae** | | | | | | |
| * Carpobrotus edulis | | | | | | CAREDU |
| Carpobrotus modestus | 1 | | | | | CARMOD |
| Carpobrotus sp. (Hepburn Heights GJK 11518) | | | eC | | | CARPHEP |
| Carpobrotus virescens | | | | | | CARVIR |
| * Tetragonia decumbens | | | | | | TETDEC |
| Tetragonia tetragonoides | | | | | | TETTET |
| **Amaranthaceae** | | | | | | |
| Alternanthera nodiflora | | | | | | ALTNOD |
| Ptilotus declinatus | | | | | | PTIDEC |
| Ptilotus drummondii | | | | | | PTIDRU |
| Ptilotus esquamatus | | | | | | PTIESQ |
| Ptilotus humilis subsp. humilis | | | | D | | PTIHUMHU |
| Ptilotus manglesii | | | | | | PTIMAN |
| Ptilotus polystachyus | | | | | | PTIPOL |
| Ptilotus stirlingii | | | | | | PTISTI |
| **Anthericaceae** | | | | | | |
| Agrostocrinum scabrum | | | | | | AGRSCA |
| Arnocrinum preissii | | | | | | ARNPRE |
| Borya scirpoidea | | | | | | BORSCI |
| Borya sphaerocephala | | | | | | BORSPH |
| Caesia micrantha | | | | | | CAEMIC |
| Caesia micrantha (Blue flowered form GJK 10857) | | | | | | CAEMICBL |
| Caesia micrantha (Large swamp form BJK & NG 094) | | | eE | | | CAEMICSW |
| Caesia occidentalis | | | | | | CAEOCC |
| Chamaescilla aff. spiralis (GJK 12501) | | 1 | eE | | | CHAAFFSP |
| Chamaescilla corymbosa | | | | | | CHACOR |
| Chamaescilla versicolor | | | | | | CHAVER |
| Corynotheca micrantha | | | | | | CORMIC |
| Dichopogon capillipes | | | | | | DICCAP |
| Dichopogon preissii | | | | | | DICPRE |
| Hensmania turbinata | | | | | | HENTUR |
| Hodgsoniola junciformis | | | | N | Capel | HODJUN |
| Johnsonia acaulis | | | | | | JOHACA |
| Johnsonia aff. pubescens (GJK 5249) | | | eP | | | JOHAFFPU |
| Johnsonia lupulina | | | | | | JOHLUP |
| Johnsonia pubescens | | | | | | JOHPUB |
| Laxmannia grandiflora | | | | | | LAXGRA |
| Laxmannia ramosa | | | | | | LAXRAM |
| Laxmannia sessiliflora subsp. australis | | | | | | LAXSESAU |
| Laxmannia squarrosa | | | | | | LAXSQU |
| Sowerbaea laxiflora | | | | | | SOWLAX |
| Thysanotus aff. pauciflora | | | | | | THY_PAU |
| Thysanotus aff. sparteus | | | | | | THY_SPA |
| Thysanotus arbuscula | | | | | | THYARB |
| Thysanotus arenarius | | | | | | THYARE |
| Thysanotus dichotomus | | | | | | THYDIC |
| Thysanotus glaucus | 4 | | | | | THYGLA |
| Thysanotus manglesianus | | | | | | THYMAN |
| Thysanotus manglesianus/patersonii complex | | | | | | THYSPMP |
| Thysanotus multiflorus | | | | | | THYMUL |
| Thysanotus patersonii | | | | | | THYPAT |
| Thysanotus pauciflorus | | | | | | THYPAU |
| Thysanotus pseudojunceus | | | | | | THYPSE |
| Thysanotus sparteus | | | | | | THYSPA |
| Thysanotus tenellus | | | | | | THYTEN |
| Thysanotus thyrsoideus | | | | | | THYTHY |
| Thysanotus triandrus | | | | | | THYTRI |
| Tricoryne elatior | | | | | | TRIELA |
| Tricoryne humilis | | | | | | TRIHUM |
| Tricoryne tenella | | | | | | TRITEN |
| **Apiaceae** | | | | | | |
| Actinotus glomeratus | | | | | | ACTGLO |
| Actinotus leucocephalus | | | | | | ACTLEU |
| Apium annuum | | | | | | APIANN |
| Apium prostratum | | | | | | APIPRO |
| Centella asiatica | | | | | | CENASI |
| Centella cordifolia | | | | | | CENCOR |

| Family/taxon | Cons. Code | Prop. Cons. Code | End-emic | Range end | Geographic limit | Code |
|---|---|---|---|---|---|---|
| Daucus glochidiatus | | | | | | DAUGLO |
| Eryngium pinnatifidum subsp. palustre Ms | 1 | | eE | | | ERYPINPA |
| Eryngium pinnatifidum subsp. pinnatifidum | | | | | | ERYPINPI |
| Eryngium subdecumbens Ms | 1 | | eE | | | ERYSUB |
| Homalosciadium homalocarpum | | | | | | HOMHOM |
| Hydrocotyle alata | | | | | | HYDALA |
| Hydrocotyle blepharocarpa | | | | | | HYDBLE |
| Hydrocotyle callicarpa | | | | | | HYDCAL |
| Hydrocotyle capillaris | | | | | | HYDCAP |
| Hydrocotyle diantha | | | | | | HYDDIA |
| Hydrocotyle hispidula | | | | | | HYDHIS |
| Hydrocotyle medicaginoides | | | | | | HYDMED |
| Hydrocotyle pilifera var. glabrata | | | | | | HYDPILGL |
| Hydrocotyle pilifera var. pilifera | | | | | | HYDPILPI |
| Hydrocotyle scutellifera | | | | | | HYDSCU |
| Hydrocotyle tetragonocarpa | | | | | | HYDTET |
| Pentapeltis peltigera | | | | | | PENPEL |
| Platysace compressa | | | | | | PLACOM |
| Platysace haplosciadia | | | | | | PLAHAP |
| Platysace juncea | | | | S | Cardup | PLAJUN |
| Platysace tenuissima | | | | | | PLATEN |
| Schoenolaena juncea | | | | | | SCHJUN |
| Trachymene coerulea | | | | | | TRACOE |
| Trachymene pilosa | | | | | | TRAPIL |
| Xanthosia candida | | | | | | XANCAN |
| Xanthosia ciliata | | | | | | XANCIL |
| Xanthosia huegelii | | | | | | XANHUE |
| Xanthosia pusilla | | | | | | XANPUS |
| **Apocynaceae** | | | | | | |
| Alyxia buxifolia | | | | | | ALYBUX |
| Parsonia diaphanophleba | 2 | R | eP | | | PARDIA |
| **Aponogetonaceae** | | | | | | |
| Aponogeton hexatepalus | R | | eE | | | APOHEX |
| **Araceae** | | | | | | |
| * Zantedeschia aethiopica | | | | | | ZANAET |
| **Asparagaceae** | | | | | | |
| * Myrsiphyllum asparagoides | | | | | | MYRASP |
| **Asphodelaceae** | | | | | | |
| Bulbine semibarbata | | | | | | BULSEM |
| * Trachyandra divaricata | | | | | | TRADIV |
| **Asteraceae** | | | | | | |
| Angianthus aff. drummondii (BJK & NG 013) | | | | | | ANGAFFDR |
| Angianthus drummondii | | | | | | ANGDRU |
| Angianthus micropodioides | 3 | | | | | ANGMIC |
| Angianthus preissianus | | | | | | ANGPRE |
| * Arctotheca calendula | | | | | | ARCCAL |
| * Argyranthemum frutescens | | | | | | ARGFRU |
| * Aster subulatus | | | | | | ASTSUB |
| Asteridea pulverulenta | | | | | | ASTPUL |
| Blennospora aff. drummondii (golden bracts BJK & NG 20) | | 3 | eE | | | BLEAFFDR |
| Blennospora drummondii | | | | | | BLEDRU |
| Brachyscome bellidioides | | | | | | BRABEL |
| Brachyscome iberidifolia | | | | | | BRAIBE |
| * Carduus pycnocephalus | | | | | | CARPYC |
| * Centaurea melitensis | | | | | | CENMEL |
| * Cirsium vulgare | | | | | | CIRVUL |
| * Conyza albida | | | | | | CONALB |
| * Conyza bonariensis | | | | | | CONBON |
| Cotula australis | | | | | | COTAUS |
| * Cotula bipinnata | | | | | | COTBIP |
| Cotula coronopifolia | | | | | | COTCOR |
| Cotula cotuloides | | | | | | COTCOT |
| * Cotula turbinata | | | | | | COTTUR |
| Craspedia sp. (Perth Flora GJK 13121) | | | | | | CRASPSP |
| Craspedia sp. nov. (Waterloo GJK 13110) | | | | | | CRASPNOV |
| * Dittrichia graveolens | | | | | | DITGRA |
| Gnaphalium indutum | | | | | | GNAIND |
| Gnaphalium sphaericum | | | | | | GNASPH |
| Gnephosis angianthoides | | | | | | GNEANG |
| Gnephosis drummondii | | | | | | GNEDRU |
| Gnephosis tenuissima - drummondii complex | | | | | | GNETENDR |

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|---|---|---|---|---|---|---|
| * Hedypnois rhagadioloides | | | | | | HEDRHA |
| Helichrysum cordatum | | | | | | HELCOR |
| Helipterum corymbosum | | | | | | HELCORy |
| Hyalosperma cotula | | | | | | HYACOT |
| Hyalosperma demissum | | | | | | HYADEM |
| Hyalosperma pusillum | | | | | | HYAPUS |
| * Hypochaeris glabra | | | | | | HYPGLAbr |
| Ixiolaena viscosa | | | | N | Meelon | IXIVIS |
| Lagenifera huegelii | | | | | | LAGHUE |
| Lawrencella rosea | | | | | | LAWROS |
| * Leontodon saxatilis | | | | | | LEOSAX |
| Leptorhynchos scabrus | | | | | | LEPSCAb |
| Millotia myosotidifolia | | | | | | MILMYO |
| Millotia tenuifolia | | | | | | MILTEN |
| Myriocephalus appendiculatus | 3 | | | | | MYRAPP |
| Myriocephalus helichrysoides | | | eE | | | MYRHEL |
| Myriocephalus isoetes | | | | | | MYRISO |
| Myriocephalus rhizocepalus | | | | | | MYRRHI |
| Olearia axillaris | | | | | | OLEAXI |
| Olearia elaeophila | | | | | | OLEELA |
| Olearia paucidentata | | | | | | OLEPAU |
| Olearia rudis | | | | | | OLERUD |
| * Osteospermum clandestinum | | | | | | OSTCLA |
| Picris squarrosa | | | | | | PICSQU |
| Pithocarpa achilleoides | 2 | | e | | | PITACH |
| Pithocarpa corymbulosa | | | | | | PITCOR |
| Pithocarpa pulchella | | | | | | PITPUL |
| Podolepis gracilis | | | | | | PODGRA |
| Podolepis gracilis (Swamp form GJK 13126) | | | | | | PODGRASW |
| Podolepis lessonii | | | | | | PODLES |
| Podotheca angustifolia | | | | | | PODANG |
| Podotheca chrysantha | | | | | | PODCHR |
| Podotheca gnaphalioides | | | | | | PODGNA |
| Pogonolepis stricta | | | | | | POGSTR |
| Pseudognaphalium luteoalbum | | | | | | PSELUT |
| Quinetia urvillei | | | | | | QUIURV |
| Rhodanthe manglesii | | | | | | RHOMAN |
| Rhodanthe pyrethrum | 3 | | eE | | | RHOPYR |
| Rhodanthe spicata | | | | | | RHOSPI |
| Rutidosis multiflora | | | | | | RUTMUL |
| Senecio hispidulus | | | | | | SENHIS |
| Senecio lautus subsp. dissectifolius | | | | | | SENLAUDI |
| Senecio lautus subsp. maritimus | | | | | | SENLAUMA |
| Senecio quadridentatus | | | | | | SENQUA |
| Siloxerus filifolius | | | | | | SILFIL |
| Siloxerus humifusus | | | | | | SILHUM |
| * Sonchus asper | | | | | | SONASP |
| Sonchus hydrophilus | | | | | | SONHYD |
| * Sonchus oleraceus | | | | | | SONOLE |
| Trichocline sp. (GJK 6382-glabrous) | | 1 | eE | | | TRISP |
| Trichocline spathulata | | | | | | TRISPA |
| * Urospermum picroides | | | | | | UROPIC |
| * Ursinia anthemoides | | | | | | URSANT |
| * Vellereophyton dealbatum | | | | | | VELDEA |
| Waitzia aurea | | | | | | WAIAUR |
| Waitzia citrina | | | | | | WAICIT |
| Waitzia paniculata | | | | | | WAIPAN |
| Waitzia suaveolens | | | | | | WAISUA |
| **Azollaceae** | | | | | | |
| Azolla filiculoides | | | | | | AZOFIL |
| **Boraginaceae** | | | | | | |
| Myosotis australis | | | | | | MYOAUS |
| **Brassicaceae** | | | | | | |
| * Brassica tournefortii | | | | | | BRATOU |
| * Cardamine hirsuta | | | | | | CARHIR |
| * Cardamine paucijuga | | | | | | CARPAU |
| * Heliophila pusilla | | | | | | HELPUS |
| Lepidium puberulum | 4 | | | | | LEPPUB |
| Lepidium rotundum | | | | | | LEPROT |
| Stenopetalum gracile | | | | | | STEGRA |
| Stenopetalum robustum | | | | | | STEROB |

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|---|---|---|---|---|---|---|
| **Caesalpiniaceae** | | | | | | |
| Labichea punctata | | | | | | LABPUN |
| **Callitrichaceae** | | | | | | |
| Callitriche hamulata | | | | | | CALHAM |
| * Callitriche stagnalis | | | | | | CALSTA |
| Wahlenbergia preissii | | | | | | WAHPRE |
| **Caryophyllaceae** | | | | | | |
| * Arenaria serpyllifolia | | | | | | ARESER |
| * Cerastium glomeratum | | | | | | CERGLO |
| * Corrigiola litoralis | | | | | | CORLIT |
| * Minuartia hybrida | | | | | | MINHYB |
| * Petrorhagia velutina | | | | | | PETVEL |
| * Sagina apetala | | | | | | SAGAPE |
| * Sagina maritima | | | | | | SAGMAR |
| * Silene gallica | | | | | | SILGAL |
| * Silene nocturna | | | | | | SILNOC |
| * Spergula arvensis | | | | | | SPEARV |
| * Spergularia rubra | | | | | | SPERUB |
| * Stellaria media | | | | | | STEMED |
| **Casuarinaceae** | | | | | | |
| Allocasuarina fraseriana | | | | | | ALLFRA |
| Allocasuarina humilis | | | | | | ALLHUM |
| Allocasuarina microstachya | | | | D | | ALLMIC |
| Allocasuarina thuyoides | | | | D | | ALLTHU |
| Casuarina obesa | | | | | | CASOBE |
| **Centrolepidaceae** | | | | | | |
| Aphelia cyperoides | | | | | | APHCYP |
| Brizula drummondii | | | | N | Bullsbrook | BRIDRU |
| Brizula muelleri | | | | | | BRIMUE |
| Brizula nutans | | | | | | BRINUT |
| Centrolepis alepyroides | | | | | | CENALE |
| Centrolepis aristata | | | | | | CENARI |
| Centrolepis caespitosa | R | | | | | CENCAE |
| Centrolepis cephaloformis subsp. cephaloformis | | | | | | CENCEPCE |
| Centrolepis drummondiana | | | | | | CENDRU |
| Centrolepis glabra | | | | | | CENGLA |
| Centrolepis humillima | | | | | | CENHUM |
| Centrolepis inconspicua | | | | | | CENINC |
| Centrolepis mutica | | | | | | CENMUT |
| Centrolepis pilosa | | | | | | CENPIL |
| Centrolepis polygyna | | | | | | CENPOL |
| **Chenopodiaceae** | | | | | | |
| Atriplex cinerea | | | | | | ATRCIN |
| Atriplex hypoleuca | | | | | | ATRHYP |
| * Atriplex prostrata | | | | | | ATRPRO |
| * Chenopodium ambrosioides | | | | | | CHEAMB |
| * Chenopodium macrospermum | | | | | | CHEMAC |
| Chenopodium pumilio | | | | N | Lowlands | CHEPUM |
| Halosarcia halocnemoides | | | | | | HALHAL |
| Halosarcia indica | | | | | | HALIND |
| Halosarcia lepidosperma | | | | | | HALLEP |
| Rhagodia baccata subsp. baccata | | | | | | RHABAC |
| Rhagodia baccata subsp. dioica | | | | | | RHABACDI |
| Sarcocornia quinqueflora | | | | | | SARQUI |
| Suaeda australis | | | | | | SUAAUS |
| Threlkeldia diffusa | | | | | | THRDIF |
| **Chloanthaceae** | | | | | | |
| Pityrodia bartlingii | | | | DS | Busselton Forrestfield | PITBAR |
| **Colchicaceae** | | | | | | |
| Burchardia bairdiae | | | | S | Forrestdale Lake | BURBAI |
| Burchardia multiflora | | | | | | BURMUL |
| Burchardia umbellata | | | | | | BURUMB |
| Wurmbea dioica | | | | | | WURDIO |
| Wurmbea dioica subsp. aff. alba (GJK 12803) | | | | | | WURDIO_A |
| Wurmbea monantha | | | | | | WURMON |
| Wurmbea pygmaea | | | | | | WURPYG |
| **Commelinaceae** | | | | | | |
| Cartonema philydroides | | | | | | CARPHI |
| **Convolvulaceae** | | | | | | |
| Dichondra repens | | | | | | DICREP |
| Wilsonia backhousei | | | | | | WILBAC |

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|---|---|---|---|---|---|---|
| Wilsonia humilis | | | | | | WILHUM |
| **Crassulaceae** | | | | | | |
| Crassula colorata | | | | | | CRACOL |
| * Crassula decumbens | | | | | | CRADEC |
| Crassula exserta | | | | | | CRAEXS |
| * Crassula glomerata | | | | | | CRAGLO |
| * Crassula natans | | | | | | CRANAT |
| Crassula pedicellosa | | | | | | CRAPED |
| Crassula peduncularis | | | | | | CRAPEDu |
| * Crassula thunbergiana | | | | | | CRATHU |
| **Cupressaceae** | | | | | | |
| Actinostrobus acuminatus | | | | DS | Forrestfield | ACTACU |
| Actinostrobus pyramidalis | | | | | | ACTPYR |
| Callitris preissii | | | | | | CALPRE |
| **Cuscutaceae** | | | | | | |
| * Cuscuta epithymum | | | | | | CUSEPI |
| **Cyperaceae** | | | | | | |
| Baumea acuta | | | | | | BAUACU |
| Baumea arthrophylla | | | | | | BAUARTh |
| Baumea articulata | | | | | | BAUART |
| Baumea juncea | | | | | | BAUJUN |
| Baumea vaginalis | | | | | | BAUVAG |
| Bolboschoenus caldwellii | | | | | | BOLCAL |
| Carex preissii | | | | | | CARPRE |
| Caustis dioica | | | | | | CAUDIO |
| Chorizandra cymbaria | | | | | | CHOCYM |
| Chorizandra enodis | | | | | | CHOENO |
| Cyathochaeta avenacea | | | | N | Bullsbrook | CYAAVE |
| Cyathochaeta clandestina | | | | N | Landsdale | CYACLA |
| * Cyperus congestus | | | | | | CYPCON |
| * Cyperus eragrostis | | | | | | CYPERA |
| Cyperus polystachyos | | | | | | CYPPOL |
| * Cyperus tenellus | | | | | | CYPTEN |
| Eleocharis acuta | | | | | | ELEACU |
| Eleocharis sp. Kenwick (GJK 5180) | 1 | | eE | | | ELEKEN |
| Evandra aristata | | | | N | Payne | EVAARI |
| Evandra pauciflora | | | | N | Anstey Rd | EVAPAU |
| Gahnia trifida | | | | | | GAHTRI |
| Isolepis cernua | | | | | | ISOCER |
| Isolepis cyperoides | | | | | | ISOCYP |
| * Isolepis hystrix | | | | | | ISOHYS |
| Isolepis nodosa | | | | | | ISONOD |
| Isolepis oldfieldiana | | | | | | ISOOLD |
| Isolepis producta | | | | | | ISOPRO |
| Isolepis setiformis | | | | | | ISOSET |
| Isolepis stellata | | | | | | ISOSTE |
| Lepidosperma aff. angustatum | | | | | | LEP_ANG |
| Lepidosperma angustatum | | | | | | LEPANG |
| Lepidosperma carphoides | | | | | | LEPCAR |
| Lepidosperma costale | | | | | | LEPCOS |
| Lepidosperma gladiatum | | | | | | LEPGLA |
| Lepidosperma gladiatum x angustatum | | | | | | LEPGLAN |
| Lepidosperma leptostachyum | | | | | | LEPLEP |
| Lepidosperma longitudinale | | | | | | LEPLON |
| Lepidosperma scabrum | | | | | | LEPSCA |
| Lepidosperma sp. (Coastal terete BJK & NG 231) | | | | | | LEPANGCO |
| Lepidosperma sp. (Eastern terete BJK & NG 232) | | | | | | LEPETRE |
| Lepidosperma sp. E | | | | | | LEPSPE |
| Lepidosperma squamatum | | | | | | LEPSQU |
| Mesomelaena aff. graciliceps (BJK & NG 146) | | | | | | MES_GR |
| Mesomelaena graciliceps | | | | | | MESGRA |
| Mesomelaena pseudostygia | | | | | | MESPSE |
| Mesomelaena stygia | | | | | | MESSTY |
| Mesomelaena tetragona | | | | | | MESTET |
| Schoenus aff. brevisetis | | | | | | SCH_BR |
| Schoenus aff. laevigatus | | | | | | SCHAFFLA |
| Schoenus aff. obtusifolia (EAG 3841) | | | | DS | Melaleuca Park | SCHAFFOB |
| Schoenus aff. tenellus (BJK & NG 110) | | | eE | | | SCHAFFTE |
| Schoenus asperocarpus | | | | | | SCHASP |
| Schoenus benthamii | 3 | | | | | SCHBEN |
| Schoenus bifidus | | | | | | SCHBIF |

