



# Woodland Watch 2005 Survey of Wheatbelt Woodlands



## Western Australian Herbarium

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# Introduction

Woodland Watch is a woodlands conservation project launched in 2000 by WWF-Australia, in collaboration with the Herbarium of the Department of Conservation and Land Management, and with the assistance of funding from the Natural Heritage Trust and the national Action Plan for Salinity & Water Quality. One of the major objectives of the project was to carry out floristic surveys of selected remnant eucalypt woodlands of the Avon Wheatbelt region – on private farmlands and other lands not within the conservation estate. The Avon Wheatbelt bioregion is situated in the South West Botanical Province of Western Australia, which roughly corresponds to one of WWF's Global 200 priority ecoregions - the Southwest Australia Ecoregion. It is bound by Jarrah forest in the southwest, and the Eremaean Botanical Province –the Murchison and goldfields districts, to the north and east. It encompasses an area of 93,520 square kms, of which 93% has been cleared – predominantly for agriculture (Beard 1990).

Four woodland types considered by WWF-Australia to be amongst the most threatened eucalypt woodland communities of the Avon Wheatbelt region were selected for the research and conservation project: those dominated by salmon gum (*Eucalyptus salmonophloia*), gimlet (*E. salubris*), York gum (*E. loxophleba*) and red morrel (*E. longicornis*).

The primary aims of the project were to identify woodlands of high conservation value in the Avon Wheatbelt, to assist private landowners and rural communities to better manage and conserve these remnant woodlands, and to help landholders to better understand the major threats to these woodlands and their management needs. These include consideration of such impacts as over-clearing and grazing, which have contributed to the secondary and more important problems of salinity, rising water tables, and soil compaction.

Conducting flora surveys in these woodland communities was considered an essential preliminary activity, to highlight their uniqueness and diversity, and to assess and report on their condition. Using this and other information, property owners could then be advised on how best to manage and protect their remnant vegetation through fencing and other management practices, and conservation support schemes such as covenants. Thus, through Woodland Watch, it is possible to address some of the threats to the woodlands, including salinity. Future monitoring of the sites may provide data on the ability and rate at which these eucalypt woodlands can recover from disturbance.

The role of the WA Herbarium in this project was to survey, identify and voucher all plant specimens collected from selected woodland sites. A total of 41 sites were surveyed in the first year (2000), followed by 21 sites in 2001, 25 sites in 2002, 25 sites in 2003, and 35 sites in 2004.

In 2005 a further nine sites were surveyed and 398 voucher specimens collected. To date this series of projects has sampled 156 sites and collected a total of 5,918 voucher specimens.

# Methodology

Sites were surveyed and plants vouchered by Mike Hislop of the WA Herbarium, with the assistance of Rebecca Ovens, Mike Griffiths and Mick Davis of WWF-Australia and Georgie Troup of the Moore Catchment Council. As with previous Woodland Watch surveys, the methodology for each site visited in 2005 comprised three parts:

## **Ten by ten metre quadrats**

Each 10 × 10 metre quadrat was carefully located so as to provide a typical representation of species composition within the selected woodland type. All species found were collected. Each quadrat was permanently marked by a steel stake on the north-western corner, from which the coordinates were recorded using a GPS.

## **Random stratified collection**

This involved a random walk covering the confines of the selected woodland, avoiding adjoining habitats to keep the integrity of survey purely to the targeted Eucalyptus woodland habitat.

