



2006 Flora Survey of Wheatbelt Woodlands

*Encompassing surveys conducted in the Wheatbelt
zones of the following Bioregions:
Northern Sandplains, Mallee
and Avon Wheatbelt*



DEC Western Australian Herbarium

This flora survey of priority woodlands on private lands across the wheat belt of the Northern Agricultural Region and the Avon River Basin was conducted with the cooperation of the landholders, as part of the Woodland Watch and Healthy Ecosystems projects, funded by the Northern Agricultural Catchment Council and the Avon Catchment Council respectively.

Both projects are delivered by WWF-Australia with regional NRM investment from the Western Australian and Australian Governments through the Natural Heritage Trust and National Action Plan for Salinity and Water Quality programs.

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Introduction

Launched in 2000 by WWF-Australia, Woodland Watch commenced as a woodlands conservation project in the central Avon wheatbelt. From there it has grown to cover the much of the wheatbelt areas of the Northern Agricultural Region [NAR] and the Avon River Basin [ARB].

From the inception the Western Australian Herbarium (Department of Environment and Conservation) has collaborated with WWF providing professional flora survey, vouchering and data management services.

Initially the project received funding primarily through the Natural Heritage Trust. Since 2003 the project has been running in two regional NRM areas - the Northern Agricultural Region and the Avon River Basin – and supported through the regional investment processes of the Northern Agricultural Catchment Council and the Avon Catchment Councils respectively.

In 2005 WWF successfully tendered for the delivery of a continuation of these projects in these two NRM regions:

1. **Woodland Watch** for the Northern Agricultural Catchment Council [NACC]
2. **Healthy Ecosystems** for the Avon Catchment Council [ACC]

One of the major historic and current objectives of the initiative has been to carry out floristic surveys of selected priority remnant eucalypt woodlands of the wheatbelt of Southwest Australia – on private farmlands and other lands not within the conservation estate. The project area covers the Avon Wheatbelt bioregion, as well as parts of the Geraldton Sandplains and Mallee bioregions. It is situated in the South West Botanical Province of Western Australia and corresponds roughly to WWF's Global 200 Southwest Australian Ecoregion, which 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 NAR and ARB wheatbelt areas were selected for the conservation and extension project: those dominated by Salmon Gum (*Eucalyptus salmonophloia*), Gimlet (*E. salubris*), York Gum (*E. loxophleba*) and Red Morrel (*E. longicornis*). Broader priority-setting analyses of additional threatened ecosystems/communities are currently underway within both the NACC and ACC NRM regions.

The primary aims of the project continue to be to identify woodlands (and other priority ecosystems) of high conservation value in the NAR and ARB wheatbelt areas, 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 problems of salinity, rising water tables, and soil compaction.

Conducting flora surveys in these woodland communities is considered an essential 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 NACC's Woodland Watch and ACC's Healthy Ecosystems projects, it is possible to address some of the threats to the woodlands (and other priority ecosystems), including salinity. Future monitoring of the sites may provide data on the ability and rate at which these threatened ecosystems (communities) 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 – entirely ARB sites), followed by 21 sites in 2001 (entirely ARB sites), 25 sites in 2002 (entirely ARB sites), 25 sites in 2003 (entirely ARB sites), 35 sites in 2004 (10 NAR sites, the rest in ARB), and 9 sites in 2005 (all NAR sites; NB: due to a mismatch in the timing of new ACC funding, the 2005 ARB survey was cancelled for lack of available funds).

In 2006 a further 30 sites were surveyed (10 NAR sites, the rest in ARB) and 850 voucher specimens collected. To date this series of projects has sampled 186 discrete sites and collected a total of 6,768 voucher specimens, all curated by the DEC WA Herbarium in its facility in Kensington, Perth, Western Australia.

Methodology

Sites were surveyed and plants vouchered by Mike Hislop of the WA Herbarium, with the assistance of Diane Aynsley, Jenny Borger, Chris Curnow, Mick Davis, Mike Griffiths and Helena Mills of WWF-Australia. As with previous Woodland Watch surveys, the methodology for each site visited in 2006 comprised three parts:

Ten by Ten metre Quadrats

10 × 10 metre quadrats were carefully located so as to provide a typical representation of species composition within the selected woodland type. As far as possible, all species found were collected. However, several sites in 2006 contained sterile grasses which could not be reliably identified (sometimes even to genus) in that condition. 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.



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

Results

In 2006 a total of 30 sites were surveyed, resulting in 850 collections. Nine of the woodland sites surveyed were dominated by *Eucalyptus salmonophloia*, 13 by *Eucalyptus loxophleba*, 11 by *E. salmonophloia* and/or *E. salubris*, 3 by *E. longicornis*, and the others by other woodland types (the dominant species being either *E. calycogona*, *E. moderata*, or *E. salicicola*). The selected sites varied in size and condition, from almost pristine to significantly degraded by many years of grazing.

One site (Site WW-176, a *Eucalyptus loxophleba* woodland N of Goomalling) was found to have an exceptionally high numbers of species, producing voucher specimens of 50 species. Site WW-179, a mallee woodland (with *E. calycogona* and *E. myriadena*) N of Newdegate, produced 42 species. Sites 169 (a *E. loxophleba* subsp. *lissophloia* woodland S of Burracopin), 172 (a *E. salicicola*, *E. myriadena* woodland SE of Kelleberrin) and 182 (a *E. loxophleba* subsp. *loxophleba* woodland E of Pingelly) each recorded 41 species. The smallest collection was recorded for mallee woodland (with *E. moderata* and *E. subangusta*), represented by 13 species (Site WW-163, in the Maya district).

The unusually wet summer of 2005-2006 in much of the wheatbelt was followed by a long, unseasonably dry period from autumn to the beginning of spring when the surveys commenced. In the worst affected areas of the northern wheatbelt this resulted in little or no germination of the annual herbs that are characteristic of the understorey of many eucalypt woodlands. This is of course reflected in our survey results for these areas (WW157–WW166) with no annuals at all recorded for many sites. The flowering of perennial grasses was also severely affected. Grasses were often noted at the survey sites but with few exceptions were lacking even the most immature inflorescence. These were not collected as sterile grass specimens usually cannot be assigned to species, and often not even to generic level with confidence.

Although the eastern wheatbelt was rather less badly affected, the numbers of annual herbs present at many of the sites was still significantly lower than would be expected in an average year. This effect decreased in an east west gradient and the western wheatbelt sites could be considered close to normal in terms of their annual floristics.

Collections of Note

Noteworthy collections from the 2006 survey can be summarized under the following categories:

Probable Undescribed Taxa

- **Acacia sp. narrow phyllode (B.R. Maslin 7831).** WW-176. This is an informal name (often called phrase names) currently in use at the Western Australian Herbarium to refer to a taxonomic entity that is close to but presumed to be distinct from *Acacia acuminata*. It is widely distributed in the Avon Wheatbelt and Goldfields.
- **Caesia sp. Wongan (K.F. Kenneally 8820).** WW-157. This phrase name refers to a presumably unnamed taxon, which has also been known by the manuscript name *C. alfordii* ms. It is fairly widespread from north of Geraldton to the central wheatbelt.
- **Diuris aff. corymbosa.** WW-173. The genus *Diuris* is under revision by D.L. Jones and there are still many Western Australian species awaiting formal description. As many as 20 of these (A.P. Brown pers. comm.) are members of the difficult *D. corymbosa* complex. This specimen belongs with this group.
- **Gahnia sp. dull bases (K.R. Newbey 5111).** WW-183. An unnamed taxon currently referred to at the W.A. Herbarium by the above phrase name. Its closest relative is thought to be *G. lanigera*. There are relatively few collections of this entity, all from the Avon Wheatbelt, which may indicate that it is readily overlooked, that it has been widely misidentified in the past, or that it is a genuinely uncommon plant.
- **Lepidosperma sp. 'costale north sandplain' (K. Newbey 9385).** WW-182. *Lepidosperma* is a large and complex genus of perennial sedges currently in the early stages of revision by Russell Barrett of Kings Park. Where previously relatively few, very broadly circumscribed species were recognised, Barrett will adopt much narrower taxonomic concepts leading to the addition of a great many new taxa for Western Australia. The four phrase names used here have not yet been formally added to the Census of Western Australian Plants, but this should occur in the near future as the revision proceeds (R. Barrett pers. com.). While the precise wording of these names may be subject to change before their appearance on the census, the appending reference collections will remain the same.
- **Lepidosperma sp. 'costale robust heads form' (K.L. Wilson 2756).** WW-176.
- **Lepidosperma sp. 'Kojonup' (M.S. Graham 1034).** WW-169/176.
- **Lepidosperma sp. 'Nyabing' (M.S. Graham 1184/00).** WW-169.
- **Rhagodia sp. Watheroo (R.J. Cranfield & P.S. Spencer 8183).** WW-157/158/164/166/174. This phrase name refers to a potentially distinct taxon which is somewhat intermediate morphologically between *R. drummondii* and *R. acicularis*. Its co-occurrence at site WW 164 with typical *R. drummondii* is significant and lends support to the proposition that *R. sp. Watheroo* is indeed a discrete taxon.
- **Scholtzia sp. Prowaka Springs (R.J. Cranfield & P. Spencer 8083).** The genus *Scholtzia* is currently under taxonomic revision at the W.A. Herbarium by Malcolm Trudgen and Barbara Rye. This phrase name is one of many that have been raised by these botanists to temporarily accommodate the many new species that have been recognised in the genus. The specimen was collected on exposed granite adjacent to WW 162 and is only the second collection of this Priority 1 taxon.