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|---|---|---|---|---|---|---|
| Schoenus brevisetis | | | | | | SCHBRE |
| Schoenus caespititius | | | | | | SCHCAE |
| Schoenus capillifolius | 2 | | eE | | | SCHCAP |
| Schoenus clandestinus | | | | | | SCHCLA |
| Schoenus cruentus | | | | | | SCHCRU |
| Schoenus curvifolius | | | | | | SCHCUR |
| Schoenus discifer | | | | | | SCHDIS |
| Schoenus elegans | | | | | | SCHELE |
| Schoenus grandiflorus | | | | | | SCHGRA |
| Schoenus humilis | | | | | | SCHHUM |
| Schoenus lanatus | | | | | | SCHLAN |
| Schoenus latitans | | | | DS | Forrestfield | SCHLAT |
| Schoenus nanus | | | | | | SCHNAN |
| Schoenus natans | R | | eE | | | SCHNAT |
| Schoenus nitens | | | | | | SCHNIT |
| Schoenus odontocarpus | | | | | | SCHODO |
| Schoenus pedicellatus | | | | | | SCHPED |
| Schoenus pennisetis | 1 | | | | | SCHPEN |
| Schoenus pleiostemoneus | | | | | | SCHPLE |
| Schoenus rigens | | | | | | SCHRIG |
| Schoenus rodwayanus | | | | | | SCHROD |
| Schoenus sculptus | | | | | | SCHSCU |
| Schoenus sp. (BJK & NG 233) | | | | | | SCHSPNT |
| Schoenus sp. (brown bracts) | | | | | | SCHSPBB |
| Schoenus sp. (Hymus/Waroona - BJK & NG 111) | | | | | | SCHGREEN |
| Schoenus sp. 2 (GJK 5739) | | | | | | SCHOSP2 |
| Schoenus sp. aff. breviculmis | | | | | | SCH_BRcu |
| Schoenus subbarbatus | | | | | | SCHSUBba |
| Schoenus subbarbatus (Royce 2872) | | | | | | SCHSUBRO |
| Schoenus subbulbosus | | | | | | SCHSUBbu |
| Schoenus subfascicularis | | | | | | SCHSUBfa |
| Schoenus subflavus | | | | | | SCHSUBfl |
| Schoenus tenellus | | | | | | SCHTEN |
| Schoenus unispiculatus | | | | | | SCHUNI |
| Tetraria australiensis | R | | eP | | | TETAUS |
| Tetraria capillaris | | | | | | TETCAP |
| Tetraria octandra | | | | | | TETOCT |
| Tricostularia neesii var. elatior | | | | | | TRINEEEL |
| Tricostularia neesii var. neesii | | | | | | TRINEENE |
| **Dasypogonaceae** | | | | | | |
| Acanthocarpus canaliculatus | | | | S | Anstey Rd | ACACAN |
| Acanthocarpus preissii | | | | N | Capel NR | ACAPRE |
| Baxteria australis | | | | | | BAXAUS |
| Calectasia cyanea | | | | | | CALCYA |
| Calectasia grandiflora | | | | DS | Mundijong Rd | CALGRAnd |
| Chamaexeros serra | | | | | | CHASER |
| Dasypogon bromeliifolius | | | | | | DASBRO |
| Dasypogon hookeri | | | | | | DASHOO |
| Dasypogon obliquifolius | | | | DS | Cardup | DASOBL |
| Kingia australis | | | | | | KINAUS |
| Lomandra brittanii | | | | | | LOMBRI |
| Lomandra caespitosa | | | | | | LOMCAE |
| Lomandra drummondii | | | | | | LOMDRU |
| Lomandra hermaphrodita | | | | | | LOMHER |
| Lomandra integra | | | | | | LOMINT |
| Lomandra maritima | | | | | | LOMMAR |
| Lomandra micrantha | | | | | | LOMMIC |
| Lomandra nigricans | | | | | | LOMNIG |
| Lomandra nutans | | | | D | | LOMNUT |
| Lomandra odora | | | | | | LOMODO |
| Lomandra pauciflora | | | | | | LOMPAU |
| Lomandra preissii | | | | | | LOMPRE |
| Lomandra purpurea | | | | | | LOMPUR |
| Lomandra sericea | | | | | | LOMSER |
| Lomandra sonderi | | | | | | LOMSON |
| Lomandra spartea | | | | S | Dardanup | LOMSPA |
| Lomandra suaveolens | | | | | | LOMSUA |
| **Dennstaedtiaceae** | | | | | | |
| Pteridium esculentum | | | | | | PTEESC |
| **Dilleniaceae** | | | | | | |
| Hibbertia acerosa | | | | | | HIBACE |

| Family/taxon | Cons. Code | Prop. Cons. Code | Endemic | Range end | Geographic limit | Code |
|---|---|---|---|---|---|---|
| Hibbertia aff. helianthemoides | | | | S | Forrestfield | HIBAFFHE |
| Hibbertia amplexicaulis | | | | | | HIBAMP |
| Hibbertia aurea | | | | S | Fish Rd NR | HIBAUR |
| Hibbertia commutata | | | | | | HIBCOM |
| Hibbertia crassifolia | | | | S | Marangaroo M12 | HIBCRA |
| Hibbertia cuneiformis | | | | N | Warnbro Sound | HIBCUN |
| Hibbertia cunninghamii | | | | | | HIBCUNn |
| Hibbertia enervia | | | | | | HIBENE |
| Hibbertia glomerata | | | | | | HIBGLO |
| Hibbertia huegelii | | | | | | HIBHUE |
| Hibbertia hypericoides | | | | | | HIBHYP |
| Hibbertia pachyrrhiza | | | | | | HIBPAC |
| Hibbertia quadricolor | | | | | | HIBQUA |
| Hibbertia racemosa | | | | | | HIBRAC |
| Hibbertia rhadinopoda | | | | | | HIBRHA |
| Hibbertia serrata | | | | | | HIBSER |
| Hibbertia spicata subsp. leptotheca | 3 | | | S | Yalgorup | HIBSPILE |
| Hibbertia stellaris | | | | | | HIBSTE |
| Hibbertia subvaginata | | | | | | HIBSUB |
| Hibbertia vaginata | | | | | | HIBVAG |
| **Droseraceae** | | | | | | |
| Drosera barbigera | | | | | | DROBAR |
| Drosera bulbigena | | | eE | | | DROBUL |
| Drosera bulbosa | | | | | | DROBULos |
| Drosera erythrorhiza | | | | | | DROERY |
| Drosera erythrorhiza subsp. erythrorhiza | | | | | | DROERYER |
| Drosera erythrorhiza subsp. squamosa Ms | | | | | | DROERYSQ |
| Drosera gigantea subsp. geniculata Ms | | | | N | Lowlands | DROGIGGE |
| Drosera gigantea subsp. gigantea | | | | | | DROGIG |
| Drosera glanduligera | | | | | | DROGLA |
| Drosera heterophylla | | | | | | DROHET |
| Drosera huegelii | | | | | | DROHUE |
| Drosera leucoblasta | | | | | | DROLEU |
| Drosera macrantha | | | | | | DROMAC |
| Drosera macrantha (Swan coastal plain form BJK & NG 228) | | | e | | | DROMACSC |
| Drosera macrantha subsp. macrantha Ms | | | | | | DROMACMA |
| Drosera marchantii subsp. marchantii | 4 | | | | | DROMARMA |
| Drosera menziesii subsp. menziesii | | | | | | DROMENME |
| Drosera menziesii subsp. penicillaris | | | | | | DROMENPE |
| Drosera myriantha | | | | | | DROMYR |
| Drosera neesii (Pink southern form BJK & NG 096) | | | | N | Lowlands | DRONEEST |
| Drosera neesii subsp. neesii | | | | N | Twin Swamps | DRONEENE |
| Drosera nitidula | | | | | | DRONIT |
| Drosera nitidula subsp. nitidula | | | | | | DRONITNI |
| Drosera occidentalis subsp. australis Ms | | | | | | DROOCCAU |
| Drosera occidentalis subsp. occidentalis | 4 | | | | | DROOCCOC |
| Drosera paleacea | | | | | | DROPAL |
| Drosera paleacea subsp. paleacea | | | | | | DROPALPA |
| Drosera pallida | | | | | | DROPALl |
| Drosera platystigma | | | | | | DROPLA |
| Drosera pulchella | | | | | | DROPUL |
| Drosera pycnoblasta | | | | | | DROPYC |
| Drosera ramellosa | | | | | | DRORAM |
| Drosera rosulata | | | | | | DROROS |
| Drosera stolonifera | | | | | | DROSTO |
| Drosera stolonifera subsp. porrecta | | | | | | DROSTOPO |
| Drosera stolonifera subsp. stolonifera | | | | | | DROSTOST |
| Drosera subhirtella | | | | | | DROSUB |
| Drosera tubaestylis | | | eE | | | DROTUB |
| **Elatinaceae** | | | | | | |
| Elatine gratioloides | | | | | | ELAGRA |
| **Epacridaceae** | | | | | | |
| Acrotriche cordata | | | | | | ACRCOR |
| Andersonia aff. latifolia (Ironstone BJK & NG 227) | | 1 | eI | | | ANDAFFLA |
| Andersonia aristata | | | | | | ANDARI |
| Andersonia caerulea | | | | | | ANDCAE |
| Andersonia heterophylla | | | | | | ANDHET |
| Andersonia involucrata | | | | | | ANDINV |
| Andersonia lehmanniana | | | | | | ANDLEH |
| Astroloma ciliatum | | | | | | ASTCIL |
| Astroloma drummondii | | | | | | ASTDRU |

| Family/taxon | Cons. Code | Prop. Cons. Code | Endemic | Range end | Geographic limit | Code |
|---|---|---|---|---|---|---|
| Astroloma microcalyx | | | eCL | | | ASTMIC |
| Astroloma pallidum | | | | | | ASTPAL |
| Astroloma stomarrhena | | | | | | ASTSTO |
| Astroloma xerophyllum | | | | | | ASTXER |
| Brachyloma preissii | | | | | | BRAPRE |
| Conostephium minus | 4 | | | S | Lowlands | CONMIN |
| Conostephium pendulum | | | | | | CONPEN |
| Conostephium preissii | | | | | | CONPRE |
| Leucopogon aff. capitellatus (BJK & NG 156) | | | | | | LEU_CAP |
| Leucopogon aff. gracillis | | | | | | LEU_GRA |
| Leucopogon aff. nutans | | | | | | LEUAFFNU |
| Leucopogon aff. oliganthus | | | | | | LEUAFFOL |
| Leucopogon aff. polymorphus | | | | | | LEUAFFPO |
| Leucopogon aff. polymorphus (Southern form BJK & NG 158) | | | | | | LEU_POLS |
| Leucopogon aff. revolutus | | | | | | LEUAFFRE |
| Leucopogon australis | | | | | | LEUAUS |
| Leucopogon capitellatus | | | | | | LEUCAP |
| Leucopogon conostephioides | | | | | | LEUCON |
| Leucopogon cymbiformis | | | | | | LEUCYM |
| Leucopogon glabellus | | | | | | LEUGLA |
| Leucopogon gracillimus | | | | | | LEUGRA |
| Leucopogon kingianus | | | | | | LEUKIN |
| Leucopogon leptanthus | | | | | | LEULEP |
| Leucopogon nutans | | | | | | LEUNUT |
| Leucopogon obovatus | | | | | | LEUOBO |
| Leucopogon oldfieldii | | | | | | LEUOLD |
| Leucopogon oxycedrus | | | | | | LEUOXY |
| Leucopogon parviflorus | | | | | | LEUPAR |
| Leucopogon pendulus | | | | | | LEUPEN |
| Leucopogon polymorphus | | | | | | LEUPOL |
| Leucopogon propinquus | | | | | | LEUPRO |
| Leucopogon racemulosus | | | | | | LEURAC |
| Leucopogon sprengelioides | | | | | | LEUSPR |
| Leucopogon squarrosus | | | | | | LEUSQU |
| Leucopogon verticillatus | | | | | | LEUVER |
| Lysinema ciliatum | | | | | | LYSCIL |
| Lysinema elegans | 2 | | | S | Jandakot | LYSELE |
| Sphenotoma capitatum | | | | | | SPHCAP |
| Sphenotoma gracile | | | | | | SPHGRAci |
| Styphelia tenuiflora | | | | | | STYTEN |
| **Euphorbiaceae** | | | | | | |
| Adriana quadripartita | | | | | | ADRQUA |
| Amperea ericoides | | | | | | AMPERI |
| Amperea volubilis | | | | | | AMPVOL |
| Beyeria cinerea | | | | | | BEYCIN |
| * Euphorbia peplus | | | | | | EUPPEP |
| * Euphorbia terracina | | | | | | EUPTER |
| Monotaxis grandiflora | | | | | | MONGRA |
| Monotaxis occidentalis | | | | | | MONOCC |
| Phyllanthus calycinus | | | | | | PHYCAL |
| Poranthera ericoides | | | | | | PORERI |
| Poranthera huegelii | | | | | | PORHUE |
| Poranthera microphylla | | | | | | PORMIC |
| Pseudanthus virgatus | | | | | | PSEVIR |
| Stachystemon axillaris | 4 | | | | | STAAXI |
| Stachystemon vermicularis | | | | | | STAVER |
| **Frankeniaceae** | | | | | | |
| Frankenia pauciflora | | | | | | FRAPAU |
| **Fumariaceae** | | | | | | |
| * Fumaria capreolata | | | | | | FUMCAP |
| **Gentianaceae** | | | | | | |
| * Centaurium erythraea | | | | | | CENERY |
| * Cicendia filiformis | | | | | | CICFIL |
| **Geraniaceae** | | | | | | |
| * Erodium botrys | | | | | | EROBOT |
| * Erodium cicutarium | | | | | | EROCIC |
| Erodium cygnorum | | | | | | EROCYG |
| * Erodium moschatum | | | | | | EROMOS |
| * Geranium molle | | | | | | GERMOL |
| Geranium retrorsum | | | | | | GERRET |
| * Pelargonium capitatum | | | | | | PELCAP |

| Family/taxon | Cons. Code | Prop. Cons. Code | End-emic | Range end | Geographic limit | Code |
|---|---|---|---|---|---|---|
| Pelargonium littorale | | | | | | PELLIT |
| **Goodeniaceae** | | | | | | |
| Anthotium humile | | | | | | ANTHUM |
| Anthotium junciforme | 4 | | | | | ANTJUN |
| Dampiera alata | | | | | | DAMALA |
| Dampiera coronata | | | | | | DAMCOR |
| Dampiera linearis | | | | | | DAMLIN |
| Dampiera trigona | | | | | | DAMTRI |
| Goodenia caerulea | | | | | | GOOCAE |
| Goodenia eatoniana | | | | | | GOOEAT |
| Goodenia micrantha | | | | | | GOOMIC |
| Goodenia pulchella | | | | | | GOOPUL |
| Lechenaultia biloba | | | | | | LECBIL |
| Lechenaultia expansa | | | | | | LECEXP |
| Lechenaultia floribunda | | | | | | LECFLO |
| Lechenaultia linarioides | | | | S | Coogee | LECLIN |
| Scaevola anchusifolia | | | | | | SCAANC |
| Scaevola calliptera | | | | | | SCACAL |
| Scaevola canescens | | | | | | SCACAN |
| Scaevola crassifolia | | | | | | SCACRA |
| Scaevola glandulifera | | | | | | SCAGLA |
| Scaevola lanceolata | | | | | | SCALAN |
| Scaevola nitida | | | | | | SCANIT |
| Scaevola phlebopetala | | | | | | SCAPHL |
| Scaevola repens var. angustifolia | | | | | | SCAREPAN |
| Scaevola repens var. repens | | | | | | SCAREPRE |
| Scaevola striata | | | | | | SCASTR |
| Scaevola thesioides | | | | | | SCATHE |
| Velleia trinervis | | | | | | VELTRI |
| Verreauxia reinwardtii | | | | | | VERREI |
| **Gyrostemonaceae** | | | | | | |
| Gyrostemon subnudus | | | | | | GYRSUB |
| Tersonia cyathiflora | | | | | | TERCYA |
| **Haemodoraceae** | | | | | | |
| Anigozanthos bicolor | | | | | | ANIBIC |
| Anigozanthos flavidus | | | | | | ANIFLA |
| Anigozanthos humilis | | | | | | ANIHUM |
| Anigozanthos manglesii | | | | | | ANIMAN |
| Anigozanthos viridis | | | | | | ANIVIR |
| Blancoa canescens | | | | S | Serpentine R | BLACAN |
| Conostylis aculeata | | | | | | CONACU |
| Conostylis aculeata subsp. (Dunsborough) | | | | | | CONACUDU |
| Conostylis aculeata subsp. preissii | | | | | | CONACUPR |
| Conostylis aculeata x candicans | | | | | | CONACXCO |
| Conostylis aurea | | | | | | CONAUR |
| Conostylis candicans | | | | | | CONCAN |
| Conostylis caricina | | | | | | CONCAR |
| Conostylis festucacea subsp. festucacea | | | | S | Anstey Rd | CONFESFE |
| Conostylis juncea | | | | | | CONJUN |
| Conostylis laxiflora | | | | | | CONLAX |
| Conostylis pauciflora | | | | | | CONPAU |
| Conostylis pauciflora subsp. euryrhipis | 1 | | | S | Yanchep | CONPAUEU |
| Conostylis serrulata | | | | | | CONSER |
| Conostylis setigera | | | | | | CONSET |
| Conostylis setosa | | | | | | CONSETo |
| Haemodorum brevisepalum | | | | | | HAEBRE |
| Haemodorum discolor | | | | | | HAEDIS |
| Haemodorum laxum | | | | | | HAELAX |
| Haemodorum loratum | 3 | | | DS | Yarloop | HAELOR |
| Haemodorum paniculatum | | | | | | HAEPAN |
| Haemodorum simplex | | | | | | HAESIM |
| Haemodorum sparsiflorum | | | | | | HAESPA |
| Haemodorum spicatum | | | | | | HAESPI |
| Phlebocarya ciliata | | | | | | PHLCIL |
| Phlebocarya filifolia | | | | | | PHLFIL |
| Tribonanthes aff. violacea | | | | | | TRIAFFVI |
| Tribonanthes australis | | | | | | TRIAUS |
| Tribonanthes brachypetala | | | | | | TRIBRA |
| Tribonanthes longipetala | | | | | | TRILON |
| Tribonanthes uniflora | | | | | | TRIUNI |
| Tribonanthes violacea | | | | | | TRIVIO |

| Family/taxon | Cons. Code | Prop. Cons. Code | End-emic | Range end | Geographic limit | Code |
|---|---|---|---|---|---|---|
| **Haloragaceae** | | | | | | |
| Glischrocaryon aureum | | | | | | GLIAUR |
| Gonocarpus benthammii | | | | | | GONBEN |
| Gonocarpus hexandrus | | | | | | GONHEX |
| Gonocarpus paniculatus | | | | | | GONPAN |
| Gonocarpus pithyoides | | | | | | GONPIT |
| Haloragis aculeolata | 2 | | | | | HALACU |
| Haloragis tenuifolia | 1 | | | | | HALTEN |
| Myriophyllum drummondii | | | | | | MYRDRU |
| Myriophyllum echinatum | 1 | 2 | eE | | | MYRECH |
| **Hyacinthaceae** | | | | | | |
| * Lachenalia reflexa | | | | | | LACREF |
| **Hydatellaceae** | | | | | | |
| Hydatella dioica | 2 | | eE | | | HYDDIO |
| Trithuria bibracteata | | | | | | TRIBIB |
| Trithuria submersa | | | | | | TRISUB |
| **Hypoxidaceae** | | | | | | |
| Hypoxis glabella | | | | | | HYPGLA |
| Hypoxis occidentalis | | | | | | HYPOCC |
| **Iridaceae** | | | | | | |
| * Babiana disticha | | | | | | BABDIS |
| * Ferraria crispa | | | | | | FERCRI |
| * Freesia aff. leichtlinii | | | | | | FREAFFLE |
| * Gladiolus angustus | | | | | | GLAANG |
| * Gladiolus caryophyllaceus | | | | | | GLACAR |
| * Hesperantha falcata | | | | | | HESFAL |
| * Homeria flaccida | | | | | | HOMFLA |
| Orthrosanthus laxus | | | | | | ORTLAX |
| Patersonia babianoides | | | | | | PATBAB |
| Patersonia juncea | | | | | | PATJUN |
| Patersonia limbata | | | | D | | PATLIM |
| Patersonia occidentalis | | | | | | PATOCC |
| Patersonia occidentalis (swamp form) | | | | | | PATOCCSW |
| Patersonia pygmaea | | | | | | PATPYG |
| Patersonia rudis | | | | | | PATRUD |
| Patersonia umbrosa forma xanthina | | | | | | PATUMBXA |
| * Romulea flava | | | | | | ROMFLA |
| * Romulea obscura | | | | | | ROMOBS |
| * Romulea rosea | | | | | | ROMROS |
| * Romulea rosea subsp. rosea | | | | | | ROMROSRO |
| * Romulea rosea var. australis | | | | | | ROMROSAU |
| * Sisyrinchium exile | | | | | | SISEXI |
| * Sparaxis bulbifera | | | | | | SPABUL |
| * Watsonia bulbillifera | | | | | | WATBUL |
| * Watsonia marginata | | | | | | WATMAR |
| * Watsonia meriana | | | | | | WATMER |
| **Isoetaceae** | | | | | | |
| Isoetes drummondii | | | | | | ISODRU |
| **Juncaceae** | | | | | | |
| * Juncus articulatus | | | | | | JUNART |
| * Juncus bufonius | | | | | | JUNBUF |
| Juncus caespiticius | | | | | | JUNCAE |
| * Juncus capitatus | | | | | | JUNCAP |
| Juncus holoschoenus | | | | | | JUNHOL |
| Juncus kraussii | | | | | | JUNKRA |
| Juncus pallidus | | | | | | JUNPAL |
| * Juncus polyanthemus | | | | | | JUNPOL |
| Luzula meridionalis | | | | | | LUZMER |
| **Juncaginaceae** | | | | | | |
| Triglochin calcitrapum | | | | | | TRICAL |
| Triglochin centrocarpum | | | | | | TRICEN |
| Triglochin minutissimum | | | | | | TRIMIN |
| Triglochin mucronatum | | | | | | TRIMUC |
| Triglochin muelleri | | | | | | TRIMUE |
| Triglochin procerum | | | | | | TRIPRO |
| Triglochin sp. A (Perth Flora BJK & NG 095) | | | | | | TRIGSPA |
| Triglochin stowardii | 2 | | | | | TRISTO |
| Triglochin striatum | | | | | | TRISTR |
| Triglochin trichophorum | | | | | | TRITRI |
| **Lamiaceae** | | | | | | |
| Hemiandra pungens | | | | | | HEMPUN |