## **Overall assessment**

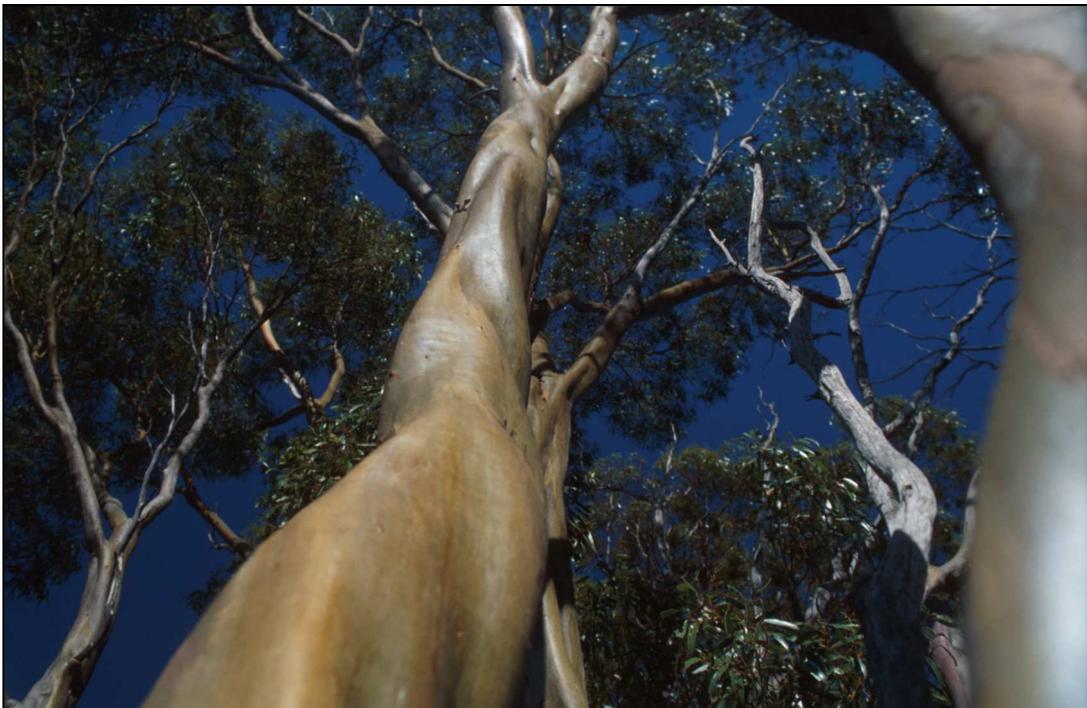
An overall assessment of the condition of each site was made using procedures adopted by the Wildflower Society of Western Australia (Trudgen 1991).

This methodology was considered the most effective to achieve the objectives of the project within the time constraints.

# Results

In 2005 a total of nine sites were surveyed, resulting in 398 collections. Of the nine woodland sites surveyed. Two were dominated by *Eucalyptus salmonophloia* and four by *Eucalyptus loxophleba*. The remaining three sites were dominated by other woodland types: with the dominant species being either *Eucalyptus tottiana*, *Eucalyptus accedens* or *Eucalyptus arachnaea*. These selected woodlands varied in size and condition, from almost pristine to sites where the understorey has been almost totally cleared.

One site was found to have an exceptionally high numbers of species. Site WW-151, a *Eucalyptus loxophleba* woodland N of Beacon, produced voucher specimens of 57 species. Site WW-156, a mallee woodland (with *Eucalyptus arachnaea*) northwest of Miling, produced 54 species. The smallest collection was recorded for a low woodland (with *Eucalyptus tottiana*), represented by 34 species (Site WW-150, northwest of Moora).



*Eucalyptus salubris* [Photo: Richard McLellan/WWF-Australia]

# Collections of note

A number of gatherings made during the 2005 survey provided small range extensions; some of these were more significant, including several undescribed species, new locations of Priority taxa, and more notable range extensions. These are highlighted below.

## Likely New Species

Specimens of three (3) possible new species were collected on Woodland Watch sites during the survey. All require further study.

- **Acacia sp. narrow phyllode (B.R. Maslin 7831).** WW-151. This is an informal phrase name currently in use at the WA Herbarium to refer to a taxon that is probably unnamed but of uncertain status. This species is widespread in the Southwest Australia Ecoregion.
- **Calandrinia sp. Blackberry (D.M. Porter 171).** WW-158. A phrase name taxon (refer note above). Widespread in the Southwest Australia Ecoregion.
- **Hemigenia sp Yuna (A.C. Burns 95).** WW-152. A phrase name taxon (refer note above) at the southern extremity of its distribution at this locality.
- **Lepidosperma sp P1 small head (M.D.Tindale 166A).** WW-153. Phrase name taxon – refer note above. Widespread in the Southwest Australia Ecoregion.

## Priority taxa (confirmed)

Ten (4) new populations of DRF and Priority species were recorded during this survey:

Taxon	Status	Site
• <i>Calothamnus accedens</i>	DRF	WW-149
• <i>Hemigenia curvifolia</i>	P2	WW-150
• <i>Thomasia tenuivestita</i>	P3	WW-153
• <i>Stenanthemum tridentatum</i>	P4	WW-156

## Cumulative findings

These collections add further value to the scientific significance of the Woodland Watch project.