- **Senna sp. Pallinup River (J.W. Green 4847).** WW 180. This unnamed taxon is currently referred to by the above phrase name in the Western Australian Plant Census. It belongs in the *S. artemisioides* species complex.

Priority Taxa

Nine (9) new populations of DRF and Priority species were recorded during this survey:

Taxon	Status	Site(s)
<i>Acacia lanei</i>	P1	181
<i>Caladenia integra</i>	P4	178
<i>Eucalyptus arachnaea</i> subsp. <i>arrecta</i>	P3	159 & 164
<i>Eucalyptus mimica</i> subsp. <i>mimica</i>	P3	179
<i>Gastrolobium callistachys</i>	P4	176
<i>Scholtzia</i> sp. <i>Prowaka Springs</i> (R.J. Cranfield & P. Spencer 8083)	P1	162
<i>Stylidium tenuicarpum</i>	P4	182
<i>Thysanotus tenuis</i>	P3	173

Collections of Geographical Significance

Seven (7) taxa were collected with significant range extensions:

Taxon	Site	Notes
<i>Acacia fauntleroyi</i>	WW-176	Represents a SW range extension for the species at this locality.
<i>Dodonaea adenophora</i>	WW-178	This specimen together with another from near Mundaring Weir appear to represent outlier populations to the SW of the species' main area of distribution.
<i>Eremophila phillipsii</i>	WW-181	Apart from a possibly rather dubious early Gardner collection from the Westonia area, this is the northernmost record of this species at the W.A. Herbarium.
<i>Eucalyptus wubinensis</i>	WW-171	The species is at the north-eastern edge of its range at this locality.
<i>Pterostylis mutica</i>	WW-168	The northernmost record of this species at the W.A. Herbarium.
<i>Sida calyxhymenia</i>	WW-176	The species is at the SW extremity of its range at this locality.
<i>Zygophyllum glaucum</i>	WW-184	Represents the most westerly collection of this taxon at the W.A. Herbarium.

Other Collections of Interest

Taxon	Site	Notes
<i>Acacia</i> aff. <i>anthochaera</i>	WW-157	This is one of a few collections from this part of the northern wheatbelt which have phyllodes rather shorter and more recurved than is normal for the species. These approach the foliar morphology of its closest relative <i>A. hemiteles</i> .
<i>Austrostipa</i> spp.	WW-181	An unusual co-occurrence of 4 species of <i>Austrostipa</i> at this site – <i>A. elegantissima</i> , <i>A. scabra</i> , <i>A. trichophylla</i> & <i>A. variabilis</i> .
<i>Cheilanthes</i> spp.	WW-173	The co-occurrence of the two very similar and frequently confused species of fern, <i>Cheilanthes austrotenuifolia</i> & <i>C. sieberi</i> subsp. <i>sieberi</i> , at this site is noteworthy.
<i>Dodonaea viscosa</i>	WW-180	This specimen doesn't well fit within the circumscriptions of any of the currently recognised subspecies of <i>D. viscosa</i> and may represent another infraspecific taxon.
<i>Eucalyptus loxophleba</i> subsp. <i>supralaevis</i>	WW-162/165	Collections from these two sites represent rather anomalous populations of <i>E. loxophleba</i> in that they have the bark character of subsp. <i>supralaevis</i> (ie with a rough basal skirt of c 1.5 m then smooth above) but the mallee habit of subsp. <i>lissophloia</i> . The latter is not known to occur in the area.
<i>Grevillea hakeoides</i> subsp. <i>stenophylla</i>	WW-157	This collection corresponds with Olde & Marriott's ("The Grevillea Book") 'slender leaved form', which may well represent a third subspecies.
<i>Melaleuca lanceolata</i>	WW-170/184	These two collections are of the inland variant of the species which has previously been referred to by the name subsp. <i>thaeroides</i> but which is now considered synonymous with the typical coastal form. It does appear however to be morphologically as well as geographically distinct and it seems probable that it will at some point again be recognised as a separate taxon.
<i>Melaleuca lateriflora</i>	WW-161	This site is the first known to <i>Melaleuca</i> authority Brendan Lepschi, where the two subspecies – subsp. <i>acutifolia</i> & subsp. <i>lateriflora</i> grow together. It supports the already quite strong case that they would be better recognised at the species level. Brendan has indicated that he will revisit this question in the immediate future in the light of these collections.

Cumulative Findings

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

Between 2000 and 2005, a total of 29 collections were made that were considered 'likely new species'. During the same period a total of 32 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 (2006) bring the cumulative total of significant findings from the project to 40 taxa that have not yet been formerly described (i.e. probable undescribed taxa); and 41 new populations of DRF and Priority flora.

Conclusion

The woodlands surveyed in 2006 were found to be largely comprised of species in the following plant families (in alphabetical order) — Asteraceae, Chenopodiaceae, Mimosaceae, Papilionaceae and Poaceae. However, due to low rainfall the numbers of Asteraceae, Poaceae and other ephemeral species were undoubtedly lower than expected (see Results, above).

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. Eight species of *Melaleuca* were found in the woodlands visited in this survey, namely *M. acuminata*, *M. atroviridis*, *M. concreta*, *M. eleuterostachya*, *M. lanceolata*, *M. laterifolia*, *M. laxiflora*, *M. longistaminea*, *M. pauperiflora*, *M. radula*, *M. scalena* and *M. stereophloia*.

As with sites surveyed in previous years, Proteaceae was also poorly represented in these woodland types.



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

Acknowledgements

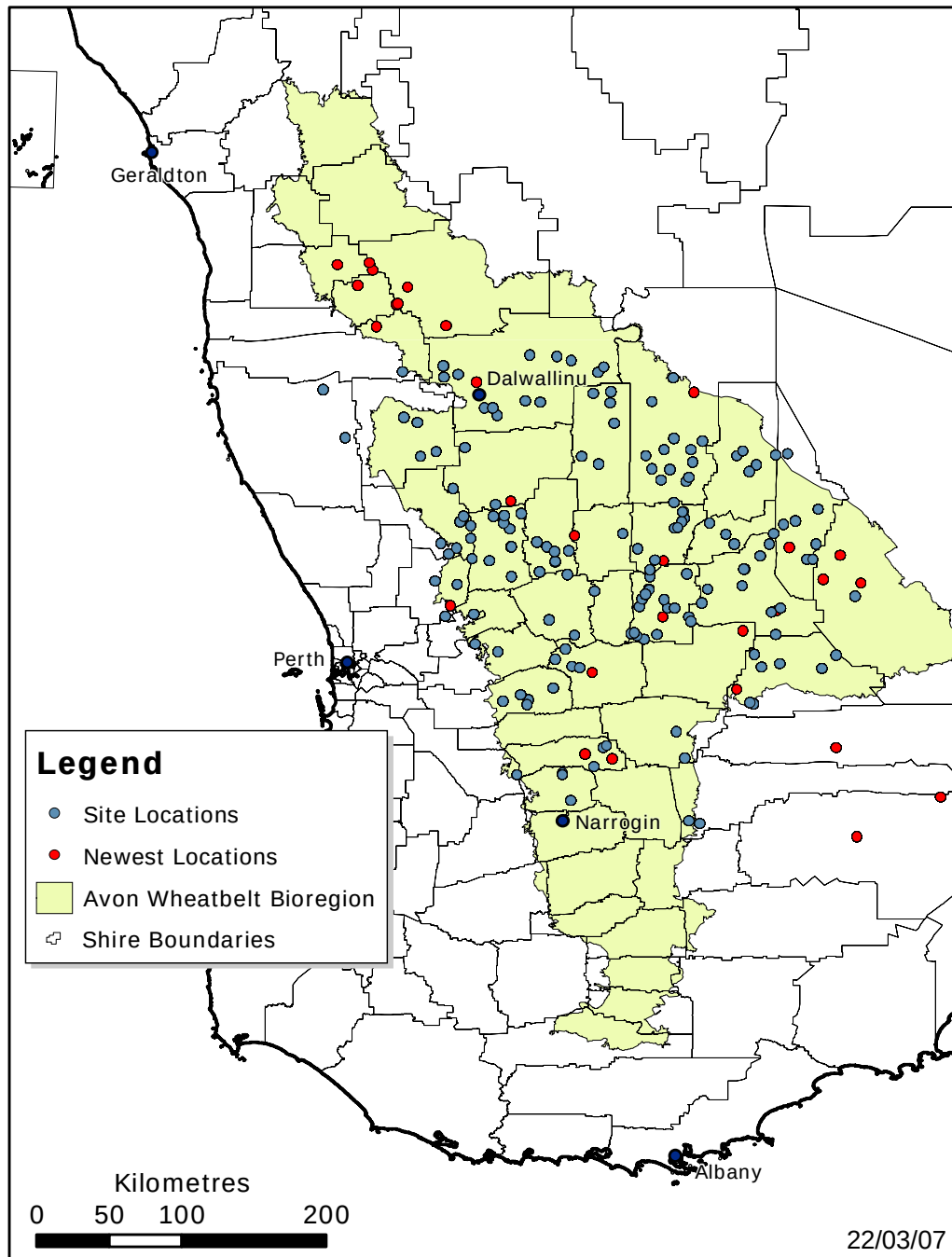
This document draws on information collected and provided by Mike Hislop, and was compiled and edited by Nicholas Lander. Document design follows that devised by Alex Chapman for earlier reports in this series. The map was prepared by Paul Gioia and the accompanying web site by Ben Richardson (see **References**).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

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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.dec.wa.gov.au/wwatch/>

Key to Interpreting Species Lists

The numerical prefix represents the PERTH barcode number of each collection.