| Family/taxon | Cons. Code | Prop. Cons. Code | End-emic | Range end | Geographic limit | Code |
|---|---|---|---|---|---|---|
| Hemigenia barbata | | | | S | Mt Brown | HEMBAR |
| Hemigenia incana | | | | | | HEMINC |
| Hemigenia microphylla | | | | | | HEMMIC |
| Hemigenia ramosissima | | | | | | HEMRAM |
| Mentha piperata | | | | | | MENPIP |
| Westringia dampieri | | | | | | WESDAM |
| **Lauraceae** | | | | | | |
| Cassytha aurea var. hirta | | | | | | CASAURHI |
| Cassytha flava | | | | | | CASFLA |
| Cassytha glabella | | | | | | CASGLA |
| Cassytha micrantha | | | | N | Talbot Rd Midland | CASMIC |
| Cassytha pomiformis | | | | | | CASPOM |
| Cassytha pubescens scps | | | | | | CASPUB |
| Cassytha racemosa | | | | | | CASRAC |
| **Lemnaceae** | | | | | | |
| Lemna disperma | | | | | | LEMDIS |
| **Lentibulariaceae** | | | | | | |
| Polypompholyx multifida | | | | | | POLMUL |
| Polypompholyx tenella | | | | | | POLYTEN |
| Utricularia dichotoma | | | | | | UTRDIC |
| Utricularia inaequalis | | | | | | UTRINA |
| Utricularia menziesii | | | | | | UTRMEN |
| Utricularia violacea | | | | | | UTRVIO |
| **Linaceae** | | | | | | |
| Linum marginale | | | | | | LINMAR |
| * Linum trigynum | | | | | | LINTRI |
| **Lindsaeaceae** | | | | | | |
| Lindsaea linearis | | | | | | LINLIN |
| **Lobeliaceae** | | | | | | |
| Isotoma hypocrateriformis | | | | | | ISOHYP |
| Isotoma pusilla | | | | S | Waroona | ISOPUS |
| Isotoma scapigera | | | | | | ISOSCAp |
| Lobelia alata | | | | | | LOBALA |
| Lobelia gibbosa | | | | | | LOBGIB |
| Lobelia heterophylla | | | | | | LOBHET |
| Lobelia rhombifolia | | | | | | LOBRHO |
| Lobelia tenuior | | | | | | LOBTEN |
| * Monopsis debilis | | | | | | MONDEB |
| **Loganiaceae** | | | | | | |
| Logania campanulata | | | | | | LOGCAM |
| Logania serpyllifolia | | | | | | LOGSER |
| Logania serpyllifolia subsp. angustifolia | | | | | | LOGSERAN |
| Logania vaginalis | | | | | | LOGVAG |
| Mitrasacme palustris | 1 | | | | | MITPAL |
| Mitrasacme paradoxa | | | | | | MITPAR |
| Mitrasacme sp. Southwest (GJK 343) | 2 | | | N | Capel | MITSP. |
| **Loranthaceae** | | | | | | |
| Amyema linophyllum | | | | | | AMYLIN |
| Nuytsia floribunda | | | | | | NUYFLO |
| **Lycopodiaceae** | | | | | | |
| Phylloglossum drummondii | | | | | | PHYDRU |
| **Lythraceae** | | | | | | |
| * Lythrum hyssopifolia | | | | | | LYTHYS |
| **Malvaceae** | | | | | | |
| Lavatera plebeia var. tomentosa | | | | | | LAVPLETO |
| Lawrencia spicata | | | | | | LAWSPI |
| **Marsileaceae** | | | | | | |
| Marsilea sp. (BJK & NG 084) | | | | | | MARDRU |
| Pilularia novae-hollandiae | | | | | | PILNOV |
| **Menyanthaceae** | | | | | | |
| Villarsia albiflora | | | | | | VILALB |
| Villarsia capitata | | | | | | VILCAP |
| Villarsia latifolia | | | | | | VILLAT |
| Villarsia parnassifolia | | | | | | VILPAR |
| Villarsia submersa | 4 | | | | | VILSUB |
| Villarsia violifolia | | | | | | VILVIO |
| **Mimosaceae** | | | | | | |
| Acacia alata | | | | | | ACAALA |
| Acacia alata var. tetrantha Ms | | | | | | ACAAFFAL |
| Acacia applanata Ms | | | | | | ACAAPP |
| Acacia auronitens | | | | | | ACAAUR |

| Family/taxon | Cons. Code | Prop. Cons. Code | End-emic | Range end | Geographic limit | Code |
|---|---|---|---|---|---|---|
| Acacia barbinervis subsp. barbinervis | | | | DS | Burnside Rd | ACABARBA |
| Acacia barbinervis subsp. borealis | | | | | | ACABARBO |
| Acacia browniana | | | | | | ACABRO |
| Acacia cochlearis | | | | | | ACACOC |
| Acacia cyclops | | | | | | ACACYC |
| Acacia dentifera | | | | | | ACADEN |
| Acacia divergens | | | | | | ACADIV |
| Acacia drewiana | | | | S | Lambert Lane | ACADRE |
| Acacia ericifolia | | | | | | ACAERI |
| Acacia extensa | | | | | | ACAEXT |
| Acacia flagelliformis | 4 | | | | | ACAFLA |
| Acacia huegelii | | | | | | ACAHUE |
| Acacia incurva | | | | | | ACAINC |
| Acacia lasiocarpa var. bracteolata (Long peduncle form) | 1 | | eE | | | ACALASBR |
| Acacia lasiocarpa var. lasiocarpa | | | | | | ACALASLA |
| Acacia lateriticola | | | | | | ACALAT |
| Acacia littorea | | | | DN | Rottnest | ACALIT |
| Acacia mooreana | 2 | | | N | Boyanup | ACAMOO |
| Acacia myrtifolia | | | | | | ACAMYR |
| Acacia nervosa | | | | | | ACANER |
| * Acacia paradoxa | | | | | | ACAPAR |
| Acacia pulchella (Eagle Bay) | | | | N | Capel | ACAPULEB |
| Acacia pulchella var. glaberrima | | | | | | ACAPULGL |
| Acacia pulchella var. pulchella | | | | | | ACAPUL |
| Acacia pulchella var. reflexa Ms | | | | | | ACAPULRE |
| * Acacia pycnantha | | | | | | ACAPYC |
| Acacia rostellifera | | | | | | ACAROS |
| Acacia saligna | | | | | | ACASAL |
| Acacia semitrullata | 3 | | | N | Yarloop | ACASEM |
| Acacia sessilis | | | | | | ACASES |
| Acacia spathulata | | | | | | ACASPA |
| Acacia stenoptera | | | | | | ACASTE |
| Acacia teretifolia | | | | | | ACATER |
| Acacia tetragonocarpa | | | | | | ACATET |
| Acacia truncata | | | | S | Bunbury | ACATRU |
| Acacia urophylla | | | | | | ACAURO |
| Acacia varia var. varia Ms | | | | | | ACAVARVA |
| Acacia willdenowiana | | | | | | ACAWIL |
| Acacia xanthina | | | | S | Fremantle | ACAXAN |
| Paraserianthes lophantha | | | | | | PARLOP |
| **Molluginaceae** | | | | | | |
| Macarthuria aff. australis (Capel) | | | eP | | | MACAFFAU |
| Macarthuria apetala | | | | S | Jandakot | MACAPE |
| Macarthuria australis | | | | | | MACAUS |
| **Myoporaceae** | | | | | | |
| Eremophila glabra | | | | | | EREGLA |
| Myoporum caprarioides | | | | | | MYOCAP |
| Myoporum insulare | | | | | | MYOINS |
| **Myrtaceae** | | | | | | |
| Actinodium cunninghamii | | | | | | ACTCUN |
| Agonis flexuosa | | | | N | Bold Park | AGOFLE |
| Agonis grandiflora | | | | | | AGOGRA |
| Agonis linearifolia | | | | | | AGOLIN |
| Agonis parviceps | | | | | | AGOPAR |
| Astartea aff. fascicularis | | | | | | AST_FA |
| Baeckea camphorosmae | | | | | | BAECAM |
| Baeckea robusta | | | | S | North Beach | BAEROB |
| Baeckea tenuifolia | | 1 | | S | Mundijong | BAETEN |
| Beaufortia elegans | | | | | | BEAELE |
| Beaufortia macrostemon | | | | | | BEAMAC |
| Beaufortia purpurea | | | | | | BEAPUR |
| Beaufortia sparsa | | | | | | BEASPA |
| Beaufortia squarrosa | | | | DS | Oates Rd | BEASQU |
| Calothamnus aff. crassus (Royce 84) | 1 | | | DN | Smith Rd | CAL_CR |
| Calothamnus aff. quadrifidus (Ironstone BJK & NG 230) | | 1 | eI | | | CALAFFQU |
| Calothamnus graniticus subsp. leptophyllus | 2 | | | | | CALGRALE |
| Calothamnus hirsutus | | | | | | CALHIRsu |
| Calothamnus lateralis | | | | | | CALLATe |
| Calothamnus pallidifolius | | | | | | CALPALI |
| Calothamnus quadrifidus | | | | | | CALQUA |
| Calothamnus sanguineus | | | | | | CALSAN |

| Family/taxon | Cons. Code | Prop. Cons. Code | End-emic | Range end | Geographic limit | Code |
|---|---|---|---|---|---|---|
| Calytrix angulata | | | | DS | Guthrie Block | CALANG |
| Calytrix aurea | | | | | | CALAUR |
| Calytrix flavescens | | | | | | CALFLAve |
| Calytrix fraseri | | | | | | CALFRA |
| Calytrix leschenaultii | | | | DS | Capel Williamson Rd | CALLES |
| Calytrix sapphirina | | | | | | CALSAP |
| Calytrix strigosa | | | | | | CALSTR |
| Calytrix variabilis | | | | | | CALVARia |
| Chamelaucium erythrochlorum Ms | R | | | | | CHAERY |
| Chamelaucium roycei Ms | R | | el | | | CHAROY |
| Chamelaucium uncinatum | | | | S | Bold Park | CHAUNC |
| Conothamnus trinervis | | | | DS | Forrestfield | CONTRI |
| Darwinia citriodora | | | | | | DARCIT |
| Darwinia oederoides | | | | | | DAROED |
| Darwinia sp. (Williamson Rd, BJK & NG sn) | 1 | R | el | | | DARIRON |
| Darwinia thymoides | | | | | | DARTHY |
| Eremaea asterocarpa subsp. asterocarpa | | | | | | EREASTAS |
| Eremaea asterocarpa subsp. brachyclada | | 1 | ef | | | EREASTBR |
| Eremaea fimbriata | | | | DS | Forrestfield | EREFIM |
| Eremaea pauciflora | | | | | | EREPAU |
| Eremaea pauciflora subsp. pauciflora | | | | | | EREPAUPA |
| Eremaea purpurea | | | | S | Whiteman Park | EREPUR |
| Eucalyptus argutifolia | R | | | S | Yanchep | EUCARG |
| Eucalyptus calophylla | | | | | | EUCCAL |
| Eucalyptus decipiens | | | | | | EUCDEC |
| Eucalyptus foecunda | | | | S | Yalgorup | EUCFOE |
| Eucalyptus gomphocephala | | | | S | Ludlow | EUCGOM |
| Eucalyptus haematoxylon | | | | | | EUCHAE |
| Eucalyptus lanepoolei | | | | | | EUCLAN |
| Eucalyptus marginata subsp. elegantella | 1 | R | ef | | | EUCMAREL |
| Eucalyptus marginata subsp. marginata | | | | | | EUCMARMA |
| Eucalyptus patens | | | | | | EUCPAT |
| Eucalyptus petrensis Ms | | | | S | Yalgorup | EUCPETRE |
| Eucalyptus rudis | | | | | | EUCRUD |
| Eucalyptus todtiana | | | | | | EUCTOD |
| Eucalyptus wandoo | | | | | | EUCWAN |
| Hypocalymma angustifolium | | | | | | HYPANG |
| Hypocalymma ericifolium | | | | N | Lyons block | HYPERI |
| Hypocalymma robustum | | | | | | HYPROB |
| Kunzea aff. micrantha (BJK & NG 040) | | | | | | KUNAFFMI |
| Kunzea ericifolia | | | | | | KUNERI |
| Kunzea littericola Ms | | | eE | | | KUNLIT |
| Kunzea micrantha | | | | N | Perth | KUNMIC |
| Kunzea recurva | | | | | | KUNREC |
| * Leptospermum erubescens | | | | | | LEPERU |
| Leptospermum spinescens | | | | | | LEPSPIne |
| Melaleuca acerosa | | | | | | MELACE |
| Melaleuca aff. acerosa (GJK 11242) | 2 | | eCL | | | MELAFFAC |
| Melaleuca aff. trichophylla | | | | | | MELAFFTR |
| Melaleuca bracteosa | | | | | | MELBRA |
| Melaleuca cardiophylla | | | | S | Bold Park | MELCAR |
| Melaleuca cuticularis | | | | | | MELCUT |
| Melaleuca hamulosa | | | | | | MELHAM |
| Melaleuca huegelii | | | | | | MELHUE |
| Melaleuca incana | | | | | | MELINC |
| Melaleuca lanceolata | | | | | | MELLAN |
| Melaleuca lateriflora var. acutifolia | | | | | | MELLATAC |
| Melaleuca lateritia | | | | | | MELLAT |
| Melaleuca leptoclada | | | | | | MELLEP |
| Melaleuca preissiana | | | | | | MELPRE |
| Melaleuca rhaphiophylla | | | | | | MELRHA |
| Melaleuca scabra | | | | | | MELSCA |
| Melaleuca seriata | | | | | | MELSER |
| Melaleuca sp. B (Perth Flora BJK & NG 054) | | | | | | MELASPB |
| Melaleuca teretifolia | | | | | | MELTER |
| Melaleuca thymoides | | | | | | MELTHY |
| Melaleuca trichophylla | | | | | | MELTRI |
| Melaleuca uncinata | | | | | | MELUNC |
| Melaleuca viminea | | | | | | MELVIM |
| Pericalymma ellipticum | | | | | | PERELLip |
| Pericalymma floridum Ms | | | | | | PERFLO |

| Family/taxon | Cons. Code | Prop. Cons. Code | End-emic | Range end | Geographic limit | Code |
|---|---|---|---|---|---|---|
| Regelia ciliata | | | | | | REGCIL |
| Regelia inops | | | | | | REGINO |
| Scholtzia ciliata | | | | DS | Yarloop | SCHCIL |
| Scholtzia involucrata | | | | | | SCHINV |
| Verticordia acerosa | | | | | | VERACE |
| Verticordia densiflora | | | | | | VERDEN |
| Verticordia drummondii | | | | | | VERDRU |
| Verticordia habrantha | | | | | | VERHAB |
| Verticordia huegelii | | | | | | VERHUE |
| Verticordia huegelii var. huegelii | | | | | | VERHUEHU |
| Verticordia lindleyi subsp. lindleyi | 4 | | eE | | | VERLINLI |
| Verticordia nitens | | | | | | VERNIT |
| Verticordia ovalifolia | | | | S | Ellis brook | VEROVA |
| Verticordia pennigera | | | | | | VERPEN |
| Verticordia plumosa | | | | | | VERPLU |
| Verticordia plumosa var. pleiobotrya | 1 | | eE | | | VERPLUPL |
| Verticordia plumosa var. vassensis | 1 | | eE | | | VERPLUVA |
| **Olacaceae** | | | | | | |
| Olax benthamiana | | | | | | OLABEN |
| **Onagraceae** | | | | | | |
| Epilobium billardierianum | | | | | | EPIBIL |
| Epilobium billardierianum subsp. intermedium | | | | | | EPIBILIN |
| Epilobium hirtigerum | | | | | | EPIHIR |
| **Ophioglossaceae** | | | | | | |
| Ophioglossum lusitanicum | | | | | | OPHLUS |
| **Orchidaceae** | | | | | | |
| Caladenia aphylla | | | | | | CALAPH |
| Caladenia arenicola Ms | | | | | | CALARE |
| Caladenia attingens subsp. attingens | | | | | | CALATTAT |
| Caladenia bicalliata | | | | | | CALBIC |
| Caladenia brownii | | | | | | CALBRO |
| Caladenia deformis | | | | | | CALDEF |
| Caladenia denticulata | | | | | | CALDEN |
| Caladenia discoidea | | | | | | CALDIS |
| Caladenia ferruginea | | | | | | CALFER |
| Caladenia flava | | | | | | CALFLA |
| Caladenia flava subsp. flava | | | | | | CALFLAFL |
| Caladenia gemmata | | | | | | CALGEM |
| Caladenia georgei | | | | | | CALGEOR |
| Caladenia hirta | | | | | | CALHIR |
| Caladenia huegelii | R | | eP | | | CALHUE |
| Caladenia latifolia | | | | | | CALLAT |
| Caladenia longicauda | | | | | | CALLON |
| Caladenia longicauda subsp. calcigena | | | | | | CALLONCA |
| Caladenia longicauda subsp. longicauda | | | | | | CALLONLO |
| Caladenia marginata | | | | | | CALMAR |
| Caladenia menziesii | | | | | | CALMEN |
| Caladenia paludosa | | | | | | CALPAL |
| Caladenia radiata | | | | | | CALRAD |
| Caladenia reptans | | | | | | CALREP |
| Caladenia sericea | | | | | | CALSER |
| Caladenia speciosa | | | | | | CALSPEC |
| Caladenia varians subsp. varians | | | | | | CALVARVA |
| Caladenia variegata | | | | | | CALVAR |
| Corybas recurvus | | | | | | CORREC |
| Cyrtostylis huegelii | | | | | | CYRHUE |
| Cyrtostylis robusta | | | | | | CYRROB |
| Diuris aff. amplissima | | | | | | DIUAFFAM |
| Diuris carinata | | | | | | DIUCAR |
| Diuris emarginata | | | | | | DIUEMA |
| Diuris laxiflora | | | | | | DIULAX |
| Diuris longifolia | | | | | | DIULON |
| Diuris micrantha | R | | eP | | | DIUMIC |
| Drakaea glyptodon | | | | | | DRAGLY |
| Elythranthera brunonis | | | | | | ELYBRU |
| Elythranthera emarginata | | | | | | ELYEMA |
| Epiblema grandiflorum | | | | | | EPIGRA |
| Eriochilus dilatatus | | | | | | ERIDIL |
| Eriochilus dilatatus subsp. dilatatus | | | | | | ERIDILDI |
| Eriochilus dilatatus subsp. multiflorus | | | | | | ERIDILMU |
| Eriochilus helonomos | | | | | | ERIHEL |

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|---|---|---|---|---|---|---|
| Eriochilus multiflorus | | | | | | ERIMUL |
| Leporella fimbriata | | | | | | LEPFIM |
| Lyperanthus nigricans | | | | | | LYPNIG |
| Lyperanthus serratus | | | | | | LYPSER |
| Microtis aff. media | | | | | | MICAFFME |
| Microtis atrata | | | | | | MICATR |
| Microtis media | | | | | | MICMED |
| Microtis media subsp. densiflora | | | | | | MICMEDDE |
| Microtis media subsp. media | | | | | | MICMEDME |
| Microtis orbicularis | | | | | | MICORB |
| Microtis unifolia | | | | | | MICUNI |
| * Monadenia bracteata | | | | | | MONBRA |
| Prasophyllum aff. holmsii | | | | | | PRA_HO |
| Prasophyllum brownii | | | | | | PRABRO |
| Prasophyllum drummondii | | | | N | GinGin | PRADRU |
| Prasophyllum elatum | | | | | | PRAELA |
| Prasophyllum fimbria | | | | | | PRAFIM |
| Prasophyllum macrostachyum | | | | | | PRAMAC |
| Prasophyllum parvifolium | | | | | | PRAPAR |
| Prasophyllum plumaeforme | | | | | | PRAPLU |
| Prasophyllum plurifera Ms | | | | | | PRASPLU |
| Pterostylis aff. nana | | | | | | PTEAFFNA |
| Pterostylis aff. nana (limestone form) | | | | | | PTENANLI |
| Pterostylis aff. sanguinea | | | | | | PTEAFFSA |
| Pterostylis aff. vittata | | | | | | PTEAFFVI |
| Pterostylis aspera | | | | | | PTEASP |
| Pterostylis barbata | | | | | | PTEBAR |
| Pterostylis brevisepala Ms | | | | | | PTEBRE |
| Pterostylis concava | | | | | | PTECON |
| Pterostylis pyramidalis | | | | | | PTEPYR |
| Pterostylis recurva | | | | | | PTEREC |
| Pterostylis sanguinea | | | | | | PTESAN |
| Pterostylis scabra var. robusta | | | | | | PTESCARO |
| Pterostylis seratera var. robusta Ms | | | | | | PTESERRO |
| Pterostylis sp. nov. (Paganoni) | | | | | | PTEPAGA |
| Pterostylis vittata | | | | | | PTEVIT |
| Thelymitra aff. holmesii | | | | | | THEAFFHO |
| Thelymitra aff. macrophyllum | | | | | | THEAFFMA |
| Thelymitra aff. pauciflora | | | | | | THEAFFPA |
| Thelymitra antennifera | | | | | | THEANT |
| Thelymitra benthamiana | | | | | | THEBEN |
| Thelymitra campanulata | | | | | | THECAM |
| Thelymitra canaliculata | | | | | | THECAN |
| Thelymitra crinita | | | | | | THECRI |
| Thelymitra flexuosa | | | | | | THEFLE |
| Thelymitra fuscolutea | | | | | | THEFUS |
| Thelymitra macrophylla | | | | | | THEMAC |
| Thelymitra mucida | | | | | | THEMUC |
| Thelymitra nuda | | | | | | THENUD |
| Thelymitra pauciflora | | | | | | THEPAU |
| **Orobanchaceae** | | | | | | |
| * Orobanche minor | | | | | | OROMIN |
| **Oxalidaceae** | | | | | | |
| Oxalis corniculata | | | | | | OXACOR |
| * Oxalis glabra | | | | | | OXAGLA |
| Oxalis perennans | | | | | | OXAPER |
| * Oxalis pes-caprae | | | | | | OXAPES |
| * Oxalis purpurea | | | | | | OXAPUR |
| **Papilionaceae** | | | | | | |
| Aotus gracillima | | | | | | AOTGRA |
| Aotus procumbens | | | | | | AOTPRO |
| Bossiaea eriocarpa | | | | | | BOSERI |
| Bossiaea eriocarpa (Large flowered form BJK & NG 229) | | | | | | BOSERILF |
| Bossiaea ornata | | | | | | BOSORN |
| Bossiaea pulchella | | | | | | BOSPUL |
| Bossiaea rufa | | | | | | BOSRUF |
| Brachysema praemorsum | | | | | | BRAPRA |
| Brachysema sp. (Treeton BJK & NG 001) | 1 | R | eI | | | BRAAFFSE |
| Brachysema sp. (Williamson GJK 12719) | 1 | R | eI | | | BRAWIL |
| Callistachys lanceolata | | | | | | CALLAN |
| Chorizema dicksonii | | | | | | CHODIC |