Between 2000 and 2004, a total of 25 collections were made that were considered 'likely new species'. During the same period a total of 28 new populations of Declared Rare Flora (DRF) and Priority flora were also recorded as a result of the Woodland Watch flora surveys.

These new collections (2005) bring the cumulative total of significant findings from the project to 29 likely new species; and 32 new populations of DRF and Priority flora.

## Significant Range Extensions

Three (3) taxa were collected with significant range extensions:

<b>Taxon</b>	<b>Site</b>	<b>Notes</b>
• <i>Calothamnus accedens</i>	WW-149	Just the sixth known population of this DRF species and particularly significant in that it is the only one not occurring on a road verge. With the exception of a single plant found north of Watheroo it is also the most northerly population.
• <i>Thomasia tenuivestita</i>	WW-153	This collection represents a westerly range extension for this P3 species. The nearest known population is at Winchester to the northeast.
• <i>Stenanthemum tridentatum</i>	WW-156	Apart from an occurrence at Gunyidi this is the most northerly known population of this P4 species.

## **Other Collections of Interest:**

<b>Taxon</b>	<b>Site</b>	<b>Notes</b>
• <i>Crassula colorata</i>	WW-148	Mixed collection of <i>C. colorata</i> var <i>colorata</i> & var <i>acuminata</i> .
• <i>Hakea recurva</i> subsp <i>recurva</i>	WW-149	An interesting population in that it comprises both long, recurved leaved and shorter, erect leaved variants. Normally populations are either one or the other with the latter having a more inland distribution.
• <i>Lepidosperma</i> aff <i>leptostachyum</i>	WW-150	The taxonomy of West Australian <i>Lepidosperma</i> is particularly complex with much work remaining. This entity may either come to be recognised as just a variant within a polymorphic concept of <i>L. leptostachyum</i> or as a separate taxon.
• <i>Hemigenia curvifolia</i>	WW-150	An apparently very restricted P2 species with most of the eight records at the WA Herbarium coming from the Moora area.
• <i>Sida atrovirens</i>	WW-151	One of very few collections of this species from the Avon Wheatbelt.
• <i>Crassula colorata</i>	WW-151	Another mixed collection of <i>C. colorata</i> var <i>colorata</i> & var <i>acuminata</i> .
• <i>Petrophile megalostegia</i>	WW-153	An unusual flat rather than terete leaved variant.
• <i>Beaufortia bracteosa</i>	WW-153	This species apparently represents a complex of closely related entities and seems certain to be divided into several segregate taxa with future revisionary studies. This large, scarlet flowered variant is known from several areas of the northern sandplains.

# Conclusion

The woodlands surveyed in 2005 were found to be largely comprised of species in the following plant families (in alphabetical order) — Asteraceae, Chenopodiaceae, Mimosaceae, Papilionaceae and Poaceae.

Although dominated by eucalypts, there are relatively few species of Myrtaceae within these woodlands, except for the genus *Melaleuca*. In the taller shrub layers of these woodlands the latter are probably second in importance only to *Acacia* species. There were eight species of *Melaleuca* found in the woodlands visited in this survey, namely *M. acuminata*, *M. adnata*, *M. atroviridis*, *M. ciliosa*, *M. lanceolata*, *M. radula*, *M. stereophloia* and *M. urceolaris*.

As with sites surveyed in 2000-2001, 2002, 2003 and 2004, Proteaceae was also poorly represented in these woodland types.



Red Morrel woodland [Photo: Richard McLellan/WWF-Australia]

