WESTERN AUSTRALIAN HERBARIUM RESEARCH NOTES

No. 7, 1982: 1-16

THE VASCULAR FLORA OF THE PORONGURUP RANGE SOUTH-WESTERN AUSTRALIA

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ABSTRACT

The Porongurup Range has a vascular flora of 368 species in 67 families.

The three main vegetation units differ in their species richness: 85 species were recorded in Eucalyptus diversicolor *(karri) forest, 255 species in* E. marginata *(jarrah) forest and open-scrub, and 119 species on granitic rock exposures. The number of species found in one only of these units was: 21 (karri), 163 (jarrah), 55 (granitic rocks). The flora of granitic rocks has a greater similarity to that of jarrah forest and open-scrub than to that of karri forest.*

*Only two species (*Hibbertia bracteosa *and* Villarsia calthifolia*) are known to be endemic to the Porongurup Range.*

Several species that are prominent in similar habitats around or near the Porongurup Range are listed. A list of widespread species with apparently isolated populations in the Porongurup Range is also provided.

INTRODUCTION

The Porongurup Range (maximum altitude 655 m) rises from a plain between Albany and the Stirling Ranges, South-western Australia. The area above 300 m is approximately 3200 ha. Half of this area consists of tall open forest isolated by about 50 km from the nearest similar habitat. About 2300 ha of the Range and adjoining areas are National Park.

This paper is based essentially on plant collections made by me between 1974 and 1980, on all major peaks except Twin Peaks, Collier Peak and Halls Peak; most attention was given to the area between Woodlands Road and Millinup Pass. The Porongurup Range is here defined as being bounded by Woodlands Road and the 300 m contour line, with the addition of one area below 300 m, namely the Mira Flores estate on the southern side. A topographical map of the Range is given in Figure 1.

As the area has now been quite thoroughly collected, the 368 species listed in Appendices 1 and 2 probably represent some 90% of a total vascular flora approaching 400 species.

ENVIRONMENT

Geology and Soils

The Porongurup Range is representative of the country rock of the Archaean Plateau of Western Australia, consisting of granites and gneisses. On parts of this plateau are numerous granitic monadnocks of which the Porongurup Range is probably the largest.

On the upper parts of the Range there is much exposed granitic rock, and except in valleys soils (sands) are not deep. On the lower slopes, deep red loams have developed. Still further downslope, soils are gravelly (lateritic) sands.

Climate

There is no temperature recording station at the Range, but temperatures are probably slightly more equable than at nearby Mt. Barker (mean daily maxima in January and July = 27.4 and 14.8°C respectively; mean daily minima in same months = 13.3 and 6.5°C).

Rainfall data for Porongurup Village on the north side of the Range, just below the 300 m contour, are as follows:

	J	F	M	A	M	J	J	A	S	O	N	D	Y
Mean rainfall (mm)	31	33	46	64	98	102	107	93	92	94	54	34	848
Median rainfall (mm)	19	28	43	58	84	93	97	96	96	80	48	32	838
Mean No. raindays	7	8	10	13	16	18	20	17	17	16	11	8	160

These data are for the period 1914-1978 where records are available (usually 29-33 years). They show that about two-thirds of the annual rainfall falls between May and October inclusive. The Porongurup Range is also one of the few places in Western Australia where snow occasionally falls.

It seems very likely that the southern (windward) side of the Range would receive over 900 mm because of an orographic effect; this is evidenced by higher quality jarrah forest on the southern slopes relative to that of the northern slope.

Vegetation

Four vegetation units are recognizable: tall open forest (estimated area 1700 ha); open forest, including small areas of open-scrub, formerly continuous with the chief vegetation type surrounding the Range; a lithic complex of mossland, herbland and fernland (total area about 250 ha); and pasture. These units have been mapped by Abbott (1981).

Tall open forest has *Eucalyptus diversicolor* (karri) as dominant and *E. calophylla* (marri) as subdominant. This unit is restricted to deep, red loams. The understorey vegetation may be low and sparse (often dominated by *Pteridium aquilinum*) or dense and tall (dominated by *Albizia lophantha, Acacia urophylla* or *Trymalium spathulatum*). These differences may reflect variation in soil depth, effective moisture, and fire history.

Open forest consists of jarrah and marri, and occurs on laterite soils and freely-draining sands. Understorey is rarely dense. The main understorey species are *Bossiaea linophylla, Xanthorrhoea preissii, Hibbertia* spp., *Acacia leioderma, Agonis hypericifolia, A. parviceps, Myoporum tetrandrum* and *Leucopogon revolutus*. At lower levels near the 300 m contour, where drainage is impeded, open forest becomes open-scrub, dominated by *Astartea fascicularis, Kunzea recurva, Banksia littoralis, Melaleuca preissiana, Agonis hypericifolia* and *A. parviceps*.