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|---|---|---|---|---|---|---|
| Chorizema glycinifolium | | | | | | CHOGLY |
| Chorizema nanum | | | | | | CHONAN |
| Chorizema rhombeum | | | | | | CHORHO |
| Chorizema varium | R | | | S | Seabird | CHOVAR |
| Daviesia angulata | | | | | | DAVANG |
| Daviesia comutata Ms | | | | | | DAVCOM |
| Daviesia cordata | | | | | | DAVCOR |
| Daviesia costata | | | | | | DAVCOS |
| Daviesia decurrens | | | | | | DAVDEC |
| Daviesia divaricata | | | | | | DAVDIV |
| Daviesia horrida | | | | | | DAVHOR |
| Daviesia incrassata | | | | | | DAVINC |
| Daviesia inflata | | | | N | Fish Rd NR | DAVINF |
| Daviesia nudiflora | | | | | | DAVNUD |
| Daviesia physodes | | | | | | DAVPHY |
| Daviesia podophylla | | | | | | DAVPOD |
| Daviesia preissii | | | | | | DAVPRE |
| Daviesia quadrilatera | | | | | | DAVQUA |
| Daviesia rhombifolia | | | | | | DAVRHO |
| Daviesia triflora | | | | | | DAVTRI |
| Dillwynia dillwynioides | | 2 | eP | | | DILDIL |
| Dillywinia cinerascens Ms | | | | | | DILCI |
| Euchilopsis linearis | | | | | | EUCLIN |
| Eutaxia virgata | | | | | | EUTVIR |
| Gompholobium aristatum | | | | | | GOMARI |
| Gompholobium capitatum | | | | N | Capel | GOMCAP |
| Gompholobium confertum | | | | | | GOMCON |
| Gompholobium knightianum | | | | | | GOMKNI |
| Gompholobium marginatum | | | | | | GOMMAR |
| Gompholobium ovatum | | | | | | GOMOVA |
| Gompholobium polymorphum | | | | | | GOMPOL |
| Gompholobium preissii | | | | | | GOMPRE |
| Gompholobium scabrum | | | | | | GOMSCA |
| Gompholobium tomentosum | | | | | | GOMTOM |
| Hardenbergia comptoniana | | | | | | HARCOM |
| Hovea chorizemifolia | | | | | | HOVCHO |
| Hovea elliptica | | | | | | HOVELL |
| Hovea pungens | | | | | | HOVPUN |
| Hovea trisperma var. grandiflora | | | | | | HOVTRIGR |
| Hovea trisperma var. trisperma | | | | | | HOVTRITR |
| Isotropis cuneifolia | | | | | | ISOCUN |
| Isotropis cuneifolia subsp. glabra Ms | | R | eE | | | ISOCUNGL |
| Jacksonia aff. floribunda | | | | | | JACAFFFL |
| Jacksonia aff. sericea (swamp form) | | | eP | | | JACAFFSE |
| Jacksonia alata | | | | | | JACALA |
| Jacksonia angulata | | | | | | JACANG |
| Jacksonia condensata | | | | | | JACCON |
| Jacksonia densiflora | | | | | | JACDEN |
| Jacksonia densiflora / floribunda complex | | | | | | JACD/F |
| Jacksonia floribunda | | | | | | JACFLO |
| Jacksonia furcellata | | | | | | JACFUR |
| Jacksonia lehmannii | | | | | | JACLEH |
| Jacksonia restioides | | | | | | JACRES |
| Jacksonia sericea | 3 | | eP | | | JACSER |
| Jacksonia sp. Busselton (G.J. Keighery 4482) PN | 3 | | | | | JACSP. |
| Jacksonia sternbergiana | | | | | | JACSTE |
| Jacksonia stricta | | | | | | JACSTR |
| Kennedia carinata | | | | | | KENCAR |
| Kennedia coccinea | | | | | | KENCOC |
| Kennedia prostrata | | | | | | KENPRO |
| Kennedia stirlingii | | | | | | KENSTI |
| Latrobea tenella | | | | | | LATTEN |
| * Lotus angustissimus | | | | | | LOTANG |
| * Lotus suaveolens | | | | | | LOTSUA |
| * Lupinus cosentinii | | | | | | LUPCOS |
| * Medicago polymorpha | | | | | | MEDPOL |
| * Melilotus indicus | | | | | | MELIND |
| Mirbelia dilatata | | | | | | MIRDIL |
| Mirbelia spinosa | | | | | | MIRSPI |
| Nemcia aff. capitata | | | | | | NEMAFFCA |
| Nemcia capitata | | | | | | NEMCAP |

| Family/taxon | Cons. Code | Prop. Cons. Code | End-emic | Range end | Geographic limit | Code |
|---|---|---|---|---|---|---|
| Nemcia dilatata | | | | | | NEMDIL |
| Nemcia reticulata | | | | | | NEMRET |
| Nemcia sp. (Cordate leaves BJK & NG 032) | | | | | | NEMCOR |
| Nemcia spathulata | | | | | | NEMSPA |
| * Ornithopus compressus | | | | | | ORNCOM |
| * Ornithopus pinnatus | | | | | | ORNPIN |
| Oxylobium lineare | | | | | | OXYLIN |
| Pultenaea ericifolia | | | | | Bullsbrook NR | PULERI |
| Pultenaea ochreata | | | | | | PULOCH |
| Pultenaea reticulata | | | | | | PULRET |
| Pultenaea skinneri | 4 | | eE | | | PULSKI |
| Sphaerolobium aff. macranthum | | | | | | SPHAFFMA |
| Sphaerolobium grandiflorum | | | | | | SPHGRA |
| Sphaerolobium linophyllum | | | | | | SPHLIN |
| Sphaerolobium medium | | | | | | SPHMED |
| Sphaerolobium vimineum | | | | | | SPHVIM |
| Templetonia biloba | | | | | | TEMBIL |
| Templetonia retusa | | | | | | TEMRET |
| * Trifolium angustifolium | | | | | | TRIANG |
| * Trifolium arvense | | | | | | TRIARV |
| * Trifolium campestre | | | | | | TRICAM |
| * Trifolium cernuum | | | | | | TRICER |
| * Trifolium dubium | | | | | | TRIDUB |
| * Trifolium glomeratum | | | | | | TRIGLO |
| * Trifolium subterraneum | | | | | | TRISUBte |
| * Vicia sativa | | | | | | VICSAT |
| * Vicia sativa subsp. sativa | | | | | | VICSATSA |
| Viminaria juncea | | | | | | VIMJUN |
| **Philydraceae** | | | | | | |
| Philydrella drummondii | | | | | | PHIDRU |
| Philydrella pygmaea | | | | | | PHIPYG |
| **Phormiaceae** | | | | | | |
| Dianella revoluta | | | | | | DIAREV |
| Dianella revoluta var. brevicaulis | | | | | | DIAREVBR |
| Dianella revoluta var. divaricata | | | | | | DIAREVDI |
| Stypandra glauca | | | | | | STYGLA |
| **Pinaceae** | | | | | | |
| * Pinus radiata | | | | | | PINRAD |
| **Pittosporaceae** | | | | | | |
| Billardiera aff. ringens (GJK 12977) | | 1 | eCL | | | BILAFFRI |
| Billardiera candida | | | | | | BILCAN |
| Billardiera parviflora | | | | N | Boyanup | BILPAR |
| Billardiera variifolia | | | | N | Pickering Brook | BILVAR |
| Pittosporum phylliraeoides | | | | | | PITPHY |
| Pronaya fraseri | | | | | | PROFRA |
| Sollya heterophylla | | | | | | SOLHET |
| **Plantaginaceae** | | | | | | |
| * Plantago lanceolata | | | | | | PLALAN |
| * Plantago major | | | | | | PLAMAJ |
| **Poaceae** | | | | | | |
| Agrostis avenacea | | | | | | AGRAVE |
| Agrostis plebeia | | | | | | AGRPLE |
| Agrostis preissii | | | | | | AGRPRE |
| * Aira caryophyllea | | | | | | AIRCAR |
| * Aira caryophyllea/cupaniana group | | | | | | AIRASP |
| * Aira cupaniana | | | | | | AIRCUP |
| * Aira praecox | | | | | | AIRPRA |
| Amphibromus neesii | | | | | | AMPNEE |
| Amphipogon amphipogonoides | | | | | | AMPAMP |
| Amphipogon debilis | | | | N | Beckenham | AMPDEB |
| Amphipogon laguroides | | | | | | AMPLAG |
| Amphipogon turbinatus | | | | | | AMPTUR |
| * Anthoxanthum odoratum | | | | | | ANTODO |
| Aristida contorta | | | | | | ARICON |
| Aristida ramosa | 1 | | | D | | ARIRAM |
| * Avellinia michelii | | | | | | AVEMIC |
| * Avena barbata | | | | | | AVEBAR |
| * Avena barbata/fatua | | | | | | AVENASP |
| * Avena fatua | | | | | | AVEFAT |
| * Briza maxima | | | | | | BRIMAX |
| * Briza minor | | | | | | BRIMIN |

| Family/taxon | Cons. Code | Prop. Cons. Code | End-emic | Range end | Geographic limit | Code |
|---|---|---|---|---|---|---|
| Bromus arenarius | | | | | | BROARE |
| * Bromus diandrus | | | | | | BRODIA |
| * Bromus hordeaceus | | | | | | BROHOR |
| * Catapodium rigidum | | | | | | CATRIG |
| Cynodon dactylon | | | | | | CYNDAC |
| * Cynosurus echinatus | | | | | | CYNECH |
| Danthonia acerosa | | | | | | DANACE |
| Danthonia caespitosa | | | | | | DANCAE |
| Danthonia occidentalis | | | | | | DANOCC |
| Danthonia pilosa | | | | | | DANPIL |
| Danthonia setacea | | | | | | DANSET |
| Deyeuxia quadriseta | | | | | | DEYQUA |
| Dichelachne crinita | | | | | | DICCRI |
| * Echinochloa crus-galli | | | | | | ECHCRU |
| * Ehrharta calycina | | | | | | EHRCAL |
| * Ehrharta longiflora | | | | | | EHRLON |
| * Eragrostis curvula | | | | | | ERACUR |
| Eragrostis elongata | | | | | | ERAELO |
| * Glyceria maxima | | | | | | GLYMAX |
| * Hainardia cylindrica | | | | | | HAICYL |
| * Holcus lanatus | | | | | | HOLLAN |
| * Holcus setiger | | | | | | HOLSET |
| * Hordeum leporinum | | | | | | HORLEP |
| * Lagurus ovatus | | | | | | LAGOVA |
| * Lolium multiflorum | | | | | | LOLMUL |
| * Lolium perenne | | | | | | LOLPER |
| * Lolium rigidum | | | | | | LOLRIG |
| Microlaena stipoides | | | | | | MICSTI |
| Neurachne alopecuroidea | | | | | | NEUALO |
| Neurachne amphipogonoides | | | | | | NEUAMP |
| * Paspalum dilatatum | | | | | | PASDIL |
| * Pennisetum clandestinum | | | | | | PENCLA |
| * Pentaschistis airoides | | | | | | PENAIR |
| * Pentaschistis thunbergii | | | | | | PENTHU |
| * Phalaris minor | | | | | | PHAMIN |
| * Phleum pratense | | | | | | PHLPRA |
| * Poa annua | | | | | | POAANN |
| Poa drummondiana | | | | | | POADRU |
| Poa poiformis | | | | | | POAPOI |
| Poa poiformis/porphyroclados | | | | | | POASP |
| Poa porphyroclados | | | | | | POAPOR |
| * Polypogon monspeliensis | | | | | | POLMON |
| Polypogon tenellus | | | | | | POLTEN |
| Sporobolus virginicus | | | | | | SPOVIR |
| * Stenotaphrum secundatum | | | | | | STESEC |
| Stipa campylachne | | | | | | STICAM |
| Stipa compressa | | | | | | STICOM |
| Stipa elegantissima | | | | | | STIELE |
| Stipa flavescens | | | | | | STIFLA |
| Stipa macalpinei | | | | | | STIMAC |
| Stipa pycnostachya | | | | | | STIPYC |
| Stipa semibarbata | | | | | | STISEM |
| Stipa semibarbata/campylachne | | | | | | STISEMGP |
| Tetrarrhena laevis | | | | | | TETLAE |
| Themeda triandra | | | | | | THETRI |
| * Vulpia bromoides | | | | | | VULBRO |
| * Vulpia myuros | | | | | | VULMYU |
| **Podocarpaceae** | | | | | | |
| Podocarpus drouynianus | | | | | | PODDRO |
| **Polygalaceae** | | | | | | |
| Comesperma calymega | | | | | | COMCAL |
| Comesperma confertum | | | | | | COMCON |
| Comesperma flavum | | | | | | COMFLA |
| Comesperma integerrimum | | | | | | COMINT |
| Comesperma virgatum | | | | | | COMVIR |
| Comesperma volubile | | | | | | COMVOL |
| Muehlenbeckia adpressa | | | | | | MUEADP |
| Muehlenbeckia polybotrya | | | S | Caraban | | MUEPOL |
| Persicaria prostrata | | | | | | PERPRO |
| Persicaria salicifolium | | | | | | PERSAL |

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|---|---|---|---|---|---|---|
| * Rumex acetosella | | | | | | RUMACE |
| * Rumex brownii | | | | | | RUMBRO |
| * Rumex crispus | | | | | | RUMCRI |
| * Rumex pulcher | | | | | | RUMPUL |
| **Portulacaceae** | | | | | | |
| Calandrinia brevipedata | | | | | | CALBRE |
| Calandrinia calyptrata | | | | | | CALCAL |
| Calandrinia corrigioloides | | | | | | CALCOR |
| Calandrinia granulifera | | | | | | CALGRA |
| Calandrinia liniflora | | | | | | CALLIN |
| Portulaca oleracea | | | | | | POROLE |
| **Primulaceae** | | | | | | |
| * Anagallis arvensis | | | | | | ANAARV |
| Samolus junceus | | | | | | SAMJUN |
| Samolus repens | | | | | | SAMREP |
| **Proteaceae** | | | | | | |
| Adenanthos cygnorum | | | | | | ADECYG |
| Adenanthos intermedius | | | | | | ADEINT |
| Adenanthos meisneri | | | | | | ADEMEI |
| Adenanthos obovatus | | | | | | ADEOBO |
| Banksia attenuata | | | | | | BANATT |
| Banksia grandis | | | | | | BANGRA |
| Banksia ilicifolia | | | | | | BANILI |
| Banksia incana | | | | DS | APB Forrestfield | BANINC |
| Banksia littoralis | | | | | | BANLIT |
| Banksia meisneri var. ascendens | 4 | | | | | BANMEIAS |
| Banksia menziesii | | | | | | BANMEN |
| Banksia prionotes | | | | | | BANPRI |
| Conospermum acerosum | | | | | | CONACE |
| Conospermum caeruleum subsp. spathulatum Ms | | | | | | CONCAESP |
| Conospermum capitatum | | | | | | CONCAP |
| Conospermum huegelii | | | | S | Brixton St | CONHUE |
| Conospermum incurvum | | | | | | CONINC |
| Conospermum pedunculatum Ms | | | eE | | | CONPED |
| Conospermum stoechadis | | | | | | CONSTO |
| Conospermum stoechadis x triplinervium | | | | | | CONSXT |
| Conospermum teretifolium | | | | N | Capel | CONTER |
| Conospermum undulatum | 4 | R | ef | | | CONUND |
| Dryandra aff. nivea (GJK 6622) | | R | | | | DRYAFFNI |
| Dryandra armata | | | | | | DRYARM |
| Dryandra bipinnatifida | | | E | | | DRYBIP |
| Dryandra nivea | | | | | | DRYNIV |
| Dryandra sessilis | | | | | | DRYSES |
| Dryandra sp. 30 (aff. squarrosa ASG 11657) | 1 | R | eI | | | DRYSPIR |
| Franklandia triaristata | 4 | | | | | FRATRI |
| Grevillea althoferorum | 1 | | | S | Bullsbrook | GREALT |
| Grevillea bipinnatifida | | | | | | GREBIP |
| Grevillea brachystylis subsp. brachystylis | 2 | | eE | | | GREBRABR |
| Grevillea crithmifolia | | | | S | Yalgorup | GRECRI |
| Grevillea elongata | 2 | R | el | | | GREELO |
| Grevillea endlicheriana | | | | | | GREEND |
| Grevillea manglesioides | | | | | | GREMAN |
| Grevillea mccutcheonii Ms | 1 | | el | | | GREMCC |
| Grevillea pilulifera | | | | | | GREPIL |
| Grevillea pulchella | | | | | | GREPUL |
| Grevillea quercifolia | | | | | | GREQUE |
| Grevillea thelemanniana subsp. obtusifolia | | | | S | Pinjarra | GRETHEOB |
| Grevillea thelemanniana subsp. preissii | | | | S | Yalgorup | GRETHEPR |
| Grevillea thelemanniana subsp. thelemanniana | | | | | | GRETHETH |
| Grevillea trifida | | | | | | GRETRI |
| Grevillea vestita | | | | | | GREVES |
| Grevillea wilsonii | | | | | | GREWIL |
| Hakea aff. undulata (BJK & NG 237) | 2 | 4 | eCL | | | HAK_UND |
| Hakea amplexicaulis | | | | | | HAKAMP |
| Hakea auriculata | | | | S | Perth | HAKAUR |
| Hakea candolleana | | | | | | HAKCAN |
| Hakea ceratophylla | | | | S | Byford | HAKCER |
| Hakea conchifolia | | | | S | Forrestfield | HAKCON |
| Hakea costata | | | | | | HAKCOS |
| Hakea cristata | | | | | | HAKCRI |
| Hakea cyclocarpa | | | | | | HAKCYC |