# Acknowledgments

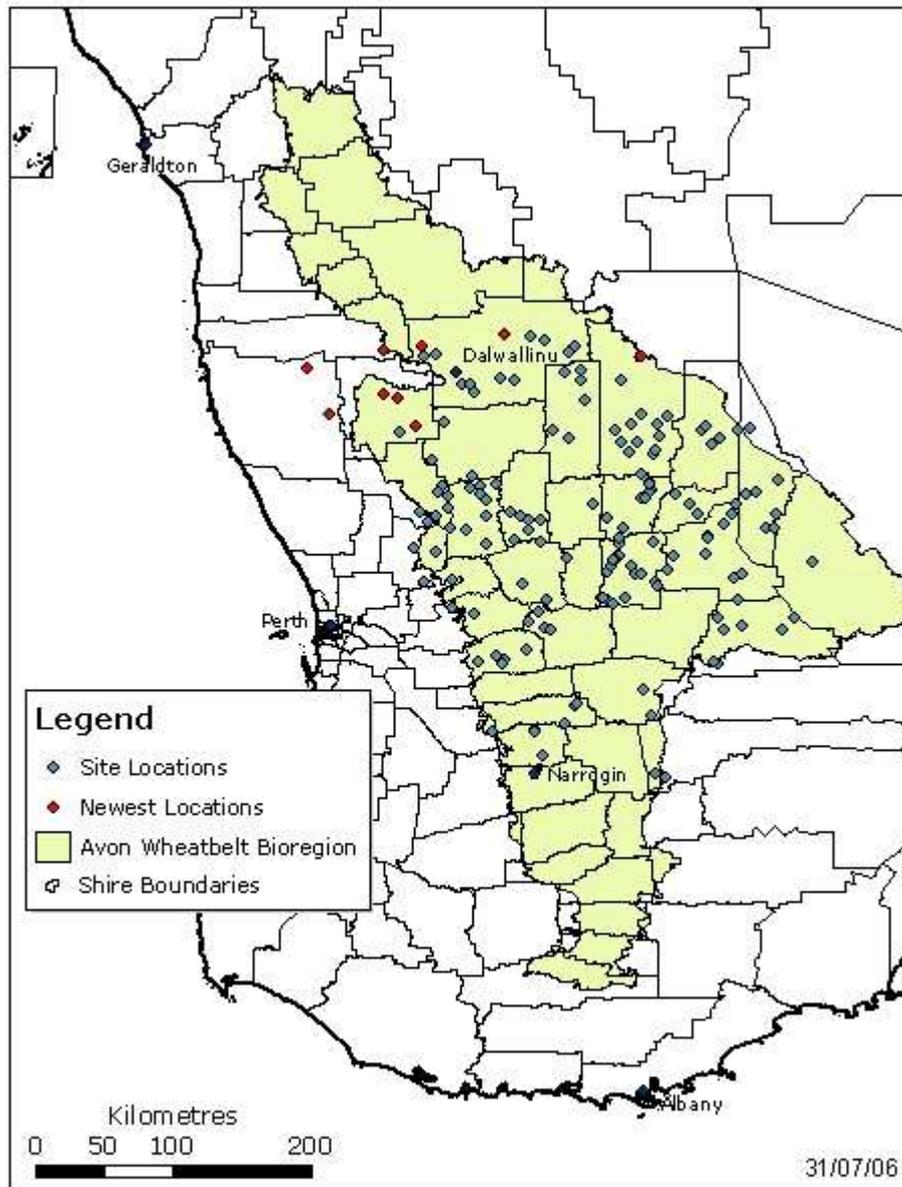
This document draws on information collected and provided by Mike Hislop, and was compiled and edited by Nicholas Lander. Document design follows that devised by Alex Chapman for earlier reports in this series. The map was prepared by Paul Gioia and the accompanying web site by Ben Richardson (see **References**). Photographs by Richard McLellan/WWF-Australia.

Special thanks are given to Andrew Brown, Malcolm French, Bruce Maslin, and Paul Wilson for their expert taxonomic advice. The WA Herbarium Database Team (supervisor Sue Carroll) provided much technical assistance.

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# Map of Survey Sites



# Site Species Lists

For a current listing of all Woodland Watch survey sites, please refer to the Western Australian Herbarium's *FloraBase - Woodland Watch* web site at

<http://florabase.calm.wa.gov.au/wwatch/>

\* Denotes exotic species

**Site:** WW-148                      **No. of Species :** 35

**Locality:** NE of Moora

**Vegetation:** *Eucalyptus salmonophloia* woodland

\**Anagallis arvensis* var *caerulea*

*Arthropodium dyeri*

\**Avellinia michelii*

*Bulbine semibarbata*

*Calandrinia calyptata*

*Calandrinia granulifera*

*Calandrinia* sp. Blackberry (D.M. Porter 171) – This is an informal phrase name currently in use at the WA Herbarium to refer to a taxon that is probably unnamed but of uncertain status.