* Denotes exotic species.

Denotes those species collected outside the quadrat during the random stratified walk.

The first figure shown in the 'No. of Collections' field is for the quadrat only – the figure in brackets includes those collected during the random stratified walk.

Site: WW-157 **No. of Collections:** 11 (28)

Locality: N of Carnamah.

Woodland type: *Eucalyptus loxophleba* subsp. *loxophleba* woodland.

WWF & DEC Survey Team: D. Aynsley, J. Borger & M. Hislop.

07405138 # *Acacia acuaria*

07405057 # *Acacia acuminata*

07404948 *Acacia andrewsii*

07404956 *Acacia* aff. *anthochaera* – the phyllodes of this specimen are rather shorter and more recurved than is normal for the species and approach the morphology of those of its close relative *A. hemiteles*.

07404980 *Acacia erinacea*

07405227 # *Aristida contorta*

07405154 # *Borya sphaerocephala*

07405162 # *Caesia* sp. Wongan (K.F. Kenneally 8820) PN – this is an informal name currently in use at the Western Australian Herbarium to refer to a presumably unnamed taxon, which has also been known by the manuscript name *C. alfordii*.

07405170 # *Calotis multicaulis*

07405022 *Comesperma integerrimum*

07405006 *Daviesia benthamii*

07404964 *Enchylaena lanata*

07405049 # *Eremophila decipiens* subsp. *decipiens* ms

07405146 # *Erodium cygnorum*

07404921 *Eucalyptus loxophleba* subsp. *loxophleba*

07405103 # *Grevillea hakeoides* subsp. *stenophylla* – this specimen corresponds with Olde & Marriott's ("The Grevillea Book") 'slender leaved form', which may well represent a third subspecies.

07405111 # *Hakea preissii*

07405219 # *Maireana brevifolia*

07405065 # *Maireana marginata*
 07405081 # *Melaleuca adnata*
 07405014 *Melaleuca stereophloia*
 07405030 *Podolepis capillaris*
 07404972 *Rhagodia* sp. Watheroo (R.J. Cranfield & P.S. Spencer 8183) PN – this is an informal name currently in use at the Western Australian Herbarium to refer to a potentially distinct taxon that is somewhat intermediate between *R. drummondii* and *R. acicularis*.
 07405073 # *Santalum acuminatum*
 07404999 *Scaevola spinescens*
 07405197 # *Trachymene cyanopetala*
 07405189 # *Trachymene ornata*
 07405200 # *Waitzia nitida*

Site: 158 **No. of Collections:** 7(12)

Locality: E of Three Springs.

Woodland type: *Eucalyptus salmonophloia*, *E. salubris* woodland.

WWF & DEC Survey Team: D. Aynsley, J. Borger & M. Hislop.

07433654 # *Atriplex codonocarpa*
 07433581 *Enchylaena lanata*
 07433689 # *Enchylaena* × *Maireana lanata* × *georgei* – this is a fairly frequently encountered inter generic hybrid which may call into question the validity of the current taxonomic framework within this part of the family Chenopodiaceae.
 07433670 # *Eucalyptus celastroides* subsp. *virella*
 07433557 *Eucalyptus salmonophloia*
 07433565 *Eucalyptus salubris*
 07433646 # *Maireana brevifolia*
 07433662 # *Maireana georgei*
 07433573 *Melaleuca eleuterostachya*
 07433638 *Rhagodia* sp. Watheroo (R.J. Cranfield & P.J. Spencer 8183) – Refer comment re this taxon at site 157.
 07433611 *Sclerolaena diacantha*
 07433603 *Sclerolaena drummondii*

Site: 159 **No. of Collections:** 6(14)

Locality: E of Three Springs.

Woodland type: *Eucalyptus salubris*, *E. arachnaea* woodland.

WWF & DEC Survey Team: D. Aynsley, J. Borger & M. Hislop.

07416830 # *Acacia andrewsii*
 07416733 *Acacia mackeyana*

07416865 # *Allocasuarina acutivalvis* subsp. *acutivalvis*
 07416857 # *Dodonaea larreoides*
 07416814 # *Eremophila clarkei*
 07416822 # *Eucalyptus arachnaea* subsp. *arrecta* – Priority 3 taxon.
 07416792 *Eucalyptus salubris*
 07416806 # *Eucalyptus subangusta* subsp. *pusilla*
 07416784 *Maireana marginata*
 07416741 *Melaleuca acuminata* subsp. *websteri*
 07416725 # *Melaleuca longistaminea* subsp. *longistaminea*
 07416849 # *Melaleuca radula*
 07416768 *Sclerolaena diacantha*
 07416776 *Sclerolaena drummondii*

Site: 160 **No. of Collections:** 4(17)

Locality: SW of Perenjori.

Woodland type: *Eucalyptus salmonophloia* woodland.

WWF & DEC Survey Team: D. Aynsley, J. Borger & M. Hislop.

07403631 # *Acacia andrewsii*
 07403690 # *Acacia anthochaera*
 07403712 # *Acacia colletioides*
 07403720 # *Acacia enervia* subsp. *explicata* – unusually broad leaved variant of this taxon.
 07403607 # *Acacia enervia* subsp. *explicata*
 07403739 # *Angianthus tomentosus*
 07403569 *Eucalyptus salmonophloia*
 07403658 # *Exocarpos aphyllus*
 07403666 # *Melaleuca acuminata* subsp. *websteri*
 07403615 # *Melaleuca adnata*
 07403674 # *Melaleuca coroncarpa*
 07403593 *Melaleuca eleuterostachya*
 07403704 # *Ptilotus divaricatus*
 07403682 # *Rhagodia drummondii*
 07403585 *Rhagodia preissii* subsp. *preissii*
 07403623 # *Sclerolaena diacantha*
 07403577 *Templetonia sulcata* – this species is closely related to *T. smithiana* and can only be reliably separated on fruiting characters. Both species are known to occur in the northern wheatbelt. In the absence of these diagnostic features the older name – *T. sulcata* is used here.

Site: 161 **No. of Collections:** 13(23)

Locality: NE of Three Springs.

Woodland type: *Eucalyptus loxophleba* subsp. *loxophleba* woodland.

WWF & DEC Survey Team: D. Aynsley, J. Borger & M. Hislop.

07416539 *Acacia acuminata*

07416555 *Acacia andrewsii*

07416563 *Acacia erinacea*

07416660 # *Acacia nyssophylla*

07416490 # *Acacia tetragonophylla*

07416512 *Comesperma integerrimum*

07416520 *Enchylaena lanata*

07416687 # *Eremophila decipiens* subsp. *decipiens* ms

07416636 *Eremophila lehmanniana*

07416644 *Eremophila oldfieldii* subsp. *oldfieldii*

07416571 *Eucalyptus loxophleba* subsp. *loxophleba*

07416601 # *Exocarpos aphyllus*

07416695 # *Maireana marginata*

07416482 # *Melaleuca acuminata* subsp. *websteri*

07416598 *Melaleuca adnata*

07416652 # *Melaleuca lateriflora* subsp. *acutifolia* – this is the first co-occurrence of these 2 subspecies known to *Melaleuca* authority Brendan Lepschi and supports the already quite strong case that they would be better recognised at the species level.

07416679 # *Melaleuca lateriflora* subsp. *lateriflora*

07416628 *Melaleuca longistaminea* subsp. *longistaminea*

07416504 *Melaleuca stereophloia*

07416474 *Rhagodia drummondii*

07416547 *Scaevola spinescens*

07416709 # *Velleia cynopotamica*

07416717 # *Waitzia acuminata* var *acuminata*

Site: 162 **No. of Collections:** 4(18) + 1

Locality: E of Carnamah.

Woodland type: *Eucalyptus loxophleba* subsp. *supralaevis*, *E. subangusta* mallee woodland.

WWF & DEC Survey Team: D. Aynsley, J. Borger & M. Hislop.