Lithic complex refers to the vegetation present on shallow soils associated with rock exposures. These are covered with mosses, lichens, *Cheilanthes tenuifolia* and *Thryptomene saxicola* where soils are shallow. In valleys or where soil is deeper, *Eucalyptus megacarpa* and *E. cornuta* occur with dense thickets dominated by *Agonis linearifolia, Acacia heteroclita* and *Hakea varia*.

Pasture, sown to subclover, with many other non-native plant species present, now virtually encircles the Porongurup Range.

PREVIOUS BOTANICAL STUDIES

James Drummond visited the Range in 1843 and 1848 and probably collected widely there. Unfortunately, his precise collecting localities are unknown. He recorded that:

> "Soon after the rains set in. a beautiful little annual everlasting flower (*Helipterum cotula*)* covers the tops of the Perongarup hills, in many places giving them the appearance of being covered with snow" (1849, p.250).

> "The Perongarup are clothed with mosses and *Jungermannia* and lichens, as rank and luxuriant as I have seen them in the moist rich valleys in the south of Ireland. These, as they grow and decay, lay the foundation of a soil which is covered with grasses and sow thistles equally rank to the tops of the hills; these, in their turn, furnish a soil which is covered with gigantic gum trees (karri), many of them 100 feet high, without a branch - by far the finest I have seen in any country" (1849, p.251).

Drummond in a letter to Hooker dated 21.2.1844, noted a species of *Villarsia* (*V. calthifolia*), one foot in breadth. Also mentioned were two new species of fern (*Asplenium*). He recorded that the granite slopes are poor in plant species in contrast to the ironstone gravels.

*Brackets indicate interpolations by I. Abbott.

A description of the flora, including mosses and lichens, of granite rocks of the Porongurup Range was provided by Smith (1962) in a paper also containing habitat photographs. Some of the species recorded by Smith have not been relocated during the present study despite thorough searching. These, together with several herbarium records noted in the course of other work, are listed in Appendix 2.

BIOGEOGRAPHY

Probably the most interesting biogeographical feature of the flora of the Porongurup Range is the occurrence of karri some 50 km NE of the main tract of karri forest at Denmark. This occurrence is a relict one. Karri forest several thousand years ago covered a larger area of South-western Australia than at present, probably when annual rainfall was higher (Churchill 1968).

There are still no regional lists of the plant species occurring in karri forests, or between Albany and the Stirling Ranges. Consequently, this section does not pretend to be a complete treatment of the place of the Porongurup Range flora in a regional floristic context. Instead, I shall discuss the diversity of plant species in the various vegetation units in the Range, compare its endemic flora with that of the nearby Stirling Ranges, highlight interesting absences of plant species from the Porongurup Range, and list some of those species with outlying populations in the Porongurup Range.

Species richness

The number of plant species recorded in the three major vegetational units was as follows: karri forest, 85; jarrah forest, 255; granitic rocks, 119 (Appendix 1). This confirms Drummond's observation (recorded above) that fewer plant species are found on granitic rocks than in jarrah forest, though this should not be surprising given the relatively small extent of exposures of granitic rocks. The number of species found only in one of the three major vegetation types was: karri forest, 21; Jarrah forest, 163; granitic rocks, 55. The flora of granitic rocks has a greater similarity with that of jarrah forest (.19, using Sorensen's coefficient) than with karri forest (.08).

Endemic species

Only two species of vascular plants are known to be endemic to the Porongurup Range: *Hibbertia bracteosa* and *Villarsia calthifolia*. All occurrences (with one exception noted below) are above 400 m altitude, on granitic rocks. *H. bracteosa* has been found on Devil's Slide, King Alfred's Castle, Morgan's View and Nancy's Peak but not on Castle Rock; it might also be expected to occur also on Twin Peaks and Collier Peak which were not visited. *V. calthifolia* has been recorded on Devil's Slide, Morgan's View and Nancy's Peak, and in karri forest (just below the 300 m contour) in Mira Flores estate.

The percentage of plant species endemic to the Porongurup Range (0.54%) is much lower than the 5% endemic to the Stirling Ranges National Park (N.G. Marchant, pers. comm.). This difference is consistent with the

concept of several authors that species in South-western Australia seem to have evolved mainly at the drier margins of the southwest corner (see Hopper 1979).

Absences

Species occurring nearby but not in the Porongurup Range can be conveniently considered to belong to one of two categories: those that occur around the Range, and those that occur near the Range. I found the distribution maps of Churchill (1961) useful in selecting good examples of each class of species.

Species absent from the Porongurup Range, but occurring around it, include: *Adenanthos obovata* Labill., *Banksia coccinea* R.Br., *B. ilicifolia* R.Br., *B. quercifolia* R.Br., *Borya nitida* Labill., *Casuarina decussata* Benth., *Eucalyptus decipiens* Endl., and *E. occidentalis* Endl.