*Calotis hispidula*

\**Cotula bipinnata*

*Crassula colorata* – Mixed collection of *Crassula colorata* var. *colorata* & var. *acuminata*

*Daucus glochidiatus*

*Dodonaea larreoides*

\**Ehrharta longiflora*

*Enchylaena lanata*

*Eremophila drummondii*

*Erymophyllum tenellum*

*Eucalyptus loxophleba* subsp *loxophleba*

*Eucalyptus obtusiflora* subsp *obtusiflora*

*Eucalyptus salmonophloia*

\**Galium murale*

*Goodenia berardiana*

*Goodenia pusilliflora*

*Lawrencella rosea*

*Maireana marginata*

*Melaleuca acuminata* subsp *websteri*

*Melaleuca adnata*

*Parietaria cardiostegia*

\**Pentaschistis airoides*

*Plantago debilis*

*Senecio glossanthus*

\**Spergula pentandra*

*Thysanotus manglesianus*

*Trachymene cyanopetala*

*Trachymene ornata*

\**Tripteris clandestina*

**Site:** WW-149

**No. of Species :** 35

**Locality:** S of Miling

**Vegetation:** *Eucalyptus loxophleba* woodland

\**Aira cupaniana*

*Allocasuarina campestris*

*Arthropodium dyeri*

*Austrodanthonia caespitosa*

*Austrostipa variabilis*

*Brachyscome perpusilla*

\**Bromus rubens*

*Calothamnus accedens* – Declared Rare Flora, just the sixth known population of this species and particularly significant in that it is the only one not occurring on a road verge. With the exception of a single plant found north of Watheroo it is also the most northerly population.

*Calotis hispidula*

*Cheilanthes sieberi* subsp *sieberi*

*Comesperma volubile*

*Drosera glanduligera*

*Erodium cygnorum*

*Erymophyllum tenellum*

*Eucalyptus arachnaea* subsp *arachnaea*

*Eucalyptus loxophleba* subsp *loxophleba*

*Goodenia pusilliflora*

*Hakea recurva* subsp *recurva* – An interesting population in that it comprises both long, recurved leaved and shorter, erect leaved variants. Normally populations are either one or the other with the latter having a more inland distribution.

*Hyalosperma glutinosum* subsp *glutinosum*

*Hydrocotyle pilifera* var *glabrata*

*Lepidosperma costale*

*Melaleuca radula*

*Neuracne alopecuroidea*

\**Parentucellia latifolia*

*Podolepis lessonii*

*Prasophyllum gracile*

*Ptilotus holosericeus*

*Ptilotus spathulatus* forma *spathulatus*

*Rhodanthe laevis*

*Rhodanthe pygmaea*

*Siloxerus multiflorus*

*Trachymene cyanopetala*

*Trachymene ornata*

*Velleia cycnopotamica*

\**Vulpia muralis*

**Site:** WW-150

**No. of Species :** 34

**Locality:** NW of Moora

**Vegetation:** *Eucalyptus todtiana* woodland

*Actinostrobos arenarius*

*Amphipogon turbinatus*

*Anigozanthos humilis* subsp *humilis*

*Banksia leptophylla* var *leptophylla*

*Banksia prionotes*

*Boronia ramosa* subsp *anethifolia*

*Caladenia flava* subsp *flava*

*Chamelaucium drummondii* subsp *drummondii*  
*Conospermum stoechadis* subsp *stoechadis*  
*Conostylis teretifolia* subsp *teretifolia*  
*Cryptandra pungens*  
*Drosera erythrorhiza* subsp *magna*  
*Drosera menziesii* subsp *penicillaris*  
*Dryandra lindleyana* subsp *lindleyana*  
*Eremaea pauciflora* var *lonchophylla*  
*Eucalyptus todtiana*  
*Hemigenia curvifolia* – Priority 2 taxon. An apparently very restricted species with most of the 8 records at the WA Herbarium from the Moora area.  
*Hibbertia acerosa*  
*Hibbertia hypericoides*  
*Lepidobolus preissianus* subsp *preissianus*  
*Lepidosperma* aff *leptostachyum* – The taxonomy of the West Australian *Lepidosperma* is particularly complex with remaining work remaining to do. This entity may either come to be recognised as just a variant within a polymorphic concept of *L. leptostachyum* or as a separate taxon.  
*Leptospermum erubescens*  
*Leucopogon oliganthus*  
*Mesomelaena preissii*  
*Millotia tenuifolia* var *tenuifolia*  
*Mirbelia trichocalyx*  
*Neurachne alopecuroidea*  
*Opercularia vaginata*  
*Petrophile recurva*  
*Rhodanthe citrina*  
*Schoenus clandestinus*  
*Stylidium adpressum*  
*Synaphea spinulosa*  
*Trachymene pilosa*