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|---|---|---|---|---|---|---|
| Hakea erinacea | | | | S | Perth | HAKERI |
| Hakea incrassata | | | | | | HAKINC |
| Hakea lissocarpha | | | | | | HAKLIS |
| Hakea marginata | | | | | | HAKMAR |
| Hakea myrtoides | 3 | | | | | HAKMYR |
| Hakea prostrata | | | | | | HAKPRO |
| Hakea ruscifolia | | | | | | HAKRUS |
| Hakea stenocarpa | | | | | | HAKSTE |
| Hakea sulcata | | | | | | HAKSUL |
| Hakea trifurcata | | | | | | HAKTRI |
| Hakea undulata | | | | | | HAKUND |
| Hakea varia | | | | | | HAKVAR |
| Hakea varia (Yellow flw ironstone form BJK & NG 226) | R | | eI | | | HAKVARIR |
| Isopogon asper | | | | | | ISOASP |
| Isopogon drummondii | 3 | | | S | Forrestfield | ISODRUm |
| Isopogon dubius | | | | S | Forrestfield | ISODUB |
| Isopogon scaber | 1 | | | S | Ambergate | ISOSCA |
| Isopogon sphaerocephalus | | | | | | ISOSPH |
| Lambertia multiflora | 3 | | | S | Dardanup | LAMMUL |
| Lambertia propinqua | 2 | | | DN | Williamson Rd | LAMPRO |
| Persoonia angustiflora | | | | | | PERANG |
| Persoonia comata | | | | | | PERCOM |
| Persoonia elliptica | | | | | | PERELL |
| Persoonia graminea | | | | DN | Carbanup | PERGRA |
| Persoonia longifolia | | | | | | PERLON |
| Persoonia saccata | | | | | | PERSAC |
| Petrophile biloba | | | | | | PETBIL |
| Petrophile brevifolia | | | | | | PETBRE |
| Petrophile latericola Ms | 1 | R | eI | | | PETLAT |
| Petrophile linearis | | | | | | PETLIN |
| Petrophile macrostachya | | | | | | PETMAC |
| Petrophile media var. juncifolius Ms | | | | | | PETMEDJU |
| Petrophile seminuda | | | | | | PETSEM |
| Petrophile serruriae | | | | | | PETSER |
| Petrophile shuttleworthiana | | | | | | PETSHU |
| Petrophile squamata | | | | | | PETSQU |
| Petrophile striata | | | | | | PETSTR |
| Stirlingia latifolia | | | | | | STILAT |
| Strangea stenocarpoides | | | | | | STRSTE |
| Synaphea ? gracillima x acutiloba | | | | | | SYNGXA |
| Synaphea acutiloba | 3 | | | | | SYNACU |
| Synaphea aff. petiolaris | | | | | | SYN_PET |
| Synaphea gracillima | | | | | | SYNGRA |
| Synaphea petiolaris | | | | | | SYNPET |
| Synaphea petiolaris (trilobe form) | | | | | | SYNPETTR |
| Synaphea pinnata | 4 | | eE | | | SYNPIN |
| Synaphea polymorpha | | | | | | SYNPOL |
| Synaphea sp. (Busselton) | | | | | | SYNBUS |
| Synaphea sp. (Fine leaves BJK & NG 233) | | | | | | SYNSTE |
| Synaphea sp. (Fish Road GJK & BJK sn) | | | | | | SYNFISH |
| Synaphea sp. (Ironstone wedge leaves GJK sn) | | | eI | | | SYNWEDG |
| Synaphea sp. (Oats Road GJK & NG 251) | | | | | | SYNOATS |
| Synaphea sp. (Smith Rd BJK & NG 231) | | | | | | SYNFLO |
| Synaphea sp. (Whicher Range BJK & NG 036) | | | | | | SYNWICH |
| Synaphea spinulosa | | | | | | SYNSPI |
| Xylomelum occidentale | | | | | | XYLOCC |
| **Ranunculaceae** | | | | | | |
| Clematis microphylla | | | | | | CLEMIC |
| Clematis pubescens | | | | | | CLEPUB |
| Ranunculus colonorum | | | | | | RANCOL |
| Ranunculus pumilio | | | | | | RANPUM |
| Ranunculus sessiliflorus var. sessiliflorus | | | | | | RANSESSE |
| **Restionaceae** | | | | | | |
| Alexgeorgea nitens | | | | | | ALENIT |
| Anarthria gracilis | | | | | | ANAGRA |
| Anarthria laevis | | | | | | ANALAE |
| Anarthria prolifera | | | | | | ANAPRO |
| Anarthria scabra | | | | | | ANASCA |
| Chaetanthus leptocarpoides | | | | | | CHALEP |
| Harperia lateriflora | | | | | | HARLAT |
| Hypolaena exsulca | | | | | | HYPEXS |

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|---|---|---|---|---|---|---|
| Hypolaena fastigiata | | | | | | HYPFAS |
| Hypolaena ramosissima | | | | | | HYPRAM |
| Lepidobolus preissianus | | | | | | LEPPRE |
| Leptocarpus aff. crebriculmis (BJK & NG 236) | | | | | | LEPAFFCR |
| Leptocarpus aristatus | | | | | | LEPARI |
| Leptocarpus canus | | | | | | LEPCAN |
| Leptocarpus coangustatus | | | | | | LEPCOA |
| Leptocarpus roycei Ms | | | | | | LEPROY |
| Leptocarpus scariosus | | | | | | LEPSCAr |
| Leptocarpus sp. (large rhizome - Forrestdale Lake) | | | | | | LEPTFL |
| Leptocarpus tenax | | | | | | LEPTEN |
| Lepyrodia aff. macra (GJK 9848) | | | | | | LEPYSP |
| Lepyrodia drummondiana | | | | | | LEPDRU |
| Lepyrodia glauca | | | | | | LEPGLAu |
| Lepyrodia heleocharoides | 3 | | | | | LEPHEL |
| Lepyrodia macra | | | | | | LEPMAC |
| Lepyrodia muirii | | | | | | LEPMUI |
| Loxocarya cinerea | | | | | | LOXCIN |
| Loxocarya fasciculata | | | | | | LOXFAS |
| Loxocarya flexuosa | | | | | | LOXFLE |
| Loxocarya magna Ms | 3 | | | N | Wonnerup Rd | LOXMAG |
| Loxocarya pubescens | | | | | | LOXPUB |
| Lyginia barbata | | | | | | LYGBAR |
| Meeboldina denmarkica | | | | | | MEEDEN |
| Pseudoloxocarya grossa Ms | | | | DN | Carbunup River | PSUGRO |
| Restio elegans Ms | | | | | | RESELE |
| Restio gracilior | 3 | | | N | Yoongarilup | RESGRA |
| Restio leptocarpoides | | | | | | RESLEP |
| Restio microcodon Ms | | | | S | Melaleuca Park | RESMIC |
| Restio serialis Ms | | | | DN | Williamson Rd | RESSER |
| Restio sinosus Ms | | | | S | Burnside Rd | RESSIN |
| Restio sphacelatus | | | | | | RESSPH |
| Restio stenostachyus | | | | S | Lowlands | RESSTE |
| Restio tremulus | | | | | | RESTRE |
| **Rhamnaceae** | | | | | | |
| Cryptandra arbutiflora | | | | | | CRYARB |
| Cryptandra humilis | | | | DS | Forrestfield | CRYHUM |
| Cryptandra mutila | | | | S | Yallingup | CRYMUT |
| Cryptandra pungens | | | | | | CRYPUN |
| * Rhamnus alaternus | | | | | | RHAALA |
| Spyridium globulosum | | | | | | SPYGLO |
| Spyridium tridentatum | | | | | | SPYTRI |
| Trymalium albicans | | | | S | Yalgorup | TRYALB |
| Trymalium floribundum | | | | | | TRYFLO |
| Trymalium ledifolium | | | | | | TRYLED |
| **Rubiaceae** | | | | | | |
| * Galium aparine | | | | | | GALAPA |
| * Galium divaricatum | | | | | | GALDIV |
| * Galium murale | | | | | | GALMUR |
| Opercularia apiciflora | | | | | | OPEAPI |
| Opercularia hispidula | | | | | | OPEHIS |
| Opercularia spermacocea | | | | | | OPESPE |
| Opercularia vaginata | | | | | | OPEVAG |
| Opercularia vaginata (Ironstone form BJK & NG 238) | | | el | | | OPEVAGIR |
| * Sherardia arvensis | | | | | | SHEARV |
| **Rutaceae** | | | | | | |
| Boronia alata | | | | N | Rottnest Minnim Cove | BORALA |
| Boronia crenulata | | | | | | BORCRE |
| Boronia defoliata | | | | N | Capel | BORDEF |
| Boronia denticulata | | | | | | BORDEN |
| Boronia purdieana | | | | | | BORPUR |
| Boronia ramosa | | | | | | BORRAM |
| Boronia spathulata | | | | | | BORSPA |
| Diplolaena angustifolia | | | | S | Yanchep | DIPANG |
| Diplolaena dampieri | | | | N | Woodsman Point | DIPDAM |
| Eriostemon spicatus | | | | | | ERISPI |
| **Santalaceae** | | | | | | |
| Exocarpos odoratus | | | | N | Fish Rd NR | EXOODO |
| Exocarpos sparteus | | | | | | EXOSPA |
| Leptomeria cunninghamii | | | | | | LEPCUN |
| Leptomeria empetriformis | | | | S | Yalgorup | LEPEMP |

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|---|---|---|---|---|---|---|
| Leptomeria ericoides | 1 | | | | | LEPERI |
| Leptomeria lehmannii | 2 | | | N | Yalgorup | LEPLEH |
| Leptomeria preissiana | | | | N | Bullsbrook | LEPPREs |
| Leptomeria scrobiculata | | | | N | Ambergate | LEPSCR |
| Leptomeria spinosa | | | | | | LEPSPI |
| Santalum acuminatum | | | | | | SANACU |
| Dodonaea aptera | | | | | | DODAPT |
| Dodonaea hackettiana | 4 | | eW | | | DODHAC |
| Dodonaea viscosa | | | | | | DODVIS |
| **Scrophulariaceae** | | | | | | |
| * Bellardia trixago | | | | | | BELTRI |
| * Cymbalaria muralis | | | | | | CYMMUR |
| * Dischisma arenarium | | | | | | DISARE |
| * Dischisma capitatum | | | | | | DISCAP |
| Glossostigma diandrum | | | | | | GLODIA |
| Glossostigma drummondii | | | | | | GLODRU |
| Gratiola peruviana | | | | | | GRAPER |
| * Parentucellia latifolia | | | | | | PARLAT |
| * Parentucellia viscosa | | | | | | PARVIS |
| Veronica aff. calycina (BJK & NG 235) | | | eC | | | VERAFFCA |
| * Veronica arvensis | | | | | | VERARV |
| **Selaginellaceae** | | | | | | |
| Selaginella gracillima | | | | | | SELGRA |
| **Solanaceae** | | | | | | |
| Anthocercis ilicifolia | | | | S | Mandurah | ANTILI |
| Anthocercis littorea | | | | | | ANTLIT |
| * Solanum americanum | | | | | | SOLAME |
| * Solanum nigrum | | | | | | SOLNIG |
| Solanum symonii | | | | | | SOLSYM |
| **Stackhousiaceae** | | | | | | |
| Stackhousia monogyna | | | | | | STAMON |
| Tripterococcus brunonis | | | | | | TRIBRU |
| Tripterococcus sp. Cannington (A.S.George 16201) PN | 1 | | eP | | | TRISP. |
| **Sterculiaceae** | | | | | | |
| Guichenotia ledifolia | | | | | | GUILED |
| Thomasia cognata | | | | | | THOCOG |
| Thomasia grandiflora | | | | | | THOGRA |
| Thomasia purpurea | | | | | | THOPUR |
| Thomasia triphylla | | | | | | THOTRI |
| **Stylidiaceae** | | | | | | |
| Levenhookia pauciflora | | | | | | LEVPAU |
| Levenhookia pusilla | | | | | | LEVPUS |
| Levenhookia stipitata | | | | | | LEVSTI |
| Stylidium adnatum | | | | | | STYADN |
| Stylidium adpressum | | | | | | STYADP |
| Stylidium aff. bulbiferum (Ironstone) | | 2 | | | | STYAFFBUL |
| Stylidium affine | | | | | | STYAFF |
| Stylidium amoenum | | | | | | STYAMO |
| Stylidium breviscapum | | | | | | STYBRE |
| Stylidium brunonianum | | | | | | STYBRU |
| Stylidium brunonianum subsp. minor | | | | | | STYBRUMI |
| Stylidium bulbiferum | | | | | | STYBUL |
| Stylidium calcaratum | | | | | | STYCAL |
| Stylidium canaliculatum | | | | N | Pearce | STYCAN |
| Stylidium carnosum | | | | | | STYCAR |
| Stylidium crassifolium | | | | N | Pearce | STYCRA |
| Stylidium crossocephalum | | | | S | Wanneroo | STYCRO |
| Stylidium dichotomum | | | | | | STYDIC |
| Stylidium diuroides | | | | | | STYDIU |
| Stylidium divaricatum | | | | S | Fish Rd NR | STYDIV |
| Stylidium ecorne | | | | | | STYECO |
| Stylidium emarginatum | | | | | | STYEMA |
| Stylidium guttatum | | | | | | STYGUT |
| Stylidium imbricatum | | | | DN | Payne Rd | STYIMB |
| Stylidium inundatum | | | | | | STYINU |
| Stylidium junceum | | | | | | STYJUN |
| Stylidium latericola Ms | | | | | | STYLAT |
| Stylidium leptophyllum | | | | | | STYLEP |
| Stylidium longitubum | 1 | | | S | Mundijong Rd | STYLON |
| Stylidium macrocarpum | | | | | | STYMAC |
| Stylidium maritimum Ms | | | | S | White Hill | STYMAR |

| Family/taxon | Cons. Code | Prop. Cons. Code | End-emic | Range end | Geographic limit | Code |
|---|---|---|---|---|---|---|
| Stylidium mimeticum | 1 | | eE | | | STYMIM |
| Stylidium obtusatum | | | | | | STYOBT |
| Stylidium periscelianthum | | | | | | STYPER |
| Stylidium perpusillum | | | | | | STYPERp |
| Stylidium petiolare | | | | | | STYPET |
| Stylidium piliferum | | | | | | STYPIL |
| Stylidium preissii | | | | DN | Ken Hurst Park | STYPRE |
| Stylidium pulchellum | | | | | | STYPUL |
| Stylidium repens | | | | | | STYREP |
| Stylidium rigidifolium | 2 | | e | | | STYRIG |
| Stylidium roseo-alatum | | | | | | STYROSa |
| Stylidium roseonanum | | | | | | STYROS |
| Stylidium scandens | | | | | | STYSCA |
| Stylidium schoenoides | | | | | | STYSCH |
| Stylidium spathulatum | | | | | | STYSPA |
| Stylidium striatum | | | | | | STYSTR |
| Stylidium utricularioides | | | | | | STYUTR |
| **Thymelaeaceae** | | | | | | |
| Pimelea argentea | | | | | | PIMARG |
| Pimelea calcicola | | | | S | Yalgorup | PIMCAL |
| Pimelea ferruginea | | | | | | PIMFER |
| Pimelea imbricata var. imbricata | | | | | | PIMIMBIM |
| Pimelea imbricata var. major | | | eE | | | PIMIMBMA |
| Pimelea imbricata var. piligera | | | | | | PIMIMBPI |
| Pimelea leucantha | | | | | | PIMLEU |
| Pimelea preissii | | | | | | PIMPRE |
| Pimelea rosea | | | | N | Lake Pinjar | PIMROS |
| Pimelea suaveolens | | | | | | PIMSUA |
| Pimelea sulphurea | | | | | | PIMSUL |
| **Tremandraceae** | | | | | | |
| Platytheca galioides | | | | | | PLAGAL |
| Tetratheca hirsuta | | | | | | TETHIR |
| Tetratheca hirsuta (glabrous) | | | | | | TETHIRSC |
| **Urticaceae** | | | | | | |
| Parietaria debilis | | | | | | PARDEB |
| **Valerianaceae** | | | | | | |
| * Centranthus macrosiphon | | | | | | CENMAC |
| **Violaceae** | | | | | | |
| Hybanthus calycinus | | | | | | HYBCAL |
| Hybanthus floribundus | | | | | | HYBFLO |
| **Xanthorrhoeaceae** | | | | | | |
| Xanthorrhoea acanthostachya | | | | S | Boyanup | XANACA |
| Xanthorrhoea brunonis | | | | | | XANBRU |
| Xanthorrhoea drummondii | | | | | | XANDRU |
| Xanthorrhoea gracilis | | | | | | XANGRA |
| Xanthorrhoea preissii | | | | | | XANPRE |
| **Zamiaceae** | | | | | | |
| Macrozamia riedlei | | | | | | MACRIE |
| **Zygophyllaceae** | | | | | | |
| Zygophyllum fruticulosum | | | | S | Port Kennedy | ZYGFRU |

*Appendix 3.*

The full floristic data set of 1410 taxa and 509 sites is listed in Cornell University Condensed Format. The taxa listed below were grouped for the floristic analysis. Species codes follow those in Appendix 2 and site locations follow Apendix 4.

Acacia applanata Ms
Acacia willdenowiana

Acacia pulchella var. glaberrima
Acacia pulchella var. pulchella
Acacia pulchella var. reflexa Ms

* Aira caryophyllea
* Aira caryophyllea/cupaniana group
* Aira cupaniana

* Avena barbata
* Avena barbata/fatua
* Avena fatua

Boronia denticulata
Boronia spathulata

Bossiaea eriocarpa
Bossiaea eriocarpa (Large flowered form BJK & NG 229)

Caladenia flava
Caladenia flava subsp. flava

Caladenia longicauda
Caladenia longicauda subsp. longicauda

Conostylis pauciflora
Conostylis pauciflora subsp. euryrhipis

Dianella revoluta
Dianella revoluta var. divaricata

Drosera erythrorhiza
Drosera erythrorhiza subsp. erythrorhiza
Drosera erythrorhiza subsp. squamosa Ms

Drosera gigantea subsp. geniculata Ms
Drosera gigantea subsp. gigantea

Drosera macrantha
Drosera macrantha subsp. macrantha Ms

Drosera nitidula
Drosera nitidula subsp. nitidula

Drosera paleacea
Drosera paleacea subsp. paleacea

Drosera stolonifera
Drosera stolonifera subsp. porrecta
Drosera stolonifera subsp. stolonifera

Epilobium billardierianum
Epilobium billardierianum subsp. intermedium

Eriochilus dilatatus
Eriochilus dilatatus subsp. dilatatus
Eriochilus dilatatus subsp. Multiflorus

Jacksonia floribunda
Jacksonia densiflora / floribunda complex

Jacksonia densiflora

Lepidosperma aff. angustatum
Lepidosperma angustatum

Lepidosperma leptostachyum
Lepidosperma sp. (Eastern terete, BJK & NG 232)

Logania serpyllifolia
Logania serpyllifolia subsp. angustifolia

Microtis media
Microtis media subsp. densiflora
Microtis media subsp. media

Pericalymma ellipticum
Pericalymma floridum Ms

Poa poiformis
Poa poiformis/porphyroclados
Poa porphyroclados

Pterostylis aff. nana
Pterostylis aff. nana (limestone form)
Pterostylis brevisepala Ms

Rhagodia baccata subsp. baccata
Rhagodia baccata subsp. dioica

* Romulea rosea
* Romulea rosea subsp. rosea
* Romulea rosea var. australis

Schoenus aff. brevisetis
Schoenus aff. laevigatus
Schoenus brevisetis
Schoenus caespititius

Stipa campylachne
Stipa semibarbata
Stipa semibarbata/campylachne

Thysanotus manglesianus
Thysanotus manglesianus/patersonii complex
Thysanotus patersonii