07392036 *Acacia acuminata*

07392133 # *Acacia assimilis* subsp. *assimilis*

07392044 *Acacia erinacea*

07392052 *Acacia hemiteles*
 07392192 # *Acacia* ? *mackeyana* – leaves atypically long for the species.
 07392117 # *Allocasuarina campestris*
 07392079 # *Dodonaea divaricata*
 07392141 # *Eucalyptus arachnaea* subsp. *arachnaea*
 07392028 *Eucalyptus loxophleba* subsp. *supralaevis* – this specimen represents a rather anomalous population of *E. loxophleba* in that it has the bark character of subsp. *supralaevis* (ie with a rough basal skirt of c 1.5 m then smooth above) but the mallee habit of subsp. *lissophloia*. The latter is not known to occur in the area.
 07392095 # *Eucalyptus subangusta* subsp. *pusilla*
 07392125 # *Gastrolobium parviflorum*
 07392168 # *Melaleuca adnata*
 07392060 # *Melaleuca concreta*
 07392087 # *Melaleuca coronicarpa*
 07392109 # *Melaleuca longistaminea* subsp. *longistaminea*
 07392176 # *Melaleuca radula*
 07392184 # *Santalum acuminatum*
 07392206 # *Trymalium daphnifolium*
 07403267 # *Scholtzia* sp. Prowaka Springs (R.J. Cranfield & P. Spencer 8083) – This is an informal phrase name currently in use at the W.A. Herbarium to refer to a taxon that is presumably unnamed. Collected on exposed granite adjacent to WW 162. Only the second collection of this Priority 1 taxon.

Site: 163 **No. of Collections:** 6(13)

Locality: District of Maya.

Woodland: *Eucalyptus moderata*, *E. subangusta* mallee woodland.

WWF & DEC Survey Team: D. Aynsley, J. Borger & M. Hislop.

07416997 # *Acacia assimilis* subsp. *assimilis*
 07416903 *Acacia hemiteles*
 07416989 # *Allocasuarina acutivalvis* subsp. *acutivalvis*
 07416962 # *Allocasuarina campestris*
 07417004 # *Daviesia nematophylla*
 07416970 # *Dodonaea bursariifolia*
 07417020 # *Eucalyptus celastroides* subsp. *virella*
 07416881 *Eucalyptus moderata*
 07416946 *Eucalyptus subangusta* subsp. *pusilla*
 07417012 # *Maireana georgei*
 07416938 *Maireana marginata*
 07416911 *Melaleuca adnata*
 07416954 *Olearia muelleri*

Site: 164 **No. of Collections:** 11(24)

Locality: N of Coorow.

Woodland type: *Eucalyptus salmonophloia*, *E. loxophleba* subsp. *loxophleba* woodland

WWF & DEC Survey Team: D. Aynsley, J. Borger, C. Curnow & M. Hislop.

07392311 # *Acacia acuminata*

07392427 *Acacia andrewsii*

07392354 # *Acacia hemiteles*

07392478 # *Atriplex semibaccata*

07392249 *Dodonaea inaequifolia*

07392362 # *Dodonaea larreoides*

07392257 *Enchylaena lanata*

07392230 *Eremophila oldfieldii* subsp. *oldfieldii*

07392451 # *Eucalyptus arachnaea* subsp. *arrecta* – Priority 3 taxon

07392222 *Eucalyptus loxophleba* subsp. *loxophleba*

07392214 *Eucalyptus salmonophloia*

07392303 *Maireana marginata*

07392486 # * *Medicago minima*

07392419 # *Melaleuca adnata*

07392370 # *Melaleuca radula*

07392443 *Olearia muelleri*

07392397 # *Rhagodia drummondii*

07392273 *Rhagodia preissii* subsp. *preissii*

07392281 *Rhagodia* sp. Watheroo (R.J. Cranfield & P.J. Spencer 8183) PN – Refer comment re this taxon at site 157. Its co-occurrence at this site with typical *R. drummondii* supports the proposition that *Rhagodia* sp. Watheroo is a discrete taxon.

07392265 *Sclerolaena diacantha*

07392346 # *Senna artemisioides* subsp. *filifolia*

07392389 # *Thysanotus manglesianus*

07392338 # *Trymalium daphnifolium*

07392435 # *Waitzia nitida*

Site: 165 **No. of Collections:** 12(21)

Locality: E of Carnamah.

Woodland type: *Eucalyptus loxophleba* subsp. *supralaevis* mallee woodland

WWF & DEC Survey Team: D. Aynsley, J. Borger, C. Curnow & M. Hislop.

07403380 *Acacia acuminata*
 07403348 *Acacia andrewsii*
 07403356 *Acacia hemiteles*
 07403496 # *Allocasuarina campestris*
 07403550 # *Atriplex codonocarpa*
 07403437 *Atriplex semibaccata*
 07403399 *Austrostipa scabra*
 07403518 # *Dodonea inaequifolia*
 07403372 *Enchylaena lanata*
 07403453 # *Eucalyptus arachnaea* subsp. *arachnaea*
 07403321 *Eucalyptus loxophleba* subsp. *supralaevis* – refer note under *E. loxophleba* subsp. *supralaevis* for site 162.
 07403402 *Maireana brevifolia*
 07403429 *Maireana marginata*
 07403534 # *Melaleuca adnata*
 07403461 # *Melaleuca concreta*
 07403410 *Melaleuca longistaminea* subsp. *longistaminea*
 07403526 # *Melaleuca radula*
 07403445 *Ptilotus holosericeus*
 07403488 # *Rhagodia drummondii*
 07403364 *Sclerolaena diacantha*
 07403542 # *Thysanotus manglesianus*

Site: 166 **No. of Collections:** 15(23)

Locality: N of Dalwallinu.

Woodland type: *Eucalyptus salmonophloia*, *E. salubris* woodland.

WWF & DEC Survey Team: D. Aynsley, C. Curnow & M. Hislop.

07391773 *Acacia ancistrophylla* var. *ancistrophylla*
 07391854 *Acacia erinacea*
 07391994 # *Alyxia buxifolia*
 07391889 *Austrostipa elegantissima*
 07391838 *Enchylaena lanata*
 07391943 # *Eremophila drummondii*
 07391978 # *Eucalyptus celastroides* subsp. *virella*
 07391757 *Eucalyptus salmonophloia*
 07391765 *Eucalyptus salubris*
 07391897 *Maireana carnosae*
 07391951 # *Maireana georgei*

07391900 *Maireana marginata*
07391846 *Melaleuca acuminata* subsp. *websteri*
07391919 *Melaleuca pauperiflora* subsp. *fastigiata*
07391870 *Olearia muelleri*
07391986 # *Ptilotus exaltatus*
07391927 # *Rhagodia preissii* subsp. *preissii*
07391803 *Rhagodia* sp. Watheroo (R.J. Cranfield & P.J. Spencer 8183) PN – refer comment re this taxon at site 157.
07391862 *Santalum acuminatum*
07391811 *Sclerolaena diacantha*
07391935 # *Senna charlesiana*
07391781 *Templetonia sulcata* – refer comment re this species at site 160.
07392001 # *Thysanotus manglesianus*

Site: 167 **No. of Collections:** 13(27)

Locality: E of Westonia.

Woodland type: *Eucalyptus salmonophloia*, *E. salubris* woodland.

WWF & DEC Survey Team: M. Davis, D. Aynsley & M. Hislop.

07432518 *Acacia erinacea*
07432607 # *Acacia hemiteles*
07432453 *Acacia merrallii*
07432690 # *Austrodanthonia setacea*
07432631 # *Daviesia benthamii* subsp. *acanthoclona*
07432623 # *Daviesia nematophylla*
07432542 *Enchylaena lanata*
07432674 # *Eremophila drummondii*
07432526 *Eremophila ionantha*
07432666 # *Eucalyptus moderata*
07432429 *Eucalyptus salmonophloia*
07432437 *Eucalyptus salubris*
07432658 # *Eucalyptus sheathiana*
07432585 # *Exocarpos aphyllus*
07432615 # *Grevillea huegelii*
07432496 *Maireana brevifolia*
07432593 # *Maireana carnososa*
07432461 *Maireana georgei*
07432534 *Maireana marginata*
07432488 *Maireana trichoptera*
07432577 # *Melaleuca pauperiflora* subsp. *fastigiata*

07432445 *Olearia muelleri*
07432704 # * *Pentaschistis airoides*
07432712 # *Podolepis capillaris*
07432569 *Ptilotus holosericeus*
07432550 *Scaevola spinescens*
07432682 # *Sclerolaena fusiformis*

Site: 168 **No. of Collections:** 6(19)

Locality: S of Moorine Rock.

Woodland type: *Eucalyptus salubris*, *E. capillosa* subsp. *capillosa* woodland.

WWF & DEC Survey Team: M. Davis, D. Aynsley & M. Hislop.

07405316 # *Acacia enervia* subsp. *enervia*
07405391 # *Acacia erinacea*
07405340 # *Acacia merrallii*
07405413 # *Austrostipa eremophila*
07405308 # *Austrostipa scabra*
07405359 # *Daviesia argillacea*
07405251 *Enchylaena lanata*
07433166 # *Eucalyptus capillosa* subsp. *capillosa*
07405235 *Eucalyptus salubris*
07405324 # *Exocarpos aphyllus*
07405405 # *Lomandra effusa*
07405332 # *Lysiana casuarinae*
07405383 # *Maireana carnosae*
07405278 *Maireana marginata*
07405367 # *Olearia muelleri*
07405294 *Pterostylis mutica* – the northernmost record of this species at the W.A. Herbarium.
07405286 *Sclerolaena diacantha*
07405375 # *Sclerolaena drummondii*
07405243 *Wilsonia humilis*

Site: 169 **No. of Collections:** 27(41)

Locality: S of Burracoppin.