**Site:** WW-151                      **No. of Species :** 57

**Locality:** N of Beacon

**Vegetation:** *Eucalyptus loxophleba* woodland

*Acacia* sp. narrow phyllode (B.R. Maslin 7831)  
*Acacia obtecta*  
*Acacia tetragonophylla*  
*Actinobole uliginosum*  
*Alyxia buxifolia*  
*Arthropodium dyeri*  
*Austrostipa tenuifolia*  
*Austrostipa trichophylla*  
*Brachyscome ciliocarpa*  
*Calandrinia eremaea*  
*Calotis hispidula*  
*Cephalopterum drummondii*  
*Cheilanthes sieberi* subsp *sieberi*  
*Chthonocephalus pseudevax*  
*Comesperma integerrimum*  
*Crassula colorata* – A mixed collection of *Crassula colorata* var *colorata* & var *acuminata*  
 \**Cuscuta planiflora*  
*Dampiera lavandulacea*  
*Daucus glochidiatus*  
*Dianella revoluta*  
*Elymus scaber*  
*Enchylaena lanata*  
*Erodium cygnorum*  
*Eucalyptus loxophleba* subsp *supralaevis*

*Exocarpos aphyllus*  
*Gilruthia osbornei*  
*Goodenia berardiana*  
*Hakea recurva* subsp *recurva*  
*Hyalosperma demissum*  
*Hyalosperma glutinosum* subsp *glutinosum*  
*Hyalosperma zacchaeus*  
*Hydrocotyle pilifera* var *glabrata*  
 \**Hypochoeris glabra*  
*Isoetopsis graminifolia*  
*Maireana georgei*  
 \**Medicago truncatula*  
*Melaleuca stereophloia*  
*Millotia myosotidifolia*  
*Nicotiana rotundifolia*  
*Olearia pimeleoides*  
*Plantago debilis*  
*Podolepis canescens*  
*Ptilotus gaudichaudii* var *parviflorus*  
*Ptilotus obovatus*  
*Rhodanthe chlorocephala* subsp *rosea*  
*Rhodanthe laevis*  
*Rhodanthe pygmaea*  
*Schoenia cassiniana*  
*Senecio glossanthus*  
*Senna artemisioides* subsp *filifolia*  
*Sida atrovirens* – One of very few collections of this species from the Avon Wheatbelt.  
*Stenopetalum filifolium*  
*Thysanotus manglesianus*  
*Trachymene cyanopetala*  
*Trachymene ornata*  
*Velleia cycnopotamica*  
*Waitzia acuminata* var *acuminata*

**Site:** WW-152                      **No. of Species :** 51  
**Locality:** E of Wubin  
**Vegetation:** *Eucalyptus salmonophloia* woodland

*Acacia anthochaera*  
*Acacia erinacea*  
*Allocasuarina acutivalvis* subsp *acutivalvis*  
*Angianthus tomentosus*  
*Austrostipa variabilis*  
 \**Brassica tournefortii*  
*Calandrinia eremaea*  
*Cephalopterum drummondii*  
*Comesperma integerrimum*  
*Crassula colorata* var *colorata*  
 \**Cuscuta planiflora*  
*Dodonaea inaequifolia*  
*Enchylaena lanata*  
*Eremophila oldfieldii* subsp *oldfieldii*  
*Eremophila oppositifolia* subsp *angustifolia*  
*Eucalyptus salmonophloia*  
*Gastrolobium laytonii*  
*Grevillea obliquistigma* subsp *obliquistigma*  
*Hakea preissii*

*Hemigenia* sp Yuna (A.C. Burns 95) – A phrase name taxon (refer note above) at the southern extremity of its distribution at this locality.