Species absent from the Porongurup Range, which is just outside their area of distribution, include: *Acacia pentadenia* Lindl., *Adenanthos cuneata* Labill., *Agonis flexuosa* (Spreng.) Schauer, *A. juniperina* Schauer, *Anigozanthos flavidus* Redoute & DC., *Bossiaea aquifolia* Benth., *Boronia gracilipes* F.Muell., *Casuarina huegeliana* Miq., *Chorilaena quercifolia* Endl., *Crowea angustifolia* Sm., *Eucalyptus rudis* Endl., *E. tetragona* (R.Br.) F.Muell., *E. wandoo* Blakely, *Exocarpos sparteus* R.Br., *Hibbertia cuneiformis* (Labill.) Sm., *Lambertia inermis* R.Br., *Macrozamia riedlei* (Fisch. ex Gaud.) C.A. Gardner, *Persoonia longifolia* R.Br., *Podocarpus drouyniana* F.Muell., and *Thomasia quercifolia* (Andr.) J.Gay.

Outliers

Widespread plant species with a population apparently isolated in the Porongurup Range includes: *Acacia urophylla, Agonis linearifolia, Albizia lophantha, Eucalyptus diversicolor, E. megacarpa, Hovea elliptica, Mirbelia dilatata, Trymalium spathulatum* and *Xanthorrhoea gracilis*. It is also likely that species listed solely under karri or granite in Appendix 1 will prove to have an isolated population in the Range.

FIRE

According to Iffla (1979, Chapter 24), aborigines avoided the Porongurup Range. There is some historical evidence that few aborigines lived in the main tract of karri forest near Manjimup, especially in summer (Talbot 1973). Talbot also records that dense thickets of understorey were widespread in the karri forests upon the arrival of European man. These points suggest that the Range may have been little burnt by aborigines. On the other hand, lightning stikes are frequent in summer and would probably have started occasional fires in karri forest (Underwood 1978).

It appears, then, that the role of fire in affecting the structure and floristic composition of understorey in karri forest in the Porongurup Range remains to be worked out.

ACKNOWLEDGEMENTS

I thank T.E.H. Aplin, R.C. Carolin, A.S. George, G.J. Keighery, K.F. Kenneally, B.R. Maslin, G. Perry, P.G. Wilson and especially N.G. Marchant for identifying plant species or checking my identifications. The Director of the National Parks Authority allowed me to collect specimens in the National Park. J.W. Green and G.G. Smith kindly allowed me access to the Western Australian Herbarium and the University of Western Australia Botany Department Herbarium, respectively.

N.G. Marchant made useful comments on an earlier version of this paper.

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APPENDIX 1

SPECIES COLLECTED IN THE PORONGURUP RANGE DURING 1974-1980

This list comprises only species collected by me since 1974. In Appendix 2 is a supplementary list of species recorded earlier but not collected after thorough searches between 1974 and 1980. This procedure has been followed to encourage future collectors to look for them specially.

In this list, the occurrence of species in karri forest, jarrah forest or on granitic rocks is recorded as K, J or G, respectively. It is to be expected that further observations in the Range will alter the categorisation

of some species. An asterisk signifies a naturalized alien species.

Mosses and lichens and other non-vascular plants were not collected, and so have been omitted from the list.

Voucher specimens are deposited in the Western Australian Herbarium (PERTH).

ADIANTACEAE			
Adiantum aethiopicum L.	K		
Cheilanthes tenuifolia (N.L.Burman)Swartz	K	J	G
AIZOACEAE			
Carpobrotus modestus S.T.Blake			G
APIACEAE			
Daucus glochidiatus (Labill.)Fisch., C.A.Meyer & Ave-Lall.	K	J	G
?Homalosciadium homalocarpum (F.Muell.)Hj.Eichler		?	
Hydrocotyle callicarpa Bunge		J	
H. diantha DC.			G
Platysace compressa (Labill.)Norman		J	G
Trachymene anisocarpa (Turcz.)B.L.Burtt			G
T. pilosa Sm.		J	G
Xanthosia pusilla Bunge		J	
X. rotundifolia DC.	K	J	
ARACEAE			
*Zantedeschia aethiopica (L.)Spreng.	K	J	
ASTERACEAE			
*Arctotheca calendula (L.)Levyns		J	G
Brachycome ciliaris (Labill.)Less.			G
Chrysocoryne drummondii A.Gray		J	
*Cirsium vulgare (Savi)Ten.	K	J	
*Conyza albida Spreng.	K	J	
*C. bonariensis (L.)Cronquist	K	J	
*Gnaphalium candidissimum Lamarck		J	
*G. luteo-album L.		J	
G. sphaericum Willd.		J	
Helichrysum bracteatum (Vent.)Andr.	K	J	G
H. ramosum DC.	K		
Helipterum cotula (Benth.)DC.			G
*Hypochoeris glabra L.	K	J	G
Ixiolaena viscosa Benth.		J	
Lagenifera huegelii Benth.	K	J	
Millotia myosotidifolia (Benth.)Steetz.			G
M. tenuifolia Cass.		J	G
Olearia paucidentata (Steetz.)Benth.			G
*Picris hieracioides L.	K	J	G
Pithocarpa corymbulosa Lindl.		J	
Quinetia urvillei Cass.			G
Rutidosis multiflora (Nees)B.L. Robinson			G
Senecio hispidulus A.Rich.	K		G
S. ramosissimus DC.	K		
Siloxerus humifusis Labill.	K	J	
*Sonchus oleraceus L.		?	
CAMPANULACEAE			
Wahlenbergia stricta Sweet	K	J	
CARYOPHYLLACEAE			
*Cerastium glomeratum Thuill.	K	J	G