Woodland type: *Eucalyptus loxophleba* subsp. *lissophloia* woodland.

WWF & DEC Survey Team: M. Davis, D. Aynsley & M. Hislop.

07419325 *Acacia coolgardiensis* subsp. *coolgardiensis*
07419554 # *Acacia hemiteles*
07419376 *Actinobole uliginosum*

07419228 *Amphipogon caricinus* var. *caricinus*
 07419414 *Aristida contorta*
 07419260 *Austrostipa trichophylla*
 07419503 # *Blennospora drummondii*
 07419244 *Borya constricta*
 07419236 *Borya sphaerocephala*
 07419430 *Brachyscome pusilla*
 07419465 *Brunonia australis*
 07419333 *Ceratogyne obionoides*
 07419368 *Chthonocephalus pseudevax*
 07419570 # *Dampiera lavandulacea*
 07419317 *Drosera macrantha* subsp. *macrantha*
 07419171 *Eucalyptus loxophleba* subsp. *lissophloia*
 07419406 *Goodenia berardiana*
 07419538 # *Grevillea levis*
 07419341 *Hydrocotyle pilifera* var. *glabrata*
 07419457 *Lawrencella rosea*
 07419619 # *Lepidobolus preissianus*
 07419295 *Lepidosperma* ? sp. Kojonup (M.S. Graham 1034) – This collection and the next represent recently recognised and probably unnamed species of *Lepidosperma*.
 07419287 *Lepidosperma* sp. Nyabing (M.S. Graham 1184/00)
 07419546 # *Leptospermum roei*
 07419252 *Lomandra collina*
 07419198 *Lomandra effusa*
 07419511 # *Neurachne alopecuroidea*
 07419201 *Olearia dampieri* subsp. *eremicola* ms
 07419473 # * *Pentaschistis airoides*
 07419449 *Podolepis canescens*
 07419309 *Podolepis capillaris*
 07419422 *Podotheca gnaphalioides*
 07419481 # *Rhodanthe pygmaea*
 07419597 # *Santalum acuminatum*
 07419562 # *Spartochloa scirpoidea*
 07419600 # *Stenopetalum filifolium*
 07419589 # *Templetonia aculeata*
 07419384 *Trachymene cyanopetala*
 07419392 *Velleia cynopotamica*
 07419279 *Waitzia acuminata* var. *acuminata*

Site: 170 **No. of Collections:** 8(25)

Locality: NW of Westonia.

Woodland type: *Eucalyptus longicornis*, *E. salmonophloia* woodland.

WWF & DEC Survey Team: M. Davis, D. Aynsley & M. Hislop.

07396848 # *Acacia hemiteles*

07396872 # *Acacia merrallii*

07396813 *Acacia nyssophylla*

07440952 # *Asteridea athrixioides*

07440960 # *Austrodanthonia setacea*

07396805 *Austrostipa nitida*

07440901 # *Enchylaena lanata*

07396864 # *Eriochiton sclerolaenoides*

07440944 # * *Erodium aureum*

07440928 # *Eucalyptus aequioperta*

07396740 *Eucalyptus longicornis*

07396759 *Eucalyptus salmonophloia*

07396880 # *Eucalyptus yilgarnensis*

07440979 # *Lomandra effusa*

07396783 *Maireana marginata*

07396899 # *Maireana trichoptera*

07440936 # **Medicago minima*

07396791 *Melaleuca lanceolata* – this is the inland variant of the species that has been referred to by the name *subsp thaeroides*. Morphologically as well as geographically distinct – it seems probable that it will at some point again be recognised as a separate entity.

07396767 *Ptilotus holosericeus*

07440987 # *Ptilotus spathulatus* forma *spathulatus*

07440995 # *Rhodanthe pygmaea*

07396775 *Sclerolaena diacantha*

07396821 # *Senna artemisioides* subsp. *filifolia*

07396856 # *Zygophyllum apiculatum*

Site: 171 **No. of Collections:** 7(27)

Locality: E of Beacon.

Woodland type: *Eucalyptus salubris*, *E. wubinensis* woodland.

WWF & DEC Survey Team: M. Davis, D. Aynsley & M. Hislop.

07432313 # *Acacia colletioides*

07432267 # *Acacia enervia* subsp. *explicata*

07432186 *Acacia mackeyana*
 07432291 # *Acacia merrallii*
 07432380 # *Blennospora drummondii*
 07432372 # *Callitris columellaris* – until recently Western Australian collections now included under this name were treated as a distinct species – *C. glaucophylla*.
 07432402 # *Calotis hispidula*
 07432151 *Daviesia nematophylla*
 07432224 # *Eremophila papillata* ms
 07432275 # *Eucalyptus celastroides* subsp. *virella*
 07432259 # *Eucalyptus moderata*
 07432135 *Eucalyptus salubris*
 07432143 *Eucalyptus wubinensis* – species is at the north-eastern edge of its range at this locality.
 07432356 # *Eucalyptus yilgarnensis*
 07432216 # *Exocarpos aphyllus*
 07432399 # *Hyalosperma glutinosum* subsp. *glutinosum*
 07432283 # *Maireana georgei*
 07432208 *Maireana marginata*
 07432240 # *Melaleuca scalena*
 07432305 # *Olearia muelleri*
 07432232 # *Santalum acuminatum*
 07432178 *Sclerolaena diacantha*
 07432321 # *Sclerolaena fusiformis*
 07432194 *Templetonia sulcata* – refer comment re this species at site 160.
 07432410 # *Trachymene cyanopetala*
 07432348 # *Waitzia acuminata* var. *acuminata*
 07432364 # *Wilsonia humilis*

Site: 172 **No. of Collections:** 13(41)

Locality: SE of Kellerberrin.

Woodland type: *Eucalyptus salicola*, *E. myriadena* woodland.

WWF & DEC Survey Team: M. Davis, D. Aynsley & M. Hislop.

07395353 *Acacia acuaria*
 07395531 # *Acacia rigens*
 07395639 # *Aristida contorta*
 07395779 # *Atriplex codonocarpa*
 07395515 # *Atriplex paludosa* subsp. *baudinii*
 07395523 # *Atriplex paludosa* subsp. *baudinii*
 07395574 # *Atriplex semilunaris*
 07395426 *Austrostipa elegantissima*

07395418 *Austrostipa nitida*
 07395752 # *Brachyscome pusilla*
 07395442 * *Bromus rubens*
 07395760 # *Calandrinia granulifera*
 07395450 * *Cleretum papulosum* subsp. *papulosum*
 07395744 # *Crassula colorata* var. *acuminata*
 07395558 # *Didymanthus roei*
 07395736 # *Disphyma crassifolium* subsp. *clavellatum*
 07395396 *Enchylaena lanata*
 07395604 # *Eragrostis dielsii*
 07395620 # *Eremophila decipiens* subsp. *decipiens* ms
 07395612 # *Eucalyptus myriadena* subsp. *myriadena*
 07395329 *Eucalyptus salicola*
 07395701 # *Lepidium rotundum*
 07395345 *Lomandra collina*
 07395337 *Lomandra effusa*
 07395647 # *Lycium australe*
 07395507 # *Maireana brevifolia*
 07395582 # *Maireana carnososa*
 07395671 # *Melaleuca atroviridis*
 07395566 # *Melaleuca eleuterostachya*
 07395698 # * *Moraea setifolia*
 07395388 *Olearia dampieri* subsp. *eremicola* ms
 07395361 *Pittosporum angustifolium*
 07395493 # *Podolepis capillaris*
 07395477 # *Ptilotus polystachyus* var. *polystachyus*
 07395485 # *Ptilotus spathulatus* forma *spathulatus*
 07395434 *Rhagodia drummondii*
 07395590 # *Sclerolaena diacantha*
 07395728 # *Sclerolaena eurotioides*
 07395655 # *Stackhousia muricata*
 07395469 *Thysanotus speckii*
 07395663 # *Westringia cephalantha*

Site: 173 **No. of Collections:** 16(39)

Locality: W outskirts of Quarading.

Woodland type: *Eucalyptus loxophleba* subsp. *loxophleba* woodland.

WWF & DEC Survey Team: M. Davis, H. Mills & M. Hislop.