Tricostularia neesii var. elatior
Tricostularia neesii var. neesii

Verticordia huegelii
Verticordia huegelii var. huegelii

Verticordia plumosa
Verticordia plumosa var. pleiobotrya

* Watsonia bulbillifera
* Watsonia meriana
□

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Swan Coastal Plain data apppendix
(13I6)                                                          5
     1    34    36    41    61    68    73    74   117   157   162   170   172
   190   281   330   359   370   425   450   456   464   490   499   506   543
   544   546   547   567   581   594   629   631   645   648   728   744   748
   755   819   827   837   838   843   844   851   903   933   964   972  1024
  1060  1064  1188  1214  1252  1256  1270  1275  1284  1301
     2    15    27    61    68    73    75   157   190   281   305   308   360
   370   440   442   450   464   490   499   506   543   546   584   626   629
   637   663   665   668   722   730   744   831   836   837   844   845   925
   933   976   978  1064  1119  1194  1208  1260  1270  1273  1274  1275  1326
  1401  1405  1406
     3    51    73    81   146   168   223   255   256   283   305   322   326
   370   396   447   464   485   514   559   578   584   599   633   663   665
   686   722   774   779   844   887   890   920   969  1013  1127  1138  1204
  1216  1217  1260  1270  1284  1300  1406
     4    15    16    51    54    61    83    88   102   135   168   181   182
   228   281   370   380   442   444   499   505   506   541   641   663   665
   668   718   720   730   752   754   787   791   827   838   841   877   882
   927   939   969   988  1012  1013  1064  1073  1110  1148  1154  1179  1229
  1233  1245  1277  1325  1357  1405  1406
     5    15    51    61    62   145   157   181   182   190   191   236   281
   360   376   380   398   440   450   485   499   506   537   626   629   637
   641   649   663   668   719   722   730   744   819   825   827   837   844
   850   852   890   927   959   976   988  1012  1110  1176  1194  1208  1249
  1270  1272  1275  1289  1305  1329  1401  1406  1408  1409
     6    18    36    61    64    81   105   122   168   223   255   256   264
   305   308   359   370   378   396   452   514   546   584   596   599   633
   655   665   668   686   722   765   779   847   850   871   890   959   969
  1047  1126  1150  1169  1216  1219  1222  1260  1275  1284  1300  1307  1320
  1406
     7     3    15    50    51    57    61    75    83   117   135   157   281
   306   308   330   360   370   380   385   442   450   464   485   499   506
   546   549   564   584   594   626   629   649   663   665   708   722   779
   787   811   827   836   837   844   852   853   887   890   926   933   955
   959   968   988  1012  1039  1110  1183  1188  1200  1204  1209  1216  1222
  1243  1245  1272  1274  1275  1283  1405  1406
     8    15    36    51    61    73    82    83   122   144   146   168   223
   255   305   308   326   370   380   435   452   499   514   541   545   559
   578   584   596   599   633   663   665   686   708   722   723   744   764
   779   844   850   890   920   959   969  1126  1148  1153  1204  1216  1260
  1284  1300  1320  1405  1406
     9     3    15    27    51    61    73    83   109   117   134   135   157
   190   228   281   305   322   359   370   380   394   442   450   464   490
   499   506   546   594   629   649   663   665   703   708   722   730   817
   827   835   837   844   847   851   882   890   920   947   955   959   968
   969   988  1002  1012  1110  1130  1153  1188  1204  1209  1229  1233  1249
  1260  1273  1275  1277  1301  1305  1307  1327  1387  1405  1406  1408
    10    15    27    51    61    73   135   157   182   190   281   306   360
   368   370   394   440   442   450   485   499   506   542   543   546   574
   594   629   663   665   668   674   722   730   744   809   811   826   827
   835   836   844   890   927   933   959   972   976  1012  1064  1110  1153
  1194  1208  1229  1270  1273  1274  1275  1301  1401  1406
    11    41    66    68    78   119   134   137   166   170   190   254   260
   262   313   318   327   335   336   360   370   382   393   428   441   456
   462   464   483   490   506   542   543   574   575   594   615   628   629
   651   700   722   728   732   744   745   827   831   835   837   844   850
   879   888   890   908   928   957   976   977  1118  1127  1140  1187  1195
  1204  1225  1243  1245  1252  1263  1275  1308  1335  1343  1403
    12    66    68    78   117   119   134   137   139   170   190   255   262
   301   313   318   327   335   336   355   360   382   384   428   441   462
   464   481   483   490   542   574   575   585   615   628   629   678   697
   700   709   728   732   745   802   826   827   831   837   844   850   853
   879   888   955   957   976   977   989  1008  1118  1127  1140  1153  1204
  1216  1221  1225  1263  1275  1301  1326  1335  1343
    13   216   257   271   341   533   644   746   747   917   987  1029  1031
  1032  1105  1108  1142  1145  1240  1247  1321  1336  1346  1355  1376  1379
    14    93   105   109   159   175   182   216   263   264   278   297   365
   433   456   539   554   641   653   681   683   713   746   842   868   905
   987  1031  1032  1095  1105  1144  1145  1169  1240  1248  1321  1346  1354
  1355
    15    33   122   182   223   264   271   276   341   409   509   556   668
   681   683   690   711   749   763   871   874   907  1178  1235  1336  1375
  1376  1383
    16    33   134   136   144   210   277   281   301   401   456   518   549
   579   665   668   699   724   763   851   859   898   905   969  1169  1216
  1305  1313  1351
    17    33   105   122   181   182   210   223   264   269   281   308   370
   409   445   509   549   599   643   655   665   668   699   763   809   847
   871   884   896   905   969  1064  1082  1147  1155  1161  1169  1216  1219
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1224 1301 1307 1357 1406
18 33 47 63 144 178 181 210 269 277 308 344 549
655 668 724 809 859 884 901 905 1022 1036 1061 1074 1095
1103 1201 1299 1313 1351 1385 1387
19 47 63 74 80 93 144 152 159 167 175 181 182
184 216 257 264 276 278 281 297 433 441 539 554 643
653 667 668 681 713 747 763 809 841 884 885 905 916
987 1029 1031 1032 1036 1049 1074 1132 1144 1145 1161 1169 1232
1240 1244 1301 1313 1323 1346 1360 1383
20 19 63 80 105 152 175 181 182 184 210 234 260
264 276 281 297 312 365 370 433 437 441 442 455 514
653 655 668 673 681 713 759 763 770 809 842 871 874
875 876 884 885 896 905 906 987 992 1031 1049 1132 1144
1145 1161 1169 1178 1232 1238 1299 1318 1325 1357 1382
21 117 134 157 170 181 190 194 210 281 305 308 321
370 374 380 428 456 467 506 549 615 629 632 665 668
703 720 724 745 778 826 827 831 835 840 844 850 851
882 957 976 988 1178 1204 1216 1249 1273 1296 1300 1313 1405
1406
22 33 63 141 144 181 188 230 257 260 264 365 401
404 431 441 468 556 577 643 665 668 673 675 681 713
725 746 817 822 840 841 847 885 907 917 957 1027 1038
1049 1094 1097 1169 1178 1280 1285 1299 1301 1307 1317 1325 1336
1361 1382
23 58 77 125 130 257 289 341 348 471 673 684 741
841 869 917 991 1235 1333 1336 1376
24 33 62 141 144 169 181 182 188 216 264 297 344
346 431 433 441 495 577 650 662 668 675 830 841 901
938 951 985 987 992 1027 1029 1074 1138 1147 1161 1179 1235
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1245 1300 1313 1326 1351 1405
26 122 145 260 305 452 514 663 765 877 881 969 1279
27 41 48 62 67 78 134 139 170 176 181 190 210
212 269 281 308 328 338 374 428 441 480 490 571 629
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845 850 851 858 888 905 976 1018 1022 1064 1130 1137 1179
1201 1204 1207 1216 1245 1301 1313 1343 1351 1389 1405
28 3 17 36 48 51 67 78 113 134 136 139 162
170 181 190 194 212 281 321 327 370 374 380 428 437
441 490 506 549 551 615 632 649 663 665 668 671 692
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988 1036 1064 1131 1146 1216 1221 1243 1245 1249 1287 1326 1343
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30 27 63 65 68 80 96 134 181 182 221 233 308
311 316 328 338 401 442 467 531 560 610 612 632 649
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394 442 464 490 495 499 544 552 574 593 629 655 665
668 720 722 744 756 833 844 890 898 920 925 936 957
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36 58 59 77 108 122 180 182 297 365 495 554 556
577 650 673 685 747 765 874 907 918 986 999 1027 1029
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38 3 27 117 170 181 191 308 327 328 330 393 394
428 464 490 506 531 544 547 574 623 629 648 649 651
720 730 744 755 800 845 888 890 908 920 976 1018 1023
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243 262 269 313 330 332 374 393 394 399 428 450 464
499 531 562 619 628 629 668 734 735 744 755 766 837
840 888 890 905 941 957 976 1018 1036 1111 1116 1141 1179
1201 1218 1313 1351 1383 1385 1389 1406
40 27 35 41 66 78 95 134 139 170 190 236 262
269 301 308 327 330 332 370 374 380 399 428 449 531
557 628 629 650 696 736 744 755 766 777 827 840 845
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1304 1306 1317
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ADEOBO  ADIAET  ADRQUA  AGOFLE  AGOGRA  AGOLIN  AGOPAR  AGRAVE  AGRPLE  AGRPRE
AGRSCA  AIRASP  AIRCAR  AIRCUP  AIRPRA  ALENIT  ALLFRA  ALLHUM  ALLMIC  ALLTHU
ALTNOD  ALYBUX  AMPAMP  AMPDEB  AMPERI  AMPLAG  AMPNEE  AMPTUR  AMYLIN  ANAARV
ANAGRA  ANALAE  ANAPRO  ANASCA  ANDAFFLAANDCAE  ANDHET  ANDINV  ANDLEH  ANGAFFDR
ANGDRU  ANGMIC  ANGPRE  ANIFLA  ANIHUM  ANIMAN  ANIVIR  ANTHUM  ANTILI  ANTJUN
ANTLIT  ANTODO  AOTGRA  AOTPRO  APHCYP  APIANN  APIPRO  APOHEX  ARCCAL  ARESER
ARGFRU  ARICON  ARNPRE  ASTCIL  ASTDRU  ASTMIC  ASTPAL  ASTPUL  ASTSTO  ASTSUB
ASTXER  AST_FA  ATRCIN  ATRHYP  ATRPRO  AVEBAR  AVEFAT  AVEMIC  AVENASP AZOFIL
BABDIS  BAECAM  BAEROB  BANATT  BANGRA  BANILI  BANINC  BANLIT  BANMEN  BANPRI
BAUACU  BAUART  BAUARTh BAUJUN  BAUVAG  BAXAUS  BEAELE  BEAMAC  BEAPUR  BEASPA
BEASQU  BELTRI  BEYCIN  BILAFFRIBILCAN  BILPAR  BILVAR  BLACAN  BLEAFFDRBLEDRU
BOLCAL  BORCRE  BORDEF  BORDEN  BORPUR  BORRAM  BORSCI  BORSPA  BORSPH  BOSERI
BOSERILFBOSORN  BOSPUL  BOSRUF  BRABEL  BRAIBE  BRAPRA  BRAPRE  BRATOU  BRIDRU
BRIMAX  BRIMIN  BRIMUE  BRINUT  BROARE  BRODIA  BROHOR  BURBAI  BURMUL  BURUMB
CAEMIC  CAEMICBLCAEMICSWCAEOCC  CALAFFQUCALANG  CALAPH  CALARE  CALATTATCALAUR
CALBIC  CALBRE  CALBRO  CALCAL  CALCOR  CALCYA  CALDEF  CALDIS  CALFER  CALFLA
CALFLAFLCALFLAveCALFRA  CALGEM  CALGEOR CALGRA  CALGRAndCALHAM  CALHIR  CALHIRsu
CALHUE  CALLAT  CALLATe CALLES  CALLIN  CALLON  CALLONCACALMAR  CALMEN  CALPAL
CALPAL1 CALPRE  CALQUA  CALRAD  CALREP  CALSAN  CALSAP  CALSER  CALSPEC CALSTA
CALVAR  CALVARVACALVARiaCAREDU  CARHIR  CARMOD  CARPAU  CARPHEP CARPHI  CARPRE
CARPYC  CARVIR  CASAURHICASFLA  CASGLA  CASMIC  CASOBE  CASPOM  CASPUB  CASRAC
CATRIG  CAUDIO  CENALE  CENARI  CENASI  CENCAE  CENCEPCECENCOR  CENDRU  CENERY
CENGLA  CENHUM  CENINC  CENMAC  CENMEL  CENMUT  CENPIL  CENPOL  CERGLO  CHAAFFSP
CHACOR  CHAERY  CHALEP  CHAROY  CHASER  CHAUNC  CHAVER  CHEAMB  CHEMAC  CHOCYM
CHODIC  CHOENO  CHOGLY  CHONAN  CHORHO  CHOVAR  CICFIL  CIRVUL  CLEMIC  CLEPUB
COMCAL  COMCON  COMFLA  COMINT  COMVIR  COMVOL  CONACE  CONACU  CONACUDUCONACUPR
CONACXCOCONALB  CONAUR  CONBON  CONCAESPCONCAN  CONCAP  CONCAR  CONFESPECONINC
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CONJUN CONLAX CONMIN CONPAU CONPAUEUCONPED CONPEN CONPRE CONSER CONSET
CONSETo CONSTO CONSXT CONTER CONTRI CONUND CORLIT CORMIC CORREC COTBIP
COTCOR COTCOT COTTUR CRACOL CRADEC CRAEXS CRAGLO CRANAT CRAPED CRAPEDu
CRASPNOVCRASPSP CRATHU CRYARB CRYHUM CRYMUT CRYPUN CUSEPI CYAAVE CYACLA
CYNDAC CYNECH CYPERA CYPPOL CYPTEN CYRHUE CYRROB DAMALA DAMCOR DAMLIN
DAMTRI DANACE DANCAE DANOCC DANPIL DANSET DARIRON DAROED DARTHY DASBRO
DASHOO DASOBL DAUGLO DAVANG DAVCOM DAVCOR DAVCOS DAVDEC DAVDIV DAVHOR
DAVINC DAVINF DAVNUD DAVPHY DAVPOD DAVPRE DAVQUA DAVRHO DAVTRI DEYQUA
DIAREV DIAREVBRDIAREVDIDICCAP DICCRI DICPRE DICREP DIL"CI DILDIL DIPANG
DIPDAM DIPHUE DISARE DISCAP DITGRA DIUAFFAMDIUCAR DIUEMA DIULAX DIULON
DODAPT DODHAC DODVIS DRAGLY DROBAR DROBUL DROBULosDROERY DROERYERDROERYSQ
DROGIG DROGIGGEDROGLA DROHET DROHUE DROLEU DROMAC DROMACMADROMACSCDROMARMA
DROMENMEDROMENPEDROMYR DRONEENEDRONEESTDRONIT DRONITNIDROOCCAUDROPALPADROPALl
DROPLA DROPUL DROPYC DRORAM DROROS DROSTO DROSTOPODROSTOSTDROSUB DROTUB
DRYAFFNIDRYARM DRYBIP DRYNIV DRYSES DRYSPIR EHRCAL EHRLON ELAGRA ELEACU
ELEKEN ELYBRU ELYEMA EPIBIL EPIBILINEPIGRA EPIHIR ERACUR ERAELO EREASTAS
EREFIM EREGLA EREPAUPAEREPUR ERIDIL ERIDILDIERIDILMUERIHEL ERIMUL ERISPI
EROBOT EROCIC EROCYG EROMOS ERYPINPAERYPINPIERYSUB EUCARG EUCCAL EUCDEC
EUCFOE EUCGOM EUCHAE EUCLAN EUCLIN EUCMARMAEUCPAT EUCPETREEUCRUD EUCTOD
EUCWAN EUPPEP EUPTER EUTVIR EVAARI EVAPAU EXOODO EXOSPA FERCRI FRAPAU
FRATRI FREAFFLEFUMCAP GAHTRI GALAPA GALDIV GALMUR GERMOL GERRET GLAANG
GLACAR GLIAUR GLODIA GLODRU GLYMAX GNAIND GNASPH GNEDRU GNETENDRGOMARI
GOMCAP GOMCON GOMKNI GOMMAR GOMOVA GOMPOL GOMPRE GOMSCA GOMTOM GONPAN
GONPIT GOOCAE GOOEAT GOOMIC GOOPUL GRAPER GREALT GREBIP GREBRABRGRECRI
GREMAN GREPIL GREPUL GREQUE GRETHEOBGRETHEPRGRETRI GREVES GREWIL GUILED
GYRSUB HAEBRE HAEDIS HAELAX HAELOR HAEPAN HAESIM HAESPA HAESPI HAICYL
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HAKMAR HAKMYR HAKPRO HAKRUS HAKSTE HAKSUL HAKTRI HAKUND HAKVAR HAKVARIR
HAK_UND HALACU HALHAL HALIND HALLEP HALTEN HARCOM HARLAT HEDRHA HELCOR
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HOLSET HOMFLA HOMHOM HORLEP HOVCHO HOVELL HOVPUN HOVTRIGRHOVTRITRHYACOT
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HYDSCU HYDTET HYPANG HYPERI HYPEXS HYPFAS HYPGLA HYPGLAbrHYPOCC HYPRAM
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JACRES JACSER JACSP. JACSTE JACSTR JOHACA JOHAFFPUJOHLUP JOHPUB JUNART
JUNBUF JUNCAE JUNCAP JUNHOL JUNKRA JUNPAL JUNPOL KENCAR KENCOC KENPRO
KENSTI KINAUS KUNAFFMIKUNERI KUNLIT KUNMIC KUNREC LABPUN LACREF LAGHUE
LAGOVA LAMMUL LAXGRA LAXRAM LAXSESAULAXSQU LECBIL LECEXP LECFLO LECLIN
LEMDIS LEOSAX LEPAFFCRLEPANG LEPANGCOLEPARI LEPCAN LEPCAR LEPCOA LEPCOS
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LOGVAG LOLMUL LOLPER LOLRIG LOMBRI LOMCAE LOMHER LOMINT LOMMAR LOMMIC
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LOTANG LOTSUA LOXCIN LOXFAS LOXFLE LOXMAG LOXPUB LUPCOS LUZMER LYGBAR
LYPNIG LYPSER LYSCIL LYSELE LYTHYS MACAFFAUMACAPE MACAUS MACRIE MEDPOL
MEEDEN MELACE MELAFFACMELAFFTRMELASPB MELBRA MELCAR MELCUT MELHAM MELHUE
MELINC MELIND MELLAN MELLAT MELLATACMELLEP MELPRE MELRHA MELSCA MELSER
MELTER MELTHY MELTRI MELUNC MELVIM MENPIP MESGRA MESPSE MESSTY MESTET
MES_GR MICAFFMEMICATR MICMED MICMEDDEMICMEDMEMICORB MICSTI MICUNI MILMYO
MILTEN MINHYB MIRDIL MIRSPI MITPAR MONBRA MONDEB MONGRA MONOCC MUEADP
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OROMIN ORTLAX OSTCLA OXACOR OXAGLA OXAPER OXAPES OXAPUR OXYLIN PARDEB
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PITPUL PLACOM PLAGAL PLALAN PLAMAJ PLATEN POAANN POADRU POAPOI POAPOR
POASP PODANG PODCHR PODDRO PODGNA PODGRA PODGRASWPODLES POGSTR POLMON
POLMUL POLTEN POLYTEN PORERI PORHUE PORMIC PRABRO PRADRU PRAELA PRAFIM
PRAMAC PRAPAR PRAPLU PRASPLU PRA_HO PROFRA PSELUT PSEVIR PTEAFFNAPTEAFFSA
PTEAFFVIPTEASP PTEBAR PTEBRE PTECON PTEESC PTENANLIPTEPAGA PTEPYR PTEREC
PTESAN PTESCAROPTESERROPTEVIT PTIDEC PTIDRU PTIHUMHUPTIMAN PTIPOL PTISTI
PULERI PULOCH PULRET QUIURV RANCOL RANPUM RANSESSEREGCIL REGINO RESELE
RESGRA RESLEP RESMIC RESSER RESSIN RESSPH RESSTE RESTRE RHAALA RHABAC
RHABACDIRHOPYR ROMFLA ROMOBS ROMROS ROMROSAUROMROSRORUMACE RUMBRO RUMCRI
RUMPUL RUTMUL SAGAPE SAGMAR SAMJUN SAMREP SANACU SARQUI SCAANC SCACAL
SCACAN SCACRA SCAGLA SCALAN SCANIT SCAPHL SCAREPANSCAREPRESCASTR SCATHE

SCHAFFLASCHAFFOBSCHAFFTESCHASP SCHBEN SCHBIF SCHBRE SCHCAE SCHCAP SCHCLA
SCHCUR SCHDIS SCHELE SCHGRA SCHGREENSCHHUM SCHINV SCHJUN SCHLAN SCHLAT
SCHNAN SCHNAT SCHNIT SCHODO SCHOSP2 SCHPED SCHRIG SCHROD SCHSCU SCHSPBB
SCHSPNT SCHSUBROSCHSUBbaSCHSUBbuSCHSUBfaSCHSUBflSCHTEN SCHUNI SCH_BR SCH_BRcu
SELGRA SENHIS SENLAUDISENLAUMASENQUA SHEARV SILFIL SILGAL SILHUM SILNOC
SISEXI SOLAME SOLHET SOLNIG SOLSYM SONASP SONHYD SONOLE SOWLAX SPABUL
SPEARV SPERUB SPHAFFMASPHCAP SPHGRA SPHGRAciSPHLIN SPHMED SPHVIM SPOVIR
SPYGLO SPYTRI STAAXI STAMON STAVER STEGRA STEMED STEROB STESEC STICAM
STICOM STIELE STIFLA STILAT STIMAC STIPYC STISEM STISEMGPSTRSTE STYADN
STYADP STYAFF STYAFFBUSTYAMO STYBRE STYBRU STYBRUMISTYBUL STYCAL STYCAN
STYCAR STYCRA STYCRO STYDIC STYDIU STYDIV STYECO STYEMA STYGLA STYGUT
STYIMB STYINU STYJUN STYLEP STYLON STYMAC STYMAR STYMIM STYOBT STYPER
STYPERp STYPET STYPIL STYPUL STYREP STYRIG STYROS STYROSa STYSCH STYSPA
STYSTR STYTEN STYUTR SUAAUS SYNACU SYNBUS SYNFLO SYNGRA SYNOATS SYNPET
SYNPETTRSYNPOL SYNSPI SYNSTE SYNWICH SYN_PET TEMBIL TEMRET TERCYA TETCAP
TETDEC TETHIR TETHIRSCTETLAE TETOCT TETTET THEAFFHOTHEAFFMATHEAFFPATHEANT
THEBEN THECAM THECAN THECRI THEFLE THEFUS THEMAC THEMUC THENUD THEPAU
THOCOG THOGRA THOPUR THOTRI THRDIF THYARB THYARE THYDIC THYMAN THYMUL
THYPAT THYPAU THYPSE THYSPA THYSPMP THYTEN THYTHY THYTRI THY_PAU THY_SPA
TRACOE TRADIV TRAPIL TRIAFFVITRIANG TRIARV TRIAUS TRIBIB TRIBRA TRIBRU
TRICAL TRICAM TRICEN TRICER TRIDUB TRIELA TRIGLO TRIGSPA TRIHUM TRILON
TRIMIN TRIMUC TRIMUE TRINEEELTRINEENETRIPRO TRISP TRISPA TRISTO TRISTR
TRISUB TRISUBteTRITEN TRITRI TRIUNI TRIVIO TRYALB TRYFLO TRYLED UROPIC
URSANT UTRDIC UTRINA UTRMEN UTRVIO VELDEA VELTRI VERACE VERAFFCAVERARV
VERDEN VERDRU VERHAB VERHUE VERHUEHUVERLINLIVERNIT VEROVA VERPEN VERPLU
VERPLUPLVERREI VICSAT VICSATSAVILALB VILCAP VILLAT VILPAR VILSUB VILVIO
VIMJUN VULBRO VULMYU WAHCAP WAHPRE WAIAUR WAICIT WAIPAN WAISUA WATBUL
WATMAR WATMER WESDAM WILBAC WURDIO WURDIO_AWURMON WURPYG XANACA XANBRU
XANCAN XANCIL XANDRU XANGRA XANHUE XANPRE XANPUS XYLOCC ZANAET ZYGFRU
acton-1 ambr-1 ambr-2 ambr-3 ambr-4 ambr-5 ambr-6 ambr-7 ambr-9 ambral-1
apbf-1 apbf-2 austb-1 austb-2 austb-3 austb-4 austb-5 austb-6 austb-7 austb-8
austra-1bambun-1bambun-2bambun-3bank-1 bank-1a bank-2 bank-3 bold-1 bold-2
bold-3 bold-4 brix-1 brix-2 brix-3 brix-4 brix-5 bull-1 bull-10 bull-11
bull-12 bull-3 bull-4 bull-5 bull-6 bull-7 bull-8 bull-9 buller-1buller-2
buller-3burn-1 burn-2 burnrd01burnrd02byrd-1 c58-1 c58-2 c58-3 c58-4
c71-1 c71-2 c71-3 c71-4 capel-1 capel-2 capel-3 capel-4 capel-5 capel-6
capel-7 capel-8 capel-9 carab-1 carab-2 carab-3 carb-1 carb-2 carb-3 carb-4
chidpt-1clif-1 clif-2 clif-3 coron-1 coron-2 crampt-1crampt-2dejong-adejong-c
depot-1 drain-1 duck-1 duck-2 duck-3 duns-1 eldo-1 ellen-1 ellen-2 ellen-3
ellen-4 ellen-5 ellen-6 ellen-7 ellis-1 ellis-2 ellis-3 fish-1 fish-2 fish-3
fish-4 fish-5 fl-1 fl-10 fl-2 fl-3 fl-4 fl-5 fl-6 fl-7
fl-9 garden-1garden-2garden-3garden-4gingin-1gingin-2gingin-3golf-1 guthr-1
guthr-2 guthr-3 guthr-4 guthr-5 guthr-6 harry-1 harry-2 harry-3 harry-4 harry-5
harry-6 keme-1 keme-2 keme-3 kero-1 kero-2 king-1 king-2 koolj-1 koolj-2
koolj-3 koolj-4 koolj-5 koolj-6 koolj-7 koon-1 koon-2 land-1 lesch-1 lesch-2
lesch-3 lesch-4 lesch-5 lesch-6 lyons-1 lyons-2 m53 manea-1 manea-2 manea-3
meal-1 meal-2 meelon-1meelon-2mela-1 mela-10 mela-2 mela-3 mela-5 mela-6
mela-7 mela-8 mela-9 mhenry-1mhenry-2milt-1 milt-2 milt-3 milt-4 milt-5
milt-6 milt-7 milt-8 minn-1 minn-2 minn-3 modo-1 modo-2 modo-3 modo-4
modo-5 modo-6 mpk01 mpk02 mpk03 mtb-1 mtb-2 mtb-3 mtb-4 mtb-5
muck-1 muck-2 mud-2 mud-3 mud-4 mud-5 mud-6 mud-7 mud-9 myalup-2
mclart-1navb-1 navb-2 navb-3 navb-4 neer-1 neer-10 neer-11 neer-2 neer-20
neer-21 neer-22 neer-23 neer-3 neer-4 neer-5 neer-6 neer-7 neer-8 neer-9
nine-1 nine-2 npres-1 nwil-1 nwil-2 nwil-3 oates-1 paga-1 paga-2 paga-3
paga-4 paga-5 paga-6 paga-7 paga-8 payne-1 pb-1 pb-2 pb-3 pb-4
pb-5 pb-6 pearce-1pearce-2pepb-1 pepgrv-1pepgrv-2pline-1 pline-2 pline-3
pline-4 pline-5 pline-6 pline-7 pres-1 ptwalt-1possum1 possum2 possum3 possum4
possum5 raaf-1 raaf-2 raaf-3 redl-1 rivd-1 rivd-2 ruab-1 ruab-2 ruab-3
ruab-4 sandon-1seab-1 seab-2 seab-3 seab-4 seab-5 seab-6 seab-7 seab-8
she-1 she-2 she-3 she-4 she-5 she-6 shent-1 sint-1 smith-1 svh-1
svh-2 tam-1 thom-2 trig-1 trig-2 trig-3 trig-4 trig-5 trig-6 twin-1
twin-10 twin-11 twin-2 twin-3 twin-4 twin-5 twin-7 twin-8 wabl-1 wabl-2
wabl-3 wabl-4 wand-1 warb-1 warb-2 warb-3 warb-4 wari-1 wari-2 water-1
water-2 water-3 water-4 waterrdlwell-1 well-2 whill-1 whill-2 whill-3 whill-4
whill-5 white-1 white-2 will-1 wirr-1 wirr-2 wonn-3 wonn-4 wonn-5 wonn-6
woodp-1 woodp-2 woodv-1 woodv-2 yalg-1 yalg-2 yalg-3 yalg-4 yalg-5 yalg-6
yalg-7 yalg-8 yallin-1yan-1 yan-10 yan-11 yan-12 yan-13 yan-14 yan-15
yan-16 yan-17 yan-18 yan-19 yan-2 yan-20 yan-21 yan-22 yan-23 yan-24
yan-25 yan-3 yan-4 yan-5 yan-6 yan-8 yan-9 yoon-1 yoon-2 yoon-3
yule-1 yule-2 yule-3 yule-4 yule-5 boyan 01boyan 02brick1 brick2 brick3
brick4 brick5 brick6 brick7 brick8 buffer01card1 card10 card11 card12
card13 card2 card3 card4 card5 card6 card7 card8 card9 cool 01
cool 02 cool 03 cool 04 cool 08 cool 09 cool 11 dard01 dard02 dard03 gibson01
gibson02hurst01 hurst02 hurst03 hurst04 hymus01 hymus02 hymus03 hymus04 hymus05
hymus06 iron01 iron02 kelly01 kelly02 kemp01 lamb1 lamb2 low01 low04
low06a low06b low07 low08 low09a low09b low10a low10b low12a low12b
low13a low13b low14a rowe01 rowe02 smith02 smith03 smith04 talb1 talb10
talb11 talb12 talb13 talb2 talb3 talb4 talb5 talb6 talb7 talb8
talb9 waro 01 waro 02 waro 03 waro 04 waro 05 waro 06 welr 01 welr 02 wicher01
will02 will03 will04 wonn01 wonn02 yarl01 yarl02 yarl03 yarl04