*Lepidium oxytrichum*  
*Lepidium rotundum*  
*Maireana carnosae*  
*Maireana georgei*  
*Maireana marginata*  
*Maireana trichoptera*  
*Melaleuca atroviridis*  
*Olearia muelleri*  
*Parietaria cardiostegia*  
*Philothea brucei* subsp *brucei*  
*Pimelea microcephala* subsp *microcephala*  
*Pittosporum angustifolium*  
*Pogonolepis muelleriana*  
*Ptilotus divaricatus* var *divaricatus*  
*Ptilotus exaltatus*  
*Ptilotus obovatus*  
*Rhagodia drummondii*  
*Santalum acuminatum*  
*Scaevola spinescens*  
*Sclerolaena diacantha*  
*Sclerolaena drummondii*  
*Sclerostegia disarticulata*  
*Senecio glossanthus*  
*Senna artemisioides* subsp *filifolia*  
\**Silene nocturna*  
\**Sisymbrium orientale*  
\**Spergula pentandra*  
*Stenopetalum lineare*  
*Thysanotus manglesianus*  
*Zygophyllum eremaeum*  
*Zygophyllum ovatum*

**Site:** WW-153

**No. of Species :** 44

**Locality:** NW of Watheroo

**Vegetation:** *Eucalyptus accedens* woodland with *E. gittinsii*

*Acacia shuttleworthiana*

*Acacia applanata*

*Allocasuarina microstachya*

*Baeckea grandiflora*

*Beaufortia bracteosa* – This species apparently represents a complex of closely related entities and seems certain to be divided into several segregate taxa with future revisionary studies. This large, scarlet flowered variant is known from several areas of the northern sandplains.

*Billardiera venusta*

*Calothamnus sanguineus*

*Calytrix leschenaultii*

*Caustis dioica*

*Cryptandra pungens*

*Cryptandra wichurae*

*Desmocladius lateriticus*

*Diplolaena velutina*

*Drosera stolonifera* subsp *porrecta*

*Dryandra armata*

*Dryandra bipinnatifida* subsp *multifida*

*Eucalyptus accedens*

*Eucalyptus gittinsii* subsp *illucida*

*Gastrolobium plicatum*

*Glischrocaryon aureum* var *aureum*

*Hakea incrassata*  
*Hakea lissocarpha*  
*Hakea stenocarpa*  
*Hibbertia acerosa*  
*Hibbertia crassifolia*  
*Hibbertia hypericoides*  
*Jacksonia hakeoides*  
*Lepidosperma* sp P1 small head (M.D.Tindale 166A) – Phrase name taxon, refer note above.  
*Leucopogon oldfieldii*  
*Melaleuca ciliosa*  
*Melaleuca urceolaris*  
*Neurachne alopecuroidea*  
*Opercularia vaginata*  
*Petrophile megalostegia* – An unusual flat rather than terete leaved variant.  
*Petrophile shuttleworthiana*  
*Philothea pinoides*  
*Philothea spicata*  
*Schoenus clandestinus*  
*Stylidium miniatum*  
*Synaphea spinulosa*  
*Tetratheca confertifolia*  
*Thomasia tenuivestita* Priority 3 taxon. – This collection represents a westerly range extension for this species. The nearest known population is at Winchester to the northeast.  
*Trachymene pilosa*  
*Verticordia nobilis*

**Site:** WW-154                      **No. of Species :** 45  
**Locality:** NE of Watheroo  
**Vegetation:** *Eucalyptus loxophleba* woodland

*\*Aira cupaniana*  
*Acacia andrewsii*  
*Allocasuarina campestris*  
*Austrostipa scabra*  
*Austrostipa tenuifolia*  
*Austrostipa trichophylla*  
*Borya sphaerocephala*  
*\*Bromus rubens*  
*Calandrinia eremaea*  
*Calotis hispidula*  
*Cephalipterum drummondii*  
*Cheilanthes sieberi subsp sieberi*  
*Crassula colorata var acuminata*  
*\*Ehrharta longiflora*  
*Elymus scaber*  
*Enchylaena lanata*  
*Eremophila oldfieldii subsp oldfieldii*  
*Erymophyllum tenellum*  
*Eucalyptus loxophleba subsp loxophleba*  
*Exocarpus aphyllus*  
*Gonocarpus nodulosus*  
*Goodenia berardiana*  
*Goodenia pusilliflora*  
*Grevillea levis*  
*Hyalosperma glutinosum subsp glutinosum*  
*Hydrocotyle pilifera var glabrate*  
*\*Hypochaeris glabra*  
*Isoetopsis graminifolia*