07432739 *Acacia acuminata*

07433115 # *Acacia lasiocarpa* var. *sedifolia*
 07432801 *Allocasuarina huegeliana*
 07432933 # *Aristida contorta*
 07432844 *Austrodanthonia setacea*
 07432771 *Austrostipa elegantissima*
 07432836 *Austrostipa nitida*
 07432798 *Austrostipa trichophylla*
 07432828 *Austrostipa variabilis*
 07433107 # *Blennospora drummondii*
 07433034 # *Borya sphaerocephala*
 07433069 # *Brunonia australis*
 07432747 *Cheilanthes austrotenuifolia* – an unusual co-occurrence of the two species of *Cheilanthes* at this site.
 07432852 *Cheilanthes austrotenuifolia* subsp. *sieberi*
 07432976 # *Dampiera lavandulacea*
 07433158 # *Diuris* aff. *corymbosa* – a currently unnamed taxon from the *D. corymbosa* complex.
 07433050 # *Enchylaena lanata*
 07432887 *Erodium cygnorum*
 07432720 *Eucalyptus loxophleba* subsp. *loxophleba*
 07433093 # *Goodenia pusilliflora*
 07432917 # *Hyalosperma glutinosum* subsp. *glutinosum*
 07432895 **Hypochaeris glabra*
 07433131 # *Isotropis juncea*
 07432879 *Lawrencella rosea*
 07432763 *Lomandra effusa*
 07432755 *Neurachne alopecuroidea*
 07433123 # *Nicotiana rotundifolia*
 07433018 # *Opercularia vaginata*
 07432860 *Oxalis perennans*
 07433077 # *Pelargonium havlasae*
 07432984 # *Podolepis canescens*
 07432968 # *Podolepis capillaris*
 07433026 # *Ptilotus polystachyus* var. *polystachyus*
 07432941 # *Rhodanthe manglesii*
 07433085 # *Rhodanthe pygmaea*
 07432992 # *Stypandra glauca*
 07433042 # *Thysanotus tenuis* – Priority 3 taxon.
 07432909 # *Trachymene ornata*
 07432925 # *Velleia cynopotamica*

Site: 174

No. of Collections: 20(35)

Locality: S of Trayning.

Woodland type: *Eucalyptus salmonophloia*, *E. salubris* woodland.

WWF & DEC Survey Team: M. Davis, H. Mills & M. Hislop

07434596 *Acacia enervia* subsp. *explicata*

07434626 *Acacia erinacea*

07434537 *Acacia sericocarpa*

07434685 *Austrodanthonia caespitosa*

07434693 *Austrostipa elegantissima*

07434839 # *Austrostipa scabra*

07434790 # *Austrostipa trichophylla*

07434707 *Austrostipa variabilis*

07434677 **Cleretum papulosum* subsp. *papulosum*

07434782 # *Daviesia nematophylla*

07434804 # *Dodonaea inaequifolia*

07434642 *Enchylaena lanata*

07434812 # *Eremophila clarkei*

07434561 *Eremophila oppositifolia* subsp. *angustifolia*

07434618 *Eremophila papillata* ms

07434723 # *Erymophyllum tenellum*

07434588 *Eucalyptus celastroides* subsp. *virella*

07434502 *Eucalyptus salmonophloia*

07434820 # *Eucalyptus salubris*

07434847 # *Grevillea huegelii*

07434731 # *Hyalosperma glutinosum* subsp. *glutinosum*

07434774 # *Maireana carnosae*

07434510 *Maireana georgei*

07434669 *Maireana marginata*

07434766 # *Maireana tomentosa* subsp. *tomentosa*

07434863 # *Melaleuca lateriflora* subsp. *lateriflora*

07434545 *Olearia muelleri*

07434871 # *Podolepis capillaris*

07434715 *Ptilotus holosericeus*

07434529 *Rhagodia preissii* subsp. *preissii*

07434553 *Rhagodia* sp. Watheroo (R.J. Cranfield & P.J. Spencer 8183) PN – refer comment re this taxon at site 157

07434634 *Santalum acuminatum*

07434758 # *Schoenia cassiniana*

07434650 *Sclerolaena diacantha*

07434855 # *Senna artemisioides* subsp. *filifolia*

Site: 175 **No. of Collections:** 9(22)

Locality: NW of Wyalkatchem.

Woodland type: *Eucalyptus longicornis*, *E. samonophloia* woodland.

WWF & DEC Survey Team: M. Davis, H. Mills & M. Hislop.

07434421 # *Acacia acuaria*
07434413 # *Acacia erinacea*
07434391 # *Acacia hemiteles*
07434316 *Austrostipa elegantissima*
07434456 # *Austrostipa variabilis*
07434278 *Eucalyptus longicornis*
07434286 *Eucalyptus salmonophloia*
07434332 *Lepidium rotundum*
07434464 # *Maireana brevifolia*
07434340 *Maireana marginata*
07434405 # *Melaleuca acuminata* subsp. *websteri*
07434308 *Melaleuca adnata*
07434294 *Melaleuca lateriflora* subsp. *lateriflora*
07434448 # *Melaleuca scalena*
07434375 # *Oxalis perennans*
07434472 # *Parietaria debilis*
07434480 # *Pittosporum angustifolium*
07434324 *Ptilotus holosericeus*
07434499 # *Ptilotus spathulatus* forma *spathulatus*
07434359 *Sclerolaena diacantha*
07434383 # *Stenopetalum lineare*
07434367 # *Trachymene cyanopetala*

Site: 176 **No. of Collections:** 21(50)

Locality: NE of Goomalling.

Woodland type: *Eucalyptus loxophleba* subsp. *loxophleba* woodland.

WWF & DEC Survey Team: M. Davis, H. Mills, C. Curnow & M. Hislop.

07375948 # *Acacia fauntleroyi* – represents a SW range extension for the species at this locality.

07375433 *Acacia* sp. narrow phyllode (B.R. Maslin 7831) PN – the phrase name represents an informal segregate from the *Acacia acuminata* complex.

07375875 # *Allocasuarina campestris*

07375476 *Allocasuarina huegeliana*

07375786 # *Aristida contorta*
 07375603 *Austrostipa variabilis*
 07375778 # *Borya sphaerocephala*
 07375506 * *Briza maxima*
 07375565 *Caesia micrantha*
 07375514 *Caladenia flava* subsp. *flava*
 07375905 # *Calandrinia calyptrata*
 07375530 *Cheilanthes austrotenuifolia*
 07375549 *Comesperma integerrimum*
 07375468 *Dampiera lavandulacea*
 07375522 *Dianella revoluta*
 07375581 *Dioscorea hastifolia*
 07375727 # *Dodonaea viscosa* subsp. *angustissima*
 07375557 *Drosera macrantha* subsp. *macrantha*
 07375611 * *Ehrharta longiflora*
 07375808 # *Enchylaena lanata*
 07375425 *Eucalyptus loxophleba* subsp. *loxophleba*
 07375697 # *Euphorbia drummondii*
 07375484 *Gastrolobium callistachys* – Priority 4 taxon.
 07375662 # *Gilberta tenuifolia*
 07375891 # *Glischrocaryon aureum* var. *aureum*
 07375700 # *Goodenia berardiana*
 07375743 # *Guichenotia micrantha*
 07375735 # *Hakea petiolaris* subsp. *trichophylla*
 07375441 *Hemigenia incana* – this is a very broadly circumscribed species as currently treated.
 07375824 # *Lawrencella rosea*
 07376030 *Lepidosperma* sp.
 07375638 *Lepidosperma* sp. *costale*, robust heads form (K.L. Wilson 2756) – this collection and the next represent recently recognised and probably unnamed species of *Lepidosperma*.
 07375956 # *Lepidosperma* sp. Kojonup (M.S. Graham 1034)
 07375913 # *Monachather paradoxus*
 07375573 *Neurachne alopecuroidea*
 07375832 # *Olearia dampieri* subsp. *eremicola* ms
 07375492 *Opercularia vaginata*
 07375816 # *Oxalis perennans*
 07375867 # *Phyllanthus calycinus*
 07375859 # *Podolepis canescens*
 07375840 # *Podotheca gnaphalioides*
 07375719 # *Ptilotus polystachyus* var. *polystachyus*
 07375670 # *Rhodanthe manglesii*

07375751 # *Sida calyxhymenia* – species at SW extremity of its range at this locality.
07375883 # *Stypandra glauca*
07375794 # *Thysanotus manglesianus*
07375921 # *Thysanotus patersonii*
07375654 # *Trachymene cyanopetala*
07375646 *Trachymene ornata*
07375689 # *Waitzia nitida*

Site: 177, +177A **No. of Collections:** 14(16), +(23)

Location: SE of Wongan Hills.

Woodland type: *Eucalyptus loxophleba* subsp. *loxophleba* woodland.

WWF & DEC Survey Team: M. Davis, H. Mills, C. Curnow & M. Hislop.

In addition to the formal quadrat and immediate surrounds which are represented by 16 collections, an adjoining stand of *E. loxophleba* subsp. *loxophleba* which was significantly different in composition, was also sampled opportunistically. These collections have been databased with the prefix A (i.e. 177-A1–23) in order to distinguish them from those directly associated with Quadrat 177. They are separated by a blank row below.