*Appendix 4.*

*Plot location, altitude and community type.*

| SITE | LATITUDE | LONGITUDE | ALTITUDE (m) | COMM. TYPE |
|---|---|---|---|---|
| ACTON-1 | -33.7515 | 115.2231 | 40 | 1a |
| AMBR-1 | -33.7386 | 115.3208 | 35 | 1b |
| AMBR-2 | -33.7381 | 115.3236 | 35 | 2 |
| AMBR-3 | -33.7372 | 115.3306 | 35 | 4 |
| AMBR-4 | -33.7347 | 115.3258 | 35 | 1b |
| AMBR-5 | -33.7361 | 115.3350 | 35 | 2 |
| AMBR-6 | -33.7408 | 115.3231 | 75 | 1b |
| AMBR-7 | -33.7408 | 115.3225 | 35 | 2 |
| AMBR-9 | -33.7376 | 115.3214 | 35 | 1b |
| AMBRAL-1 | -33.7392 | 115.3231 | 35 | 1b |
| APBF-1 | -31.9794 | 116.0003 | 40 | 20a |
| APBF-2 | -31.9806 | 115.9658 | 40 | 20a |
| AUSTB-1 | -32.6156 | 115.7774 | 5 | 7 |
| AUSTB-2 | -32.6148 | 115.7779 | 5 | 7 |
| AUSTB-3 | -32.6158 | 115.7792 | 5 | 11 |
| AUSTB-4 | -32.6111 | 115.7758 | 5 | 5 |
| AUSTB-5 | -32.6035 | 115.7806 | 5 | 5 |
| AUSTB-6 | -32.6018 | 115.7778 | 5 | 5 |
| AUSTB-7 | -32.6019 | 115.7798 | 5 | 7 |
| AUSTB-8 | -32.6438 | 115.7811 | 5 | 7 |
| AUSTRA-1 | -33.2768 | 115.7345 | 20 | 21a |
| BAMBUN-1 | -31.4280 | 115.8938 | 20 | 7 |
| BAMBUN-2 | -31.4274 | 115.8951 | 20 | 15 |
| BAMBUN-3 | -31.4276 | 115.8962 | 20 | 7 |
| BANK-1 | -32.2542 | 115.8859 | 20 | 22 |
| BANK-1A | -32.2563 | 115.8887 | 20 | 13 |
| BANK-2 | -32.2554 | 115.8893 | 20 | 23a |
| BANK-3 | -32.2545 | 115.8860 | 20 | 23a |
| BOLD-1 | -31.9526 | 115.7620 | 20 | 24 |
| BOLD-2 | -31.9533 | 115.7643 | 20 | 24 |
| BOLD-3 | -31.9540 | 115.7623 | 20 | 24 |
| BOLD-4 | -31.9458 | 115.7728 | 50 | 24 |
| BOYAN01 | -33.4769 | 115.7607 | 90 | 21b |
| BOYAN02 | -33.4593 | 115.7835 | 100 | 1a |
| BRICK1 | -32.2347 | 115.9983 | 40 | 3a |
| BRICK2 | -32.2293 | 116.0014 | 40 | 20b |
| BRICK3 | -32.2320 | 116.0018 | 40 | 3a |
| BRICK4 | -32.2309 | 116.0019 | 40 | 9 |
| BRICK5 | -32.2319 | 115.9992 | 40 | 3a |
| BRICK6 | -32.2310 | 116.0004 | 40 | 3a |
| BRICK7 | -32.2271 | 115.9971 | 40 | 3a |
| BRICK8 | -32.2286 | 115.9954 | 40 | 3a |
| BRIX-1 | -32.0306 | 115.9712 | 15 | 8 |
| BRIX-2 | -32.0319 | 115.9700 | 15 | 3a |
| BRIX-3 | -32.0318 | 115.9704 | 15 | 8 |
| BRIX-4 | -32.0320 | 115.9695 | 15 | 8 |
| BRIX-5 | -32.0333 | 115.9700 | 15 | 3a |
| BUFFER01 | -33.5381 | 115.7335 | 110 | 21b |
| BULL-1 | -31.6294 | 116.0240 | 75 | 28 |
| BULL-10 | -31.6262 | 116.0225 | 75 | 28 |
| BULL-11 | -31.6243 | 116.0238 | 75 | 28 |
| BULL-12 | -31.6235 | 116.0200 | 60 | 11 |
| BULL-3 | -31.6330 | 116.0202 | 75 | 23a |
| BULL-4 | -31.6320 | 116.0196 | 75 | 28 |
| BULL-5 | -31.6283 | 116.0144 | 75 | 5 |
| BULL-6 | -31.6258 | 116.0153 | 75 | 7 |
| BULL-7 | -31.6244 | 116.0156 | 75 | 5 |
| BULL-8 | -31.6250 | 116.0153 | 75 | 7 |
| BULL-9 | -31.6282 | 116.0203 | 75 | 28 |
| BULLER-1 | -32.8700 | 115.8283 | 20 | 21a |
| BULLER-2 | -32.8735 | 115.8277 | 20 | 21a |
| BULLER-3 | -32.8785 | 115.8272 | 20 | 21c |
| BURN-1 | -31.7367 | 115.7297 | 5 | 29a |
| BURN-2 | -31.7367 | 115.7306 | 5 | 29a |
| BURNRD01 | -32.7223 | 115.9416 | 50 | 20b |
| BURNRD02 | -32.7280 | 115.9417 | 50 | 3b |
| BYRD-1 | -33.1085 | 115.8085 | 20 | 9 |
| C58-1 | -32.8616 | 115.7730 | 10 | 4 |
| C58-2 | -32.8634 | 115.7626 | 10 | 13 |
| C58-3 | -32.8627 | 115.7636 | 10 | 8 |
| C58-4 | -32.8611 | 115.7690 | 10 | 10a |
| C71-1 | -33.4107 | 115.6253 | 20 | 11 |
| C71-2 | -33.4061 | 115.6251 | 20 | 21a |
| C71-3 | -33.4381 | 115.6094 | 20 | 21a |
| C71-4 | -33.4389 | 115.6067 | 20 | 25 |
| CAPEL-1 | -33.5788 | 115.5454 | 20 | 21b |
| CAPEL-2 | -33.5791 | 115.5450 | 20 | 21b |

| SITE | LATITUDE | LONGITUDE | ALTITUDE (m) | COMM. TYPE |
|---|---|---|---|---|
| CAPEL-3 | -33.5655 | 115.5490 | 20 | 4 |
| CAPEL-4 | -33.5770 | 115.5458 | 20 | 13 |
| CAPEL-5 | -33.5773 | 115.5453 | 20 | 1b |
| CAPEL-6 | -33.5713 | 115.5453 | 20 | 12 |
| CAPEL-7 | -33.5728 | 115.5465 | 20 | 21a |
| CAPEL-8 | -33.5723 | 115.5418 | 20 | 12 |
| CAPEL-9 | -33.5724 | 115.5420 | 20 | 12 |
| CARAB-1 | -32.6374 | 115.7190 | 5 | 15 |
| CARAB-2 | -32.6388 | 115.7206 | 5 | 7 |
| CARAB-3 | -32.6394 | 115.7194 | 5 | 11 |
| CARB-1 | -33.7059 | 115.1870 | 20 | 1b |
| CARB-2 | -33.6998 | 115.1830 | 20 | 1b |
| CARB-3 | -33.7049 | 115.1838 | 20 | 21b |
| CARB-4 | -33.7063 | 115.1874 | 20 | 1b |
| CARD1 | -32.2441 | 115.9881 | 40 | 20b |
| CARD10 | -32.2496 | 115.9838 | 40 | 6 |
| CARD11 | -32.2480 | 115.9841 | 40 | 6 |
| CARD12 | -32.2434 | 115.9842 | 40 | 3b |
| CARD13 | -32.2427 | 115.9842 | 40 | 3b |
| CARD2 | -32.2450 | 115.9869 | 40 | 20b |
| CARD3 | -32.2468 | 115.9863 | 20 | 21a |
| CARD4 | -32.2469 | 115.9864 | 40 | 6 |
| CARD5 | -32.2497 | 115.9864 | 40 | 20b |
| CARD6 | -32.2495 | 115.9863 | 40 | 20b |
| CARD7 | -32.2496 | 115.9852 | 40 | 21a |
| CARD8 | -32.2508 | 115.9841 | 40 | 20b |
| CARD9 | -32.2505 | 115.9841 | 40 | 20b |
| CHIDPT-1 | -32.0172 | 115.7781 | 10 | 24 |
| CLIF-1 | -32.8190 | 115.6959 | 40 | 21a |
| CLIF-2 | -32.8171 | 115.6874 | 35 | 26a |
| CLIF-3 | -32.8165 | 115.6877 | 35 | 26a |
| COOL01 | -32.2833 | 115.7878 | 15 | 17 |
| COOL02 | -32.2833 | 115.7858 | 15 | 24 |
| COOL03 | -32.2828 | 115.7853 | 15 | 24 |
| COOL04 | -32.3201 | 115.7664 | 5 | 17 |
| COOL08 | -32.3292 | 115.7671 | 10 | 24 |
| COOL09 | -32.3294 | 115.7677 | 10 | 19 |
| COOL11 | -32.3287 | 115.7682 | 10 | 17 |
| CORON-1 | -32.8701 | 115.7202 | 35 | 21a |
| CORON-2 | -32.8706 | 115.7265 | 40 | 25 |
| CRAMPT-1 | -33.0252 | 115.7436 | 30 | 21a |
| CRAMPT-2 | -33.0234 | 115.7423 | 30 | 21a |
| DARD01 | -33.4361 | 115.7974 | 120 | 1a |
| DARD02 | -33.4079 | 115.7957 | 70 | 21b |
| DARD03 | -33.4317 | 115.7980 | 130 | 1a |
| DEJONG-A | -32.1656 | 115.8906 | 30 | 22 |
| DEJONG-C | -32.1667 | 115.8922 | 30 | 21c |
| DEPOT-1 | -31.7295 | 115.7902 | 20 | 28 |
| DRAIN-1 | -32.8198 | 115.7500 | 10 | 21a |
| DUCK-1 | -32.2917 | 115.8850 | 40 | 3c |
| DUCK-2 | -32.2915 | 115.8841 | 40 | 3c |
| DUCK-3 | -32.2915 | 115.8854 | 40 | 9 |
| DUNS-1 | -33.6051 | 115.1003 | 15 | 3b |
| ELDO-1 | -31.3585 | 115.7573 | 50 | 23b |
| ELLEN-1 | -31.7522 | 116.0331 | 20 | 8 |
| ELLEN-2 | -31.7550 | 116.0350 | 20 | 8 |
| ELLEN-3 | -31.7564 | 116.0331 | 20 | 8 |
| ELLEN-4 | -31.7567 | 116.0306 | 20 | 8 |
| ELLEN-5 | -31.7564 | 116.0311 | 20 | 8 |
| ELLEN-6 | -31.7556 | 116.0350 | 20 | 3c |
| ELLEN-7 | -31.7531 | 116.0371 | 20 | 6 |
| ELLIS-1 | -32.9305 | 115.7158 | 5 | 17 |
| ELLIS-2 | -32.9311 | 115.7129 | 5 | 18 |
| ELLIS-3 | -32.9306 | 115.7153 | 5 | 18 |
| FISH-1 | -33.7314 | 115.3884 | 20 | 7 |
| FISH-2 | -33.7313 | 115.3890 | 20 | 7 |
| FISH-3 | -33.7311 | 115.3882 | 20 | 10a |
| FISH-4 | -33.7350 | 115.3883 | 20 | 10a |
| FISH-5 | -33.7360 | 115.3868 | 20 | 2 |
| FL-1 | -32.1591 | 115.9516 | 20 | 4 |
| FL-10 | -32.1703 | 115.9347 | 20 | 12 |
| FL-2 | -32.1585 | 115.9511 | 20 | 10a |
| FL-3 | -32.1642 | 115.9496 | 20 | 8 |
| FL-4 | -32.1663 | 115.9508 | 20 | 21a |
| FL-5 | -32.1563 | 115.9432 | 20 | 21c |
| FL-6 | -32.1574 | 115.9438 | 20 | 21c |
| FL-7 | -32.1572 | 115.9499 | 20 | 8 |

| SITE | LATITUDE | LONGITUDE | ALTITUDE (m) | COMM. TYPE |
|---|---|---|---|---|
| FL-9 | -32.1741 | 115.9341 | 20 | 4 |
| GARDEN-1 | -32.1686 | 115.6714 | 5 | 30a |
| GARDEN-2 | -32.1743 | 115.6600 | 5 | 29a |
| GARDEN-3 | -32.1724 | 115.6698 | 10 | 30a |
| GARDEN-4 | -32.2051 | 115.6812 | 1 | 30a |
| GIBSON01 | -33.6291 | 115.6461 | 70 | 21b |
| GIBSON02 | -33.6370 | 115.6512 | 90 | 1a |
| GINGIN-1 | -31.4050 | 115.9114 | 20 | 7 |
| GINGIN-2 | -31.4052 | 115.9108 | 20 | 7 |
| GINGIN-3 | -31.4056 | 115.9101 | 20 | 7 |
| GOLF-1 | -31.8292 | 115.8347 | 60 | 20a |
| GUTHR-1 | -33.0807 | 115.7769 | 20 | 4 |
| GUTHR-2 | -33.0822 | 115.7748 | 20 | 5 |
| GUTHR-3 | -33.0846 | 115.7732 | 20 | 21a |
| GUTHR-4 | -33.0804 | 115.7795 | 20 | 5 |
| GUTHR-5 | -33.1094 | 115.7417 | 15 | 21a |
| GUTHR-6 | -33.0929 | 115.7825 | 20 | 21a |
| HARRY-1 | -32.1726 | 115.8305 | 20 | 28 |
| HARRY-2 | -32.1722 | 115.8302 | 20 | 28 |
| HARRY-3 | -32.1741 | 115.8292 | 20 | 5 |
| HARRY-4 | -32.1727 | 115.8403 | 20 | 23a |
| HARRY-5 | -32.1702 | 115.8372 | 20 | 21a |
| HARRY-6 | -32.1708 | 115.8282 | 20 | 11 |
| HURST01 | -32.0814 | 115.8875 | 30 | 23a |
| HURST02 | -32.0819 | 115.8889 | 30 | 23a |
| HURST03 | -32.0811 | 115.8822 | 30 | 23a |
| HURST04 | -32.0781 | 115.8833 | 30 | 23a |
| HYMUS01 | -32.3492 | 115.8568 | 30 | 11 |
| HYMUS02 | -32.3483 | 115.8564 | 50 | 11 |
| HYMUS03 | -32.3501 | 115.8578 | 50 | 21c |
| HYMUS04 | -32.3496 | 115.8593 | 50 | 21c |
| HYMUS05 | -32.3510 | 115.8631 | 50 | 11 |
| HYMUS06 | -32.3516 | 115.8629 | 50 | 11 |
| IRON01 | -33.8148 | 115.2203 | 90 | 10b |
| IRON02 | -33.8137 | 115.2212 | 90 | 10b |
| KELLY01 | -33.5768 | 115.6887 | 70 | 1a |
| KELLY02 | -33.5768 | 115.6903 | 70 | 21b |
| KEME-1 | -33.2157 | 115.7369 | 30 | 25 |
| KEME-2 | -33.2160 | 115.7398 | 25 | 21a |
| KEME-3 | -33.2252 | 115.7404 | 15 | 21c |
| KEMP01 | -33.7666 | 115.4323 | 80 | 1a |
| KERO-1 | -32.2955 | 115.7999 | 20 | 24 |
| KERO-2 | -32.2945 | 115.7983 | 20 | 24 |
| KING-1 | -31.9691 | 115.8357 | 20 | 28 |
| KING-2 | -31.9607 | 115.8286 | 20 | 28 |
| KOOLJ-1 | -32.7301 | 115.7133 | 5 | 4 |
| KOOLJ-2 | -32.7293 | 115.7140 | 5 | 21a |
| KOOLJ-3 | -32.7268 | 115.7234 | 5 | 21a |
| KOOLJ-4 | -32.7316 | 115.7234 | 5 | 21a |
| KOOLJ-5 | -32.7565 | 115.7365 | 5 | 3b |
| KOOLJ-6 | -32.7563 | 115.7350 | 5 | 10a |
| KOOLJ-7 | -32.7554 | 115.7356 | 5 | 10a |
| KOON-1 | -31.8389 | 115.8675 | 70 | 20a |
| KOON-2 | -31.8361 | 115.8681 | 60 | 20a |
| LAMB1 | -32.1814 | 116.0060 | 30 | 3a |
| LAMB2 | -32.1815 | 116.0053 | 30 | 3a |
| LAND-1 | -31.8208 | 115.8503 | 60 | 20a |
| LESCH-1 | -33.2423 | 115.6887 | 5 | 30b |
| LESCH-2 | -33.2212 | 115.6897 | 5 | 30b |
| LESCH-3 | -33.2010 | 115.6839 | 5 | 30b |
| LESCH-4 | -33.2013 | 115.6857 | 5 | 30b |
| LESCH-5 | -33.2003 | 115.6897 | 5 | 30b |
| LESCH-6 | -33.2003 | 115.6911 | 5 | 17 |
| LOW01 | -32.3326 | 115.9032 | 15 | 21c |
| LOW04 | -32.3296 | 115.9033 | 15 | 21a |
| LOW06A | -32.3215 | 115.9079 | 15 | 21c |
| LOW06B | -32.3214 | 115.9098 | 15 | 21c |
| LOW07 | -32.3222 | 115.9144 | 15 | 21c |
| LOW08 | -32.3220 | 115.9154 | 15 | 5 |
| LOW09A | -32.3263 | 115.9225 | 15 | 5 |
| LOW09B | -32.3269 | 115.9222 | 15 | 5 |
| LOW10A | -32.3371 | 115.9106 | 15 | 21a |
| LOW10B | -32.3379 | 115.9088 | 15 | 11 |
| LOW12A | -32.3394 | 115.9037 | 15 | 21a |
| LOW12B | -32.3393 | 115.9056 | 15 | 21a |
| LOW13A | -32.3489 | 115.9009 | 15 | 21a |
| LOW13B | -32.3500 | 115.8996 | 15 | 23a |