CARYOPHYLLACEAE (cont.)			
*Petrorhagia prolifera (L.)P.W.Ball & V.H.Heywood	K		
*Polycarpon tetraphyllum (L.)L.	K	J	G
*Spergularia rubra (L.)J.& C.Presl			G
*Stellaria media (L.)Vill.		J	G
CASUARINACEAE			
Casuarina fraserana Miq.		J	
C. humilis Otto & Dietr.		J	
CENTROLEPIDACEAE			
Aphelia cyperoides R.Br.		J	G
Brizula muelleri Hieron.			G
B. nutans (Hook.f. ex Benth.)C.A.Gardner		J	
Centrolepis aristata (R.Br.)Roemer & Schultes		J	G
C. drummondii (Nees)Walp.			G
C. polygyna (R.Br.)Hieron.		J	
C. strigosa (R.Br.)Roemer & Schultes		J	G
CONVULVULACEAE			
Dichondra repens J.R. & G.Forester	K	J	
CRASSULACEAE			
Crassula colorata (Nees)Ostenf.	K	J	
C. decumbens Thunb.			G
C. pedicellosa (F.Muell.)Ostenf.			G
CYPERACEAE			
Carex appressa R.Br.			G
Cyathochaeta avenacea Benth.		J	
Gahnia trifida Labill.		J	
Lepidosperma angustatum R.Br.			G
L. effusum Benth.	K		G
Mesomelaena stygia (R.Br.)Nees		J	
M. tetragona (R.Br.)Benth.		J	
Schoenus sp. (annual)		J	
S. lanatus Labill.		J	
S. minutulus F.Muell.		J	
S. nanus (Nees)Benth.			G
Scirpus brunonianus S.T.Blake		J	
S. cernuus Vahl		J	G
S. inundatus (R.Br.)Spreng.		J	
S. nodosus Rottb.	K	J	
Tetraria octandra (Nees)Kuekenthal		J	G
DENNSTAEDTIACEAE			
Asplenium adiantoides (L.)Lamarck			G
A. flabellifolium Cav.			G
Pteridium aquilinum (L.)Kuhn	K	J	
DILLENIACEAE			
Hibbertia amplexicaulis Steud.		J	
H. bracteosa Turcz.			G
H. lineata Steud.		J	
H. microphylla Steud.		J	
H. montana Steud.		J	
H. ? pulchra Ostenf.		J	
DROSERACEAE			
Drosera ? erythrorhiza Lindl.		J	
D. glanduligera Lehm.		J	
D. menziesii R.Br.		J	
D. pallida Lindl.		J	
D. pulchella Lehm.		J	
D. subhirtella Planch.			G