*Lawrencella rosea*  
*Lepidium rotundum*  
*Lepidosperma costale*  
*Maireana marginata*  
*Oxalis perennans*  
*\*Parentucellia latifolia*  
*\*Pentaschistis airoides*  
*Podolepis lessonii*  
*Ptilotus divaricatus* var *divaricatus*  
*Rhagodia drummondii*  
*Rhodanthe manglesii*  
*Rhodanthe polycephala*  
*Scaevola spinescens*  
*Sclerolaena diacantha*  
*Thysanotus manglesianus*  
*Trachymene cyanopetala*  
*Trymalium daphnifolium*  
*Waitzia nitida*

**Site:** WW-155

**No. of Species :** 43

**Locality:** NW of Wubin

**Vegetation:** *Eucalyptus loxophleba* woodland

*Acacia acuarria*  
*Acacia anthochaera*  
*Acacia erinacea*  
*Alyxia buxifolia*  
*Angianthus tomentosus*  
*Arthropodium curvipes*  
*Austrostipa elegantissima*  
*Austrostipa scabra*  
*Brachyscome perpusilla*  
*Bulbine semibarbata*  
*Calandrinia eremaea*  
*Calotis hispidula*  
*Crassula colorata* var *acuminata*  
*Enchylaena lanata*  
*Erymophyllum tenellum*  
*Eucalyptus loxophleba* subsp *supralaevis*  
*Exocarpos aphyllus*  
*Hakea recurva* subsp *recurva*  
*Hyalosperma glutinosum* subsp *glutinosum*  
*Lepidium rotundum*  
*\*Lamarckia aurea*  
*Maireana carnosia*  
*Maireana marginata*  
*Olearia muelleri*  
*Plantago debilis*  
*Podolepis lessonii*  
*Pogonolepis muelleriana*  
*Ptilotus eriotrichus*  
*Ptilotus gaudichaudii* var *parviflorus*  
*Ptilotus obovatus*  
*Rhagodia drummondii*  
*Rhagodia preissii* subsp *preissii*  
*Rhodanthe laevis*  
*Rhodanthe polycephala*  
*Sclerolaena diacantha*

*Sclerolaena drummondii*  
*Senecio glossanthus*  
*Senna charlesiana*  
*Thysanotus manglesianus*  
*Trachymene ornata*  
*Waitzia acuminata* var *acuminata*  
*Zygophyllum simile*

**Site:** WW-156                      **No. of Species :** 54

**Locality:** NW of Miling

**Vegetation:** *Eucalyptus arachnaea* woodland

\**Arctotheca calendula*  
*Acacia erinacea*  
*Acacia hemiteles*  
*Acacia ligustrina*  
*Austrostipa elegantissima*  
*Austrostipa scabra*  
*Austrostipa variabilis*  
*Baeckea crispiflora*  
*Blennospora drummondii*  
*Borya sphaerocephala*  
*Calandrinia calyptrata*  
*Calandrinia eremaea*  
*Calotis hispidula*  
*Comesperma integerrimum*  
\**Cotula bipinnata*  
*Crassula colorata* var *acuminata*  
*Daucus glochidiatus*  
*Daviesia benthamii* subsp *benthamii*  
*Dodonaea divaricata*  
*Dodonaea larreoides*  
*Enchylaena lanata*  
*Eremophila drummondii*  
*Eremophila lehmanniana*  
*Eremophila oldfieldii* subsp *oldfieldii*  
*Erodium cygnorum*  
*Erymophyllum tenellum*  
*Eucalyptus arachnaea* subsp *arachnaea*  
*Goodenia berardiana*  
*Goodenia pusilliflora*  
*Hyalosperma glutinosum* subsp *glutinosum*  
*Isotropis juncea*  
*Maireana marginata*  
*Melaleuca concreta*  
*Melaleuca coroncarpa*  
*Neurachne alopecuroidea*  
*Oxalis perennans*  
\**Parentucellia latifolia*  
*Plantago debilis*  
*Ptilotus divaricatus* var *divaricatus*  
*Rhagodia drummondii*  
*Rhodanthe laevis*  
*Rhodanthe manglesii*  
*Rhodanthe polycephala*  
*Scaevola spinescens*  
*Schoenus clandestinus*  
*Sclerolaena diacantha*

*Stenanthemum tridentatum* Priority 4 taxon. – Apart from an occurrence at Gunyidi this is the most northerly known population of this species.

*Stylidium periscelanthum*

*Thysanotus manglesianus*

*Trachymene cyanopetala*

*Trymalium daphnifolium*

*Trachymene ornata*

*Waitzia nitida*