| SITE | LATITUDE | LONGITUDE | ALTITUDE (m) | COMM. TYPE |
|---|---|---|---|---|
| LOW14A | -32.3501 | 115.8927 | 15 | 4 |
| LYONS-1 | -32.9954 | 115.7663 | 20 | 4 |
| LYONS-2 | -32.9813 | 115.7523 | 50 | 25 |
| M53 | -31.9775 | 115.9881 | 99 | 20a |
| MANEA-1 | -33.3690 | 115.6591 | 30 | 9 |
| MANEA-2 | -33.3681 | 115.6621 | 30 | 21a |
| MANEA-3 | -33.3701 | 115.6576 | 30 | 21b |
| MCLART-1 | -32.6938 | 115.7054 | 5 | 13 |
| MEAL-1 | -32.6772 | 115.6871 | 5 | 25 |
| MEAL-2 | -32.6807 | 115.6875 | 20 | 26b |
| MEELON-1 | -32.6905 | 115.9349 | 40 | 8 |
| MEELON-2 | -32.6904 | 115.9347 | 40 | 8 |
| MELA-1 | -31.6733 | 115.8939 | 60 | 4 |
| MELA-10 | -31.6721 | 115.9245 | 60 | 22 |
| MELA-2 | -31.6717 | 115.8939 | 70 | 23b |
| MELA-3 | -31.6717 | 115.8971 | 80 | 23b |
| MELA-5 | -31.6678 | 115.8941 | 70 | 22 |
| MELA-6 | -31.6658 | 115.8935 | 75 | 23b |
| MELA-7 | -31.6900 | 115.9044 | 60 | 23b |
| MELA-8 | -31.6956 | 115.9056 | 60 | 23b |
| MELA-9 | -31.6722 | 115.9276 | 60 | 23b |
| MHENRY-1 | -32.0336 | 115.8589 | 5 | 30c |
| MHENRY-2 | -32.0339 | 115.8583 | 5 | 30c |
| MILT-1 | -31.4010 | 115.6949 | 45 | 5 |
| MILT-2 | -31.3959 | 115.7992 | 55 | 13 |
| MILT-3 | -31.3958 | 115.7962 | 40 | 23b |
| MILT-4 | -31.4095 | 115.6914 | 60 | 28 |
| MILT-5 | -31.3978 | 115.7914 | 60 | 14 |
| MILT-6 | -31.3935 | 115.7816 | 60 | 21a |
| MILT-7 | -31.4009 | 115.7695 | 60 | 23b |
| MILT-8 | -31.4001 | 115.7261 | 60 | 23b |
| MINN-1 | -33.4738 | 115.5612 | 20 | 25 |
| MINN-2 | -33.4733 | 115.5617 | 20 | 25 |
| MINN-3 | -33.4789 | 115.5623 | 20 | 25 |
| MODO-1 | -32.2377 | 115.8951 | 20 | 4 |
| MODO-2 | -32.2280 | 115.8966 | 20 | 21c |
| MODO-3 | -32.2283 | 115.8990 | 20 | 11 |
| MODO-4 | -32.2304 | 115.9022 | 20 | 23a |
| MODO-5 | -32.2246 | 115.9018 | 20 | 23a |
| MODO-6 | -32.2261 | 115.8984 | 20 | 4 |
| MPK01 | -31.6636 | 115.9200 | 70 | 23b |
| MPK02 | -31.6767 | 115.9070 | 70 | 22 |
| MPK03 | -31.6799 | 115.8970 | 70 | 23b |
| MTB-1 | -32.1828 | 115.7869 | 30 | 24 |
| MTB-2 | -32.1713 | 115.7790 | 20 | 24 |
| MTB-3 | -32.1712 | 115.7777 | 20 | 24 |
| MTB-4 | -32.1601 | 115.7811 | 20 | 24 |
| MTB-5 | -32.1586 | 115.7824 | 20 | 17 |
| MUCK-1 | -31.3470 | 115.7815 | 50 | 23b |
| MUCK-2 | -31.3452 | 115.7798 | 50 | 7 |
| MUD-2 | -32.2970 | 115.9503 | 40 | 8 |
| MUD-3 | -32.2968 | 115.9488 | 40 | 8 |
| MUD-4 | -32.2984 | 115.9636 | 40 | 3a |
| MUD-5 | -32.2981 | 115.9608 | 40 | 3a |
| MUD-6 | -32.2961 | 115.9464 | 40 | 8 |
| MUD-7 | -32.2969 | 115.9451 | 40 | 8 |
| MUD-9 | -32.2979 | 115.9600 | 40 | 8 |
| MYALUP-2 | -33.0652 | 115.7659 | 30 | 25 |
| NAVB-1 | -32.1645 | 115.7679 | 5 | 16 |
| NAVB-2 | -32.1645 | 115.7681 | 5 | 29a |
| NAVB-3 | -32.1715 | 115.7709 | 5 | 24 |
| NAVB-4 | -32.1720 | 115.7711 | 5 | 24 |
| NEER-1 | -31.6925 | 115.7548 | 30 | 24 |
| NEER-10 | -31.6541 | 115.7331 | 70 | 24 |
| NEER-11 | -31.6418 | 115.7290 | 40 | 24 |
| NEER-2 | -31.6922 | 115.7429 | 30 | 28 |
| NEER-20 | -31.7110 | 115.7506 | 50 | 28 |
| NEER-21 | -31.7118 | 115.7559 | 70 | 28 |
| NEER-22 | -31.7108 | 115.7598 | 70 | 28 |
| NEER-23 | -31.7108 | 115.7591 | 70 | 28 |
| NEER-3 | -31.6836 | 115.7380 | 30 | 28 |
| NEER-4 | -31.6825 | 115.7432 | 30 | 28 |
| NEER-5 | -31.6823 | 115.7446 | 30 | 28 |
| NEER-6 | -31.7000 | 115.7448 | 30 | 28 |
| NEER-7 | -31.6417 | 115.7188 | 30 | 24 |
| NEER-8 | -31.6413 | 115.7189 | 30 | 28 |
| NEER-9 | -31.6541 | 115.7328 | 70 | 24 |

| SITE | LATITUDE | LONGITUDE | ALTITUDE (m) | COMM. TYPE |
|---|---|---|---|---|
| NINE-1 | -32.7365 | 115.7775 | 20 | 21a |
| NINE-2 | -32.7386 | 115.7780 | 10 | 21a |
| NPRES-1 | -32.8364 | 115.6427 | 40 | 29b |
| NWIL-1 | -31.3840 | 115.5606 | 40 | 29b |
| NWIL-2 | -31.3858 | 115.5591 | 45 | 26b |
| NWIL-3 | -31.3909 | 115.5605 | 50 | 29b |
| OATES-1 | -33.6869 | 115.5576 | 80 | 21b |
| PAGA-1 | -32.4465 | 115.8016 | 10 | 5 |
| PAGA-2 | -32.4547 | 115.8020 | 10 | 13 |
| PAGA-3 | -32.4565 | 115.7998 | 10 | 5 |
| PAGA-4 | -32.4564 | 115.7888 | 30 | 21a |
| PAGA-5 | -32.4396 | 115.7833 | 10 | 17 |
| PAGA-6 | -32.4395 | 115.7839 | 10 | 25 |
| PAGA-7 | -32.4394 | 115.7854 | 20 | 21a |
| PAGA-8 | -32.4528 | 115.7825 | 10 | 25 |
| PAYNE-1 | -33.7542 | 115.1944 | 30 | 4 |
| PB-1 | -32.3860 | 115.7350 | 5 | 19 |
| PB-2 | -32.3858 | 115.7352 | 5 | 29b |
| PB-3 | -32.3836 | 115.7354 | 5 | 29b |
| PB-4 | -32.3901 | 115.7405 | 5 | 29b |
| PB-5 | -32.3868 | 115.7315 | 5 | 29b |
| PB-6 | -32.3794 | 115.7415 | 5 | 19 |
| PEARCE-1 | -31.6660 | 116.0303 | 20 | 6 |
| PEARCE-2 | -31.6667 | 116.0294 | 20 | 3c |
| PEPB-1 | -33.5402 | 115.5125 | 15 | 30b |
| PEPGRV-1 | -31.9944 | 115.7714 | 6 | 30a |
| PEPGRV-2 | -31.9936 | 115.7714 | 6 | 30a |
| PLINE-1 | -31.5568 | 115.9256 | 50 | 23b |
| PLINE-2 | -31.5556 | 115.9135 | 70 | 23b |
| PLINE-3 | -31.5625 | 115.8625 | 50 | 21a |
| PLINE-4 | -31.5600 | 115.8625 | 50 | 4 |
| PLINE-5 | -31.5605 | 115.8437 | 50 | 5 |
| PLINE-6 | -31.5601 | 115.8425 | 50 | 22 |
| PLINE-7 | -31.5565 | 115.8403 | 50 | 21c |
| POSSUM1 | -33.6665 | 115.2368 | 5 | 16 |
| POSSUM2 | -33.6651 | 115.2355 | 5 | 16 |
| POSSUM3 | -33.6604 | 115.2380 | 10 | 30b |
| POSSUM4 | -33.6616 | 115.2377 | 5 | 30b |
| POSSUM5 | -33.6701 | 115.2313 | 5 | 17 |
| PRES-1 | -32.8775 | 115.6641 | 20 | 29a |
| PTWALT-1 | -32.0186 | 115.7856 | | 10 |
| RAAF-1 | -31.4782 | 115.8584 | 50 | 23b |
| RAAF-2 | -31.4787 | 115.8220 | 70 | 23b |
| RAAF-3 | -31.4792 | 115.7906 | 55 | 23b |
| REDL-1 | -33.0478 | 115.8156 | 20 | 21a |
| RIVD-1 | -32.9895 | 115.7805 | 20 | 12 |
| RIVD-2 | -32.9918 | 115.7874 | 25 | 21a |
| ROWE01 | -32.3504 | 115.8908 | 30 | 11 |
| ROWE02 | -32.3505 | 115.8931 | 30 | 4 |
| RUAB-1 | -33.6456 | 115.5061 | 30 | 21b |
| RUAB-2 | -33.6456 | 115.5047 | 20 | 21b |
| RUAB-3 | -33.6423 | 115.5066 | 20 | 13 |
| RUAB-4 | -33.6471 | 115.5083 | 20 | 7 |
| SANDON-1 | -32.0308 | 115.8706 | 10 | 16 |
| SEAB-1 | -31.2858 | 115.4473 | 10 | 30c |
| SEAB-2 | -31.2879 | 115.4468 | 10 | 29b |
| SEAB-3 | -31.2888 | 115.4498 | 10 | 29b |
| SEAB-4 | -31.2979 | 115.4566 | 10 | 29a |
| SEAB-5 | -31.2998 | 115.4574 | 10 | 29a |
| SEAB-6 | -31.3018 | 115.4716 | 10 | 28 |
| SEAB-7 | -31.3316 | 115.4936 | 10 | 29b |
| SEAB-8 | -31.2874 | 115.4465 | 10 | 29a |
| SHE-1 | -31.4303 | 115.6373 | 60 | 26b |
| SHE-2 | -31.4291 | 115.6493 | 50 | 28 |
| SHE-3 | -31.4277 | 115.6496 | 50 | 26b |
| SHE-4 | -31.4037 | 115.6145 | 50 | 26a |
| SHE-5 | -31.4040 | 115.6143 | 50 | 26a |
| SHE-6 | -31.4103 | 115.6020 | 40 | 26b |
| SHENT-1 | -31.9606 | 115.7978 | 20 | 28 |
| SINT-1 | -31.5876 | 115.7939 | 50 | 23b |
| SMITH-1 | -33.7976 | 115.2921 | 70 | 10b |
| SMITH02 | -33.7974 | 115.2895 | 70 | 1a |
| SMITH03 | -33.8017 | 115.2961 | 70 | 1a |
| SMITH04 | -33.8070 | 115.2396 | 60 | 10b |
| SVH-1 | -31.6604 | 115.7744 | 113 | 26a |
| SVH-2 | -31.6615 | 115.7740 | 90 | 27 |
| TALB1 | -31.8733 | 116.0469 | 50 | 3c |

| SITE | LATITUDE | LONGITUDE | ALTITUDE (m) | COMM. TYPE |
|---|---|---|---|---|
| TALB10 | -31.8736 | 116.0433 | 50 | 20c |
| TALB11 | -31.8725 | 116.0444 | 50 | 20c |
| TALB12 | -31.8822 | 116.0464 | 50 | 3c |
| TALB13 | -31.8819 | 116.0464 | 50 | 3c |
| TALB2 | -31.8728 | 116.0492 | 50 | 20c |
| TALB3 | -31.8725 | 116.0481 | 50 | 20c |
| TALB4 | -31.8714 | 116.0469 | 50 | 3c |
| TALB5 | -31.8719 | 116.0469 | 50 | 20c |
| TALB6 | -31.8697 | 116.0469 | 50 | 20c |
| TALB7 | -31.8714 | 116.0447 | 50 | 20c |
| TALB8 | -31.8703 | 116.0439 | 50 | 20c |
| TALB9 | -31.8711 | 116.0425 | 50 | 20c |
| TAM-1 | -32.3196 | 115.8075 | 30 | 21a |
| THOM-2 | -32.1440 | 115.8381 | 20 | 24 |
| TRIG-1 | -31.8794 | 115.7593 | 20 | 29b |
| TRIG-2 | -31.8830 | 115.7570 | 10 | 29a |
| TRIG-3 | -31.8714 | 115.7596 | 10 | 28 |
| TRIG-4 | -31.8743 | 115.7619 | 10 | 28 |
| TRIG-5 | -31.8750 | 115.7605 | 10 | 24 |
| TRIG-6 | -31.8748 | 115.7586 | 10 | 24 |
| TWIN-1 | -31.7197 | 116.0098 | 20 | 6 |
| TWIN-10 | -31.7270 | 116.0111 | 20 | 15 |
| TWIN-11 | -31.7266 | 116.0110 | 20 | 11 |
| TWIN-2 | -31.7200 | 116.0101 | 20 | 6 |
| TWIN-3 | -31.7245 | 116.0140 | 20 | 6 |
| TWIN-4 | -31.7240 | 116.0146 | 20 | 6 |
| TWIN-5 | -31.7251 | 116.0175 | 20 | 15 |
| TWIN-7 | -31.7243 | 116.0138 | 20 | 21c |
| TWIN-8 | -31.7253 | 116.0139 | 20 | 21c |
| WABL-1 | -31.4045 | 115.6770 | 60 | 26a |
| WABL-2 | -31.4050 | 115.6764 | 40 | 26b |
| WABL-3 | -31.4042 | 115.6770 | 40 | 26b |
| WABL-4 | -31.4024 | 115.6741 | 50 | 28 |
| WAND-1 | -32.2010 | 115.8754 | 30 | 23a |
| WARB-1 | -31.7350 | 115.9445 | 70 | 23a |
| WARB-2 | -31.7342 | 115.9441 | 70 | 22 |
| WARB-3 | -31.7570 | 115.9495 | 70 | 23a |
| WARB-4 | -31.7569 | 115.9469 | 60 | 22 |
| WARI-1 | -31.8369 | 115.8128 | 30 | 28 |
| WARI-2 | -31.8447 | 115.8139 | 30 | 28 |
| WARO01 | -32.7904 | 115.8948 | 20 | 3b |
| WARO02 | -32.7897 | 115.8934 | 20 | 3b |
| WARO03 | -32.8122 | 115.9024 | 20 | 8 |
| WARO04 | -32.8112 | 115.9025 | 20 | 8 |
| WARO05 | -32.8136 | 115.9045 | 20 | 10a |
| WARO06 | -32.8052 | 115.9006 | 20 | 3a |
| WATER-1 | -33.3312 | 115.7580 | 20 | 13 |
| WATER-2 | -33.3295 | 115.7590 | 20 | 13 |
| WATER-3 | -33.3309 | 115.7590 | 20 | 3c |
| WATER-4 | -33.3308 | 115.7578 | 20 | 8 |
| WATERRD1 | -31.4769 | 115.7615 | 70 | 28 |
| WELL-1 | -32.2818 | 115.8214 | 20 | 21a |
| WELL-2 | -32.2773 | 115.8303 | 20 | 21a |
| WELR01 | -33.0538 | 115.8131 | 20 | 9 |
| WELR02 | -33.0540 | 115.8131 | 20 | 9 |
| WHILL-1 | -32.6925 | 115.6120 | 20 | 29b |
| WHILL-2 | -32.6918 | 115.6114 | 20 | 29b |
| WHILL-3 | -32.6918 | 115.6190 | 20 | 27 |
| WHILL-4 | -32.6915 | 115.6195 | 10 | 27 |
| WHILL-5 | -32.6907 | 115.6189 | 5 | 26b |
| WHITE-1 | -31.8242 | 115.9394 | 20 | 23a |
| WHITE-2 | -31.8273 | 115.9416 | 30 | 4 |
| WICHER01 | -33.7387 | 115.4833 | 60 | 1a |
| WILL-1 | -33.7009 | 115.5383 | 50 | 10b |
| WILL02 | -33.7192 | 115.5180 | 70 | 1a |
| WILL03 | -33.7016 | 115.5326 | 60 | 10b |
| WILL04 | -33.7013 | 115.5500 | 70 | 1a |
| WIRR-1 | -31.7408 | 115.8722 | 60 | 23a |
| WIRR-2 | -31.7392 | 115.8578 | 60 | 23a |
| WONN-3 | -33.6673 | 115.5804 | 20 | 9 |
| WONN-4 | -33.6670 | 115.5701 | 20 | 10b |
| WONN-5 | -33.6585 | 115.5405 | 40 | 10b |
| WONN-6 | -33.6538 | 115.5267 | 40 | 10b |
| WONN01 | -33.6678 | 115.5863 | 20 | 1a |
| WONN02 | -33.6674 | 115.5823 | 20 | 1b |
| WOODP-1 | -32.1310 | 115.7559 | 5 | 30a |
| WOODP-2 | -32.1329 | 115.7592 | 5 | 30a |

| SITE | LATITUDE | LONGITUDE | ALTITUDE (m) | COMM. TYPE |
|---|---|---|---|---|
| WOODV-1 | -31.7842 | 115.7817 | 40 | 28 |
| WOODV-2 | -31.7819 | 115.7803 | 40 | 28 |
| YALG-1 | -32.9149 | 115.6900 | 20 | 26b |
| YALG-2 | -32.9155 | 115.6908 | 20 | 26b |
| YALG-3 | -32.9157 | 115.6927 | 40 | 27 |
| YALG-4 | -32.9156 | 115.6933 | 40 | 27 |
| YALG-5 | -32.9165 | 115.6949 | 30 | 27 |
| YALG-6 | -32.9170 | 115.6948 | 30 | 26b |
| YALG-7 | -32.9179 | 115.6978 | 20 | 26b |
| YALG-8 | -32.9169 | 115.6983 | 20 | 27 |
| YALLIN-1 | -33.6716 | 115.1343 | 20 | 1b |
| YAN-1 | -31.5628 | 115.6961 | 20 | 26b |
| YAN-10 | -31.5471 | 115.7189 | 70 | 26b |
| YAN-11 | -31.5461 | 115.7191 | 70 | 26b |
| YAN-12 | -31.5020 | 115.7052 | 70 | 26a |
| YAN-13 | -31.5025 | 115.7050 | 70 | 26a |
| YAN-14 | -31.5045 | 115.7041 | 70 | 26b |
| YAN-15 | -31.5049 | 115.7041 | 70 | 26a |
| YAN-16 | -31.5065 | 115.7050 | 65 | 26b |
| YAN-17 | -31.5063 | 115.7200 | 40 | 22 |
| YAN-18 | -31.5044 | 115.7204 | 40 | 22 |
| YAN-19 | -31.5074 | 115.7281 | 35 | 23b |
| YAN-2 | -31.5616 | 115.6937 | 30 | 26a |
| YAN-20 | -31.5072 | 115.7241 | 45 | 23b |
| YAN-21 | -31.5089 | 115.7166 | 40 | 14 |
| YAN-22 | -31.5070 | 115.7186 | 40 | 22 |
| YAN-23 | -31.4958 | 115.7100 | 50 | 26b |
| YAN-24 | -31.4958 | 115.7091 | 50 | 26a |
| YAN-25 | -31.4935 | 115.7101 | 40 | 28 |
| YAN-3 | -31.5594 | 115.6914 | 20 | 28 |
| YAN-4 | -31.5700 | 115.7116 | 30 | 28 |
| YAN-5 | -31.5634 | 115.7257 | 60 | 26b |
| YAN-6 | -31.5625 | 115.7259 | 60 | 28 |
| YAN-8 | -31.5496 | 115.7251 | 70 | 28 |
| YAN-9 | -31.5478 | 115.7225 | 70 | 28 |
| YARL01 | -32.9353 | 115.9048 | 35 | 3c |
| YARL02 | -32.9357 | 115.9046 | 35 | 9 |
| YARL03 | -32.9534 | 115.9182 | 60 | 3b |
| YARL04 | -32.9601 | 115.9154 | 50 | 20b |
| YOON-1 | -33.7228 | 115.4374 | 20 | 1b |
| YOON-2 | -33.7230 | 115.4351 | 20 | 2 |
| YOON-3 | -33.7247 | 115.4338 | 20 | 7 |
| YULE-1 | -32.0239 | 115.9799 | 40 | 23a |
| YULE-2 | -32.0230 | 115.9788 | 40 | 23a |
| YULE-3 | -32.0210 | 115.9802 | 40 | 21c |
| YULE-4 | -32.0221 | 115.9765 | 40 | 10a |
| YULE-5 | -32.0229 | 115.9792 | 40 | 7 |