EPACRIDACEAE			
Andersonia caerulea R.Br.		J	
A. sprengelioides R.Br.			G
Astroloma baxteri DC.		J	
A. pallidum R.Br.		J	
Leucopogon australis R.Br.		J	
L. capitellatus DC.		J	
L. carinatus R.Br.		J	
L. elegans Sonder			G
L. propinquus R.Br.		J	
L. reflexus R.Br.			G
L. revolutus R.Br.	K	J	
L. verticillatus R.Br.	K	J	
Lysinema ciliatum R.Br.		J	
Sphenotoma capitatum (R.Br.)Lindl.		J	
Styphelia tenuiflora Lindl.		?	
EUPHORBIACEAE			
Phyllanthus calycinus Labill.		J	
Poranthera microphylla Brongn.		J	
GENTIANACEAE			
*Centaurium spicatum (L.)Fritsch	K	J	
GERANIACEAE			
*Erodium cicutarium (L.)L'Hérit.	K	J	
*Geranium molle L.	K		
Pelargonium australe Willd.			G
GOODENIACEAE			
Dampiera linearis R.Br.	K	J	G
Goodenia caerulea R.Br.		J	
G. filiformis R.Br.		J	
Lechenaultia formosa R.Br.		J	
Scaevola striata R.Br.	K	J	G
Velleia trinervis Labill.			G
HAEMODORACEAE			
Anigozanthos bicolor Endl.		J	
Conostylis setigera R.Br.		J	
Haemodorum spicatum R.Br.		J	
HALORAGACEAE			
Gonocarpus rudis (Benth.)Orchard			G
Haloragis brownii (J.D.Hooker)Schindler	K		G
IRIDACEAE			
Patersonia occidentalis R.Br.		J	
*Romulea rosea (L.)Eckl.			G
*Watsonia ? bulbillifera J.W.Mathews & L.Bolus	K	J	
JUNCACEAE			
*Juncus bufonius L.		J	
J. capitatus Weig.		J	
J. holoschoenus R.Br.		J	
J. pallidus R.Br.		J	
J. pauciflorus R.Br.	K	J	
Luzula meridionalis Nordensk		J	
LUNCAGINACEAE			
Triglochin centrocarpa Hooker			G
LEGUMINOSAE			
Acacia browniana H.L.Wendl		?	
A. drummondii Lindl.		J	G
A. heteroclita Meisn.			G
A. leioderma Maslin		J	
A. myrtifolia (Sm.)Willd.	K	J	

LEGUMINOSAE (cont.)			
Acacia pulchella R.Br.	K		
A. urophylla Benth. ex Lindl.	K		
Albizia lophantha (Willd.)Benth.	K		
Bossiaea linophylla R.Br.		J	
Brachysema subcordatum Benth.	K		G
Chorizema diversifolium DC.		J	
C. ilicifolium Labill.	K	J	
C. rhombeum R.Br.		J	
*Cytisus proliferus L.f.	K		
Daviesia cordata Sm.		J	
D. decurrens Meisn.		J	
D. horrida Preiss ex Lehm.		J	
*Dipogon lignosus (L.)Verdc.		J	
Eutaxia densifolia Turcz.		J	
E. obovata (Labill.)C.A.Gardner			G
Gompholobium knightianum Lindl.		J	
G. ovatum Meisn.		J	
G. polymorphum R.Br.		J	
Hardenbergia comptoniana (Andr.)Benth.		J	G
Hovea chorizemifolia (Sweet)DC.		J	
H. elliptica (Sm.)DC.	K	J	
Kennedia coccinea Vent.		J	G
K. microphylla Meisn.		J	
*Lablab purpureus (L.)Sweet	K		
*Lotus subbiflorus Lag.	K	J	
Mirbelia dilatata R.Br.	K		
Oxylobium lanceolatum (Vent.)Druce	K	J	
*Psoralea pinnata L.	K		
Sphaerolobium alatum Benth.		J	
*Trifolium compestre Schreber	K	J	
*T. subterraneum L.		J	
Viminaria juncea (Schrad. & Wendl.)Hoffmanns.	K	J	
LENTIBULARIACEAE			
Polypompholyx tenella (R.Br.)Lehm.			G
LILIACEAE			
Agrostocrinum scabrum (R.Br.)Baill.		J	G
Burchardia multiflora Lindl.			G
Caesia parviflora R.Br.		J	
Calectasia cyanea R.Br.		J	
Chamaescilla corymbosa (R.Br.)F.Muell. ex Benth.			G
Dasypogon bromeliifolius R.Br.		J	
Dianella revoluta R.Br.		J	
Laxmannia sessiliflora Decaisne		J	
Lomandra micrantha (Lindl.)Ewart		J	
Kingia australis R.Br.		J	
Stypandra grandiflora Lindl.		J	G
Thysanotus multiflorus R.Br.		J	
Thysanotus patersonii R.Br.		J	
Tricoryne humilis Endl.		J	
Xanthorrhoea gracilis Endl.		J	
X. preissii Endl.		J	G
LINDSAEACEAE			
Lindsaea linearis Swartz		J	
LOBELIACEAE			
Isotoma hypo-crateriformis (R.Br.)Druce		J	
Lobelia alata Labill.	K	J	
L. rhombifolia De Vriese		J	