07376235 *Acacia erinacea*
07376278 *Arthropodium dyeri*
07376316 *Austrodanthonia caespitosa*
07376243 *Austrostipa elegantissima*
07376383 # *Austrostipa variabilis*
07376251 *Comesperma integerrimum*
07376332 *Crassula colorata* var. *acuminata*
07376308 *Enchylaena lanata*
07376324 * *Erodium cicutarium*
07376286 *Eucalyptus loxophleba* subsp. *loxophleba*
07376227 *Hakea preissii*
07376359 *Lepidium rotundum*
07376294 # *Maireana marginata*
07376367 *Oxalis perennans*
07376340 *Ptilotus holosericeus*
07376375 *Rhodanthe polycephala*

07376073 *Acacia acuminata*
07375999 *Acacia ligustrina*
07376022 *Acacia restiacea*
07376162 *Aristida contorta*
07376146 *Borya sphaerocephala*
07375964 *Caesia micrantha*

07376189 *Chamaescilla versicolor*
 07375972 *Cheilanthes austrotenuifolia*
 07376057 *Chorizema genistoides*
 07376111 *Dampiera lavandulacea*
 07375980 *Desmocladus asper*
 07376170 *Drosera macrophylla* subsp. *macrophylla*
 07376049 *Gahnia drummondii*
 07376014 *Grevillea paniculata*
 07376197 *Hyalosperma glutinosum* subsp. *glutinosum*
 07376219 *Lepidosperma costale*
 07376103 *Lomandra effusa*
 07376065 *Melaleuca radula*
 07376154 *Opercularia vaginata*
 07376081 *Pimelea avonensis*
 07376200 *Podolepis lessonii*
 07376006 *Santalum spicatum*
 07376138 *Waitzia nitida*

Site: 178

No. of Collections: 20(35)

Locality: S of Toodyay.

Woodland type: *Eucalyptus loxophleba* subsp. *loxophleba* woodland.

WWF & DEC Survey Team: M. Davis, H. Mills & M. Hislop.

07433212 *Acacia acuminata*
 07433387 # *Acacia meisneri*
 07433530 # *Acacia saligna*
 07433301 *Allocasuarina huegeliana*
 07433441 # *Bossiaea spinescens*
 07433328 **Briza maxima*
 07433514 # *Burchardia congesta*
 07433379 *Caesia micrantha*
 07433247 *Caladenia integra* – Priority 4 taxon.
 07433336 *Chamaescilla corymbosa*
 07433255 *Cheilanthes austrotenuifolia*
 07433263 *Dioscorea hastifolia*
 07433433 # *Dodonea adenophora* – this specimen and another from near Mundaring Weir appear to represent outlier populations to the SW of the species main area of distribution.
 07433220 *Drosera macrantha* subsp. *macrantha*
 07433174 *Eucalyptus loxophleba* subsp. *loxophleba*
 07433468 # *Hibbertia commutata*

07433395 # *Hyalosperma glutinosum* subsp. *glutinosum*
 07433360 *Hypoxis occidentalis* var. *occidentalis*
 07433476 # *Labichea lanceolata* subsp. *brevifolia*
 07433409 # *Lagenophora huegelii*
 07433352 *Lawrencella rosea*
 07433506 # *Nicotiana rotundifolia*
 07433549 *Oxalis perennans*
 07433190 *Phyllanthus calycinus*
 07433239 *Prostanthera canaliculata* – This species has a curiously disjunct distribution with most of our collections coming from near central south coast localities and then a small cluster from the inner wheatbelt N & E of Perth.
 07433344 *Rhodanthe manglesii*
 07433484 # *Stackhousia monogyna*
 07433492 # *Stypandra glauca*
 07433204 *Thomasia foliosa*
 07433271 *Thysanotus manglesianus*
 07433298 *Thysanotus patersonii*
 07433417 # *Trachymene ornata*
 07433182 *Trymalium floribundum* subsp. *floribundum*
 07433522 # *Trymalium ledifolium* var. *lineare*
 07433425 # *Waitzia nitida*

Site: 179

No. of Collections: 20(42)

Locality: N of Newdegate.

Woodland type: *Eucalyptus calycogona*, *E. myriadena* mallee woodland.

WWF & DEC Survey Team: M. Griffiths, H. Mills, C. Curnow & M. Hislop.

07429967 *Actinobole uliginosum*
 07429762 *Austrodanthonia setacea*
 07429789 *Austrostipa exilis*
 07429770 *Austrostipa hemipogon*
 07430124 # *Billardiera lehmanniana*
 07430132 # *Bossiaea barbarae*
 07429878 *Brachyscome ciliaris*
 07429983 *Brachyscome pusilla* – belongs to the difficult *B. iberidifolia* complex currently under revision by P. Short. Name is applied rather tentatively here.
 07429908 **Bromus rubens*
 07430108 # *Caladenia douthchiae*
 07429886 *Calotis hispidula*
 07430019 # *Chamelaucium ciliatum* – a particularly variable species as currently recognised.
 07429932 # *Crassula colorata* var. *colorata*

07429924 # *Crassula exserta*
 07429800 *Enchylaena lanata*
 07429991 # *Eremophila decipiens* subsp. *decipiens* ms
 07430000 # *Eremophila drummondii*
 07429819 *Eucalyptus calycogona* subsp. *calycogona*
 07430140 # *Eucalyptus mimica* subsp. *mimica* – Priority 3 taxon.
 07430159 # *Eucalyptus mimica* subsp. *mimica*
 07429649 *Eucalyptus myriadena* subsp. *myriadena*
 07429940 # *Hyalosperma demissum*
 07429843 *Hydrocotyle pilifera* var. *glabrata*
 07429835 *Hydrocotyle rugulosa*
 07429746 **Medicago minima*
 07430027 # *Melaleuca acuminata* subsp. *acuminata*
 07429916 # *Millotia major*
 07430035 # *Pelargonium havlasae*
 07429975 *Plantago debilis*
 07429827 *Podolepis tepperi*
 07430051 # *Podotheca angustifolia*
 07430116 # *Prasophyllum gracile*
 07430094 # *Pterostylis mutica*
 07429959 # *Ptilotus holosericeus*
 07429754 *Ptilotus spathulatus* forma *spathulatus*
 07430043 # *Rhodanthe pygmaea*
 07430078 # *Senecio glossanthus*
 07430248 # *Teucrium sessiliflorum*
 07430086 # *Trachymene pilosa* – this is the rarely collected variant with heteromorphic mericarps and short bristles (refer Rye Nuytsia 11, 1).
 07429894 * *Ursinia anthemoides*
 07429851 *Wahlenbergia gracilentia*
 07429797 *Waitzia acuminata* var. *acuminata*

Site: 180 **No. of Collections:** 13(39)

Locality: N of settlement of Varley.

Woodland type: *Eucalyptus salubris*, *E. calycogona* woodland.

WWF & DEC Survey Team: M. Griffiths, H. Mills & M. Hislop.

07430531 # *Acacia hemiteles*
 07430256 # *Actinobole uliginosum*
 07430299 *Austrodanthonia acerosa*
 07430310 *Austrostipa elegantissima*

07430671 # *Austrostipa scabra*
 07430639 # *Austrostipa trichophylla*
 07430450 # *Callitris preissii* – until recently inland collections of this species were considered to represent a second species – *C. tuberculata*
 07430426 # *Calotis hispidula*
 07430663 # *Cassytha melantha*
 07430345 # *Comesperma integerrimum*
 07430264 # *Crassula colorata* var. *acuminata*
 07430353 # *Dodonaea bursariifolia*
 07430361 # *Dodonaea viscosa* – this specimen doesn't well fit within the circumscriptions of any of the currently recognised subspecies of *D. viscosa*.
 07430302 *Enchylaena lanata*
 07430558 # *Eremophila decipiens* subsp. *decipiens* ms
 07430523 # *Eremophila psilocalyx*
 07430213 *Eucalyptus calycogona* subsp. *calycogona*
 07430647 # *Eucalyptus pileata*
 07430221 *Eucalyptus salubris*
 07430574 # *Eucalyptus tenera*
 07430329 *Eucalyptus urna*
 07430183 *Exocarpos aphyllus*
 07430205 *Grevillea huegelii*
 07430590 # *Lepidosperma* aff. *brunonianum* – probably represents another unnamed taxon.
 07430396 # *Maireana marginata*
 07430515 # *Melaleuca acuminata* subsp. *acuminata*
 07430388 # *Melaleuca adnata*
 07430280 *Melaleuca eleuterostachya*
 07430655 # *Melaleuca lateriflora* subsp. *lateriflora*
 07430442 # *Melaleuca laxiflora*
 07430167 *Melaleuca pauperiflora* subsp. *pauperiflora*
 07430582 # *Melaleuca scalena*
 07430469 # *Microcybe multiflora* subsp. *multiflora*
 07430191 *Olearia muelleri*
 07430434 # *Phebalium filifolium*
 07430418 # *Podolepis tepperi*
 07430272 *Ptilotus holosericeus*
 07430175 *Santalum acuminatum*
 07430566 # *Senna* sp. Pallinup River (J.W. Green 4847) PN – This unnamed taxon is currently referred to by the above phrase name in the Western Australian Plant Census. It belongs in the *S. artemisioides* complex.

Site: 181 **No. of Collections:** 19(29)

Locality: E of Hyden.

Woodland type: *Eucalyptus loxophleba* subsp. *lissophloia*, *E. sheathiana* woodland.

Woodland Watch: M. Griffiths, H. Mills & M. Hislop.

07444230 # *Acacia coolgardiensis* subsp. *coolgardiensis*

07444257 # *Acacia hemiteles*

07444265 # *Acacia lanei* – Priority 1 taxon.

07444001 *Acacia* sp. narrow phyllode (B.R. Maslin 7831) PN – refer comment re this taxon at site 176.