LOGANIACEAE			
Logania serphyllifolia R.Br.		J	
Mitrasacme paradoxa R.Br.		J	G
LORANTHACEAE			
Nuytsia floribunda (Labill.)R.Br. ex Fenzl		J	
LYTHRACEAE			
Lythrum hyssopifolia L.	K		
MALVACEAE			
Sida hookeriana Miq.			G
MENYANTHACEAE			
Villarsia calthifolia F.Muell.	K		G
V. parnassifolia (Labill.)R.Br.		J	
MYOPORACEAE			
Myoporum tetrandrum (Labill.)Domin	K		
MYRTACEAE			
Agonis hypericifolia Schauer		J	
A. linearifolia (DC.) Schauer	K		G
A. parviceps Schauer		J	
Astartea fascicularis (Labill.)DC.		J	
Calothamnus sp. (either preissii Schauer or lehmannii Schauer)		J	
C. rupestris Schauer		J	
Darwinia citriodora (Endl.)Benth.			G
D. oederioides (Turcz.)Benth.		J	
D. vestita (Endl.)Benth.		J	
Eucalyptus calophylla Lindl.	K	J	
E. cornuta Labill.			G
E. diversicolor F.Muell.	K		
E. marginata Donn ex Sm.		J	
E. megacarpa F.Muell.			G
Kunzea recurva Schauer		J	
Melaleuca blaeriifolia Turcz.			G
M. densa R.Br.		J	G
M. preissiana Schauer		J	
M. scabra R.Br.		J	
M. thymoides Labill.		J	
Thryptomene saxicola (A.Cunn. ex Hooker)Schauer			G
Verticordia densiflora Lindl.		J	
OLACACEAE			
Olax phyllanthi (Labill.)R.Br.		J	
ONAGRACEAE			
Epilobium billardierianum Ser.	K		
ORCHIDACEAE			
Caladenia flava R.Br.		J	G
C. menziesii R.Br.			G
C. nana Endl.		J	G
C. patersonii R.Br.		J	
C. sericea Lindl.			G
Cryptostylis ovata R.Br.		J	G
Diurus longifolia R.Br.			G
Elythranthera brunonis (Endl.)George	K		
Lyperanthus nigricans R.Br.		J	G
Microtis alba R.Br.	K		
M. unifolia (G.Forster)H.Reichenb.		?J	
*Monadenia micrantha Lindl.	K	J	G
Prasophyllum brownii H.Reichenb.		J	
Pterostylis barbata Lindl.			G
P. vittata Lindl.		J	

ORCHIDACEAE (cont.)			
Thelymitra fuscolutea R.Br.		J	
T. mucida Fitz.		?J	
T. nuda R.Br.	K	J	
OROBANCHACEAE			
Orobanche australiana F.Muell.	K	J	
OXALIDACEAE			
Oxalis corniculata L.	K	J	G
PHILYDRACEAE			
Philydrella pygmaea (R.Br.)Caruel		J	
PITTOSPORACEAE			
Billardia floribunda (Putterl.)F.Muell.		J	
B. granulata (Turcz.)E.M.Bennett			G
B. variifolia DC.		J	
Sollya heterophylla Lindl.	K	J	G
PLANTAGINACEAE			
*Plantago lanceolata L.	K	J	G
POACEAE			
Agrostis avenacea Gmel.			G
*Aira cupaniana Guss.		J	G
*Avena barbata Link		J	G
*Briza maxima L.		J	G
*B. minor L.	K	J	
*Bromus diandrus Roth.			G
*B. hordeaceus L.		J	
Danthonia caespitosa Gaud.		J	G
Deyeuxia quadriseta Benth.		?	
*Holcus lanatus L.	K	J	G
*Hordeum ? leporinum Link		J	
Microlaena stipoides (Labill.)R.Br.		J	
Neurachne alopecuroides R.Br.		J	
*Poa annua L.		J	G
P. serpentum Nees		J	G
*Sporobolus africanus (Poir.)Robyns & Tournay			G
Stipa compressa R.Br.		J	G
S. semibarbata R.Br.		J	
*Vulpia bromoides (L.) S.F.Gray		J	G
*V. myuros (L.)C.C.Gmelin		J	
POLYGALACEAE			
Comesperma calymega Labill.		J	
C. confertum Labill.		J	
POLYGONACEAE			
*Rumex acetosella L.	K	J	G
PORTULACACEAE			
Calandrinia calyptrata J.D.Hooker			G
C. neesiana Hj.Eichler			G
PRIMULACEAE			
*Anagallis arvensis L.	K	J	G
PROTEACEAE			
Banksia grandis Willd.		J	
B. littoralis R.Br.		J	
B. gardneri George		J	
B. sphaerocarpa R.Br.		J	
Dryandra armata R.Br.		J	
D. formosa R.Br. (? introduced - garden escape)		J	
D. nivea (Labill.)R.Br.		J	
D. pteridifolia R.Br.		J	
Grevillea brownii Meisn.		J	

PROTEACEAE (cont.)			
Grevillea pulchella (R.Br.)Meisn.		J	
Hakea amplexicaulis R.Br.		J	
H. corymbosa R.Br.		J	
H. prostrata R.Br.		J	
H. ruscifolia Labill.		J	
H. trifurcata (Sm.)R.Br.		J	
H. undulata R.Br.		J	
H. varia R.Br.		J	G
Isopogon attenuatus R.Br.		J	
I. formosus R.Br.		J	
Persoonia elliptica R.Br.		J	
Petrophile diversifolia R.Br.		J	
P. longifolia R.Br.		J	
P. serruriae R.Br.		J	
Synaphaea aff. favosa R.Br.		J	
RANUNCULACEAE			
Clematis pubescens Huegel ex Endl.	K	J	
Ranunculus colonorum Endl.	K	J	
RESTIONACEAE			
Anarthria gracilis R.Br.		J	
A. prolifera R.Br.		J	
Hypolaena exsulca R.Br.		J	
Lepyrodia drummondiana Steud.		J	
L. hermaphrodita R.Br.			G
Loxocarya fasciculata (R.Br.)Benth.		J	
L. pubescens (R.Br.)Benth.		J	
Restio laxus R.Br.		J	
ROSACEAE			
Acaena ? echinata Nees	K	J	
*Rubus fruticosus L.agg.	K		
RUBIACEAE			
Galium sp.	K	J	
Opercularia hispidula Endl.	K		G
O. volubis R.Br. ex Benth.	K		G
RUTACEAE			
Boronia crenulata Sm.	K	J	G
B. spathulata Lindl.		J	
SAPINDACEAE			
Dodonaea oblongifolia Link			G
SCROPHULARIACEAE			
*Bellardia trixago (L.)All.	K	J	G
Gratiola peruviana L.		J	
*Parentucellia latifolia (L.)Caruel		?	
*P. viscosa (L.)Caruel	K	J	G
*Prunella vulgaris L.	K		
*Verbascum virgatum L.	K		
Veronica calycina R.Br.	K	J	
SOLANACEAE			
*Solanum nigrum L.	K	J	G
STACKHOUSIACEAE			
Stackhousia pubescens A.Rich.		J	
STERCULIACEAE			
Rulingia corylifolia R.A.Graham			G
Thomasia sp.	?		
STYLIDIACEAE			
Levenhookia pusilla R.Br.		J	G
Stylidium adnatum R.Br.		J	

STYLIDIACEAE (cont.)		
Stylidium amoenum R.Br.	J	
S. breviscapum R.Br.	J	
S. brunonianum Benth.	J	
S. calcaratum R.Br.	J	G
S. corymbosum R.Br.	J	G
S. crassifolium R.Br.	J	
S. repens R.Br.	J	
THYMELAEACEAE		
Pimelea sp.		G
P. ? lehmanniana Meisn.	J	
P. sylvestris R.Br.	J	
P. rosea R.Br.	J	G
TREMANDRACEAE		
Tetratheca affinis Endl.	J	
Tremandra diffusa R.Br.	J	
T. stelligera R.Br.	J	

APPENDIX 2

SPECIES PREVIOUSLY COLLECTED IN THE PORONGURUP RANGE, BUT NOT FOUND DURING 1974-1980

All but one of the following species are supported by voucher specimens, which are indicated after each species name by the collector's name and the herbarium in which the specimen is filed: UWA = Department of Botany, University of Western Australia; PERTH = Western Australian Herbarium, Department of Agriculture, South Perth.

ADIANTACEAE
Anogramma leptophylla (L.)Link - G.G.Smith, UWA
AIZOACEAE
Carpobrotus rossii (Haw.)Schwantes - G.G.Smith, UWA
APIACEAE
Hydrocotyle blepharocarpa F.Muell. - G.G.Smith, UWA
H. hirta R.Br. ex A.Rich. - A.S.George, PERTH
ASTERACEAE
*Cotula turbinata L. - Listed by Smith (1962) as Cenia turbinata (L.)Pers. but no herbarium specimens have been located.
Podolepis lessonii (Cass.)Benth. - G.G.Smith, UWA
CENTROLEPIDACEAE
Centrolepis glabra (F.Muell. ex Sonder)Hieron - G.G.Smith, UWA
CRASSULACEAE
Crassula sieberiana (Schultes & J.H.Schultes)Druce - G.G.Smith, UWA
CYPERACEAE
Scirpus marginatus Thunb. - P.G. Wilson, PERTH
*S. prolifer Rottb. - W.E.Blackall, PERTH
EPACRIDACEAE
Leucopogon oppositifolius Sonder - W.E.Blackall, PERTH
EUPHORBIACEAE
Ricinocarpos glaucus Endl. - T.E.H.Aplin, PERTH
GOODENIACEAE
Dampiera hederaceae R.Br. - R.D. Royce, PERTH
Goodenia leptoclada Benth. - K. Newbey, PERTH

HYPOXIDACEAE
Hypoxis glabella R.Br. - G.G.Smith, UWA
H. occidentalis Benth. - G.G.Smith, UWA
LEGUMINOSAE
Pultenea obcordata (R.Br.)Benth. - K.Newbey, PERTH
*Trifolium dubium Sibth. - G.G.Smith, UWA
OPHIOGLOSSACEAE
Ophioglossum lusitanicum L. - G.G.Smith & B.Dell, UWA
ORCHIDACEAE
Corybas dilatatus (Rupp & Nicholls)Rupp & Nicholls - G.G.Smith, UWA; A.S.George, PERTH
RUTACEAE
Boronia molloyae Drummond - W.A.Blackall, PERTH
STYLIDIACEAE
Levenhookia dubia Sonder - G.G.Smith, UWA; R.D.Royce, PERTH
THYMELEACEAE
Pimelea lehmanniana Meisn. - K.Newbey, PERTH

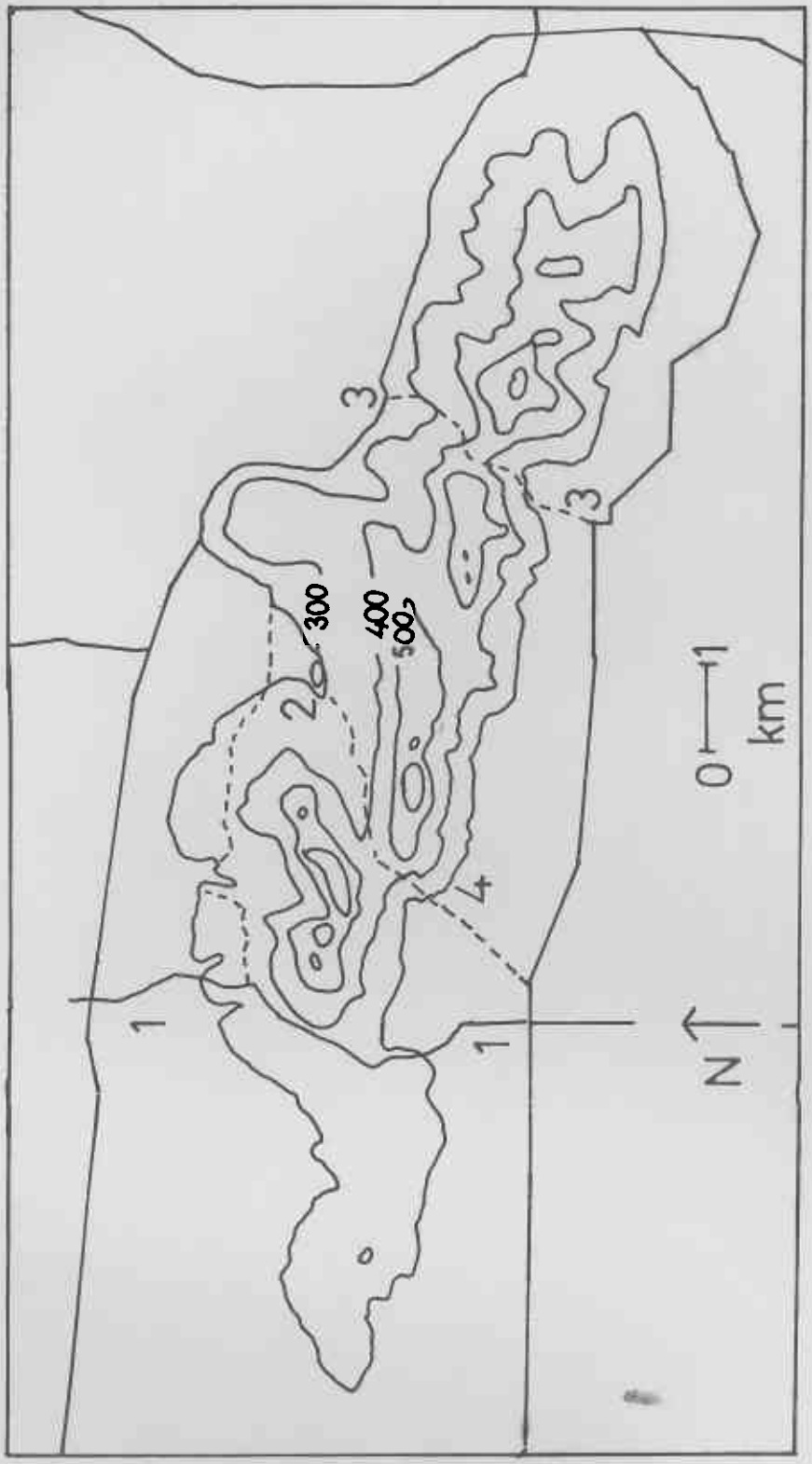

Fig. 1. Topographical map of the Porongurup Range, showing 300-600 m contours (contour interval - 100 m). 1 = Woodlands Road, 2 = Bolganup Dam, 3 = Millinup Pass, 4 = Mira Flores estate.