07444060 *Austrodanthonia acerosa*

07444028 *Austrostipa elegantissima* – an unusual co-occurrence of 4 species of *Austrostipa* at this site.

07444044 *Austrostipa scabra*

07444052 *Austrostipa trichophylla*

07444036 *Austrostipa variabilis*

07444184 # *Brachyscome pusilla* – refer comment re this species at site 179.

07444168 **Bromus rubens*

07444117 *Calotis hispidula*

07444273 # *Comesperma integerrimum*

07444222 # *Eremophila phillipsii* – apart from a possibly rather dubious early Gardner collection from the Westonia area this is the northernmost record of this species at the W.A. Herbarium.

07443951 *Eucalyptus loxophleba* subsp. *lissophloia*

07443978 *Eucalyptus sheathiana*

07443986 *Eucalyptus sheathiana*

07444095 *Goodenia berardiana*

07444141 **Pentaschistis airoides*

07444125 *Podolepis lessonii*

07444192 # *Podotheca gnaphalioides*

07444109 *Ptilotus spathulatus* forma *spathulatus*

07444087 *Rhodanthe pygmaea*

07443994 *Santalum acuminatum*

07444214 # *Spartochloa scirpoidea*

07444249 # *Stackhousia muricata*

07444206 # *Stylidium dielsianum*

07444176 *Trachymene cyanopetala*

07444133 *Trachymene ornata*

07444079 *Waitzia acuminata* var. *acuminata*

Site: 182

No. of Collections: 12(41)

Locality: E of Pingelly.

Woodland type: *Eucalyptus loxophleba* subsp. *loxophleba* woodland.

WWF & DEC Survey Team: M. Griffiths, H. Mills & M. Hislop.

- 07419643 *Acacia acuminata*
07419805 # *Acacia lasiocalyx*
07419767 # * *Aira cupaniana*
07419635 *Allocasuarina huegeliana*
07419929 # * *Anagallis arvensis* var. *caerulea*
07419856 # *Austrodanthonia caespitosa*
07420005 # *Austrostipa hemipogon*
07419708 *Austrostipa nitida*
07419716 *Austrostipa variabilis*
07419694 * *Avena barbata*
07419880 # *Blennospora drummondii*
07420013 # *Borya sphaerocephala*
07419724 * *Briza maxima*
07419848 # *Caesia micrantha*
07419791 # *Caladenia flava* subsp. *flava*
07419740 *Calandrinia calyptrata*
07419759 # *Calandrinia eremaea*
07420056 # *Chamaescilla corymbosa*
07419732 *Cheilanthes austrotenuifolia*
07419945 # *Dodonaea viscosa* subsp. *angustissima*
07419902 # *Drosera macrantha* subsp. *macrantha*
07419961 # *Elymus scaber*
07419899 # *Erodium cygnorum*
07419627 *Eucalyptus loxophleba* subsp. *loxophleba*
07419864 # *Gonocarpus nodulosus*
07419775 # *Goodenia berardiana*
07419872 # *Lawrencella rosea*
07419996 # *Lepidosperma* sp. *costale* north sandplain (K. Newbey 9385) – a recently recognised and probably unnamed taxon.
07419821 # *Neurachne alopecuroidea*
07419651 *Nicotiana rotundifolia*
07420021 # *Parietaria debilis*
07419783 # *Phyllanthus calycinus*
07419678 *Podolepis canescens*

07419953 # *Podolepis lessonii*
07419910 # *Rhodanthe manglesii*
07420064 # *Sowerbaea laxiflora*
07419988 # *Stackhousia monogyna*
07420048 # *Stylidium tenuicarpum* – Priority 4 taxon.
07419813 # *Stypandra glauca*
07419686 *Thysanotus patersonii*
07419937 # *Trachymene ornata*

Site: 183 **No. of Collections:** 12(34)

Locality: E of Pingelly.

Woodland type: *Eucalyptus salmonophloia*, *E. wandoo* woodland.

WWF & DEC Survey Team: M. Griffiths, H. Mills & M. Hislop.

07428901 # *Acacia acuminata*
07428758 *Acacia bidentata*
07428774 # *Acacia erinacea* – this collection is of the distinctive prostrate variant of the species.
07428790 # *Acacia microbotrya*
07428839 # *Arthropodium curvipes*
07428707 *Austrodanthonia acerosa*
07428723 *Austrostipa scabra*
07428936 # *Austrostipa trichophylla*
07428812 # *Brachyscome pusilla* – refer comment on this species at site 179.
07429002 # *Caesia micrantha*
07428987 # *Caladenia roei*
07428685 *Calandrinia calyptrata*
07428960 # *Cyanicula gemmata*
07428782 # *Dampiera lavandulacea*
07428898 # *Desmocladius asper*
07428995 # **Ehrharta longiflora*
07428626 *Eucalyptus salmonophloia*
07428766 # *Eucalyptus wandoo* subsp. *wandoo*
07428731 *Gahnia* sp. dull bases (K.R. Newbey 5111) PN – an unnamed taxon currently referred to at the W.A. Herbarium by the above phrase name. Its closest relative is probably *G. lanigera*
07428618 *Gastrolobium parviflorum*
07428928 # *Grevillea huegelii*
07428804 # *Lagenophora huegelii*
07428855 # *Lepidobolus preissianus* subsp. *preissianus*
07428588 *Lomandra effusa*
07428596 *Neurachne alopecuroidea*

07428715 *Podolepis capillaris*
 07428820 # *Podolepis lessonii*
 07428979 *Ptilotus manglesii*
 07428693 *Scaevola humifusa*
 07428847 # *Sowerbaea laxiflora*
 07429010 # *Stackhousia monogyna*
 07428871 # *Stenanthemum tridentatum* – recently removed from the Priority list.
 07428863 # *Stypandra glauca*
 07428677 # *Trachymene cyanopetala*

Site: 184 **No. of Collections:** 8(16)

Locality: W of Narembreen.

Woodland type: *Eucalyptus longicornis*, *E. melanoxydon* woodland.

WWF & DEC Survey Team: M. Griffiths, H. Mills & M. Hislop.

07429312 *Atriplex acutibractea* subsp. *karoniensis*
 07429320 *Atriplex* sp. (Section *Dialysex*) – specimen is inadequate to allow identification to species level.
 07429444 *Austrodanthonia caespitosa*
 07429428 # *Austrostipa acrociliata*
 07429436 # *Austrostipa drummondii*
 07429452 *Austrostipa scabra*
 07429460 *Enchylaena lanata*
 07429371 # *Eremophila decipiens* subsp. *linearifolia* ms – a poorly collected taxon with apparently 3 oddly disjunct population centres.
 07429339 *Eucalyptus longicornis*
 07429541 # *Eucalyptus melanoxydon*
 07429304 *Maireana marginata*
 07429401 # *Melaleuca lanceolata* – refer comment on this species at site 170.
 07429533 # *Parietaria debilis*
 07429525 # * *Rostraria pumila*
 07429398 # *Sclerolaena diacantha*
 07429290 *Zygophyllum glaucum* – represents the most westerly collection of this taxon at the W.A. Herbarium.

Site: 185 **No. of Collections:** 14(29)

Locality: NE of Bruce Rock.

Woodland type: *Eucalyptus loxophleba* subsp. *lissophloia*, *E. sheathiana* mallee woodland.

WWF & DEC Survey Team: M. Griffiths, H. Mills & M. Hislop.

07429045 *Acacia colletioides*

07429207 # *Acacia erinacea*
 07429126 # *Acacia hemiteles*
 07429193 *Acacia mackeyana*
 07429282 # *Acacia merrallii*
 07429363 # *Amphipogon caricinus* var. *caricinus*
 07429347 # *Austrodanthonia caespitosa*
 07429029 *Austrodanthonia setacea*
 07429037 *Austrostipa elegantissima*
 07429215 # *Austrostipa scabra*
 07429223 # *Austrostipa trichophylla*
 07429150 # *Crassula colorata* var. *acuminata*
 07429266 # *Enchylaena lanata*
 07429053 *Eremophila drummondii*
 07429142 # *Erodium cygnorum*
 07428952 *Eucalyptus loxophleba* subsp. *lissophloia*
 07428944 *Eucalyptus sheathiana*
 07429258 # *Exocarpos aphyllus*
 07429169 *Goodenia berardiana*
 07429274 # *Melaleuca acuminata* subsp. *acuminata*
 07429088 *Melaleuca eleuterostachya*
 07429118 *Melaleuca lateriflora* subsp. *lateriflora*
 07429061 *Melaleuca laxiflora*
 07429231 # *Olearia muelleri*
 07429096 *Phebalium tuberosum*
 07429134 # *Podolepis tepperi*
 07429177 *Rhodanthe pygmaea*
 07429185 *Trachymene cyanopetala*
 07429355 # *Waitzia acuminata* var. *acuminata*

Site: 186 **No. of Collections:** 8(26)

Locality: S of Burracoppin.

Woodland type: *Eucalyptus loxophleba* subsp. *lissophloia*, *E. salmonophloia* woodland.

WWF & DEC Survey Team: M. Griffiths, H. Mills & M. Hislop.

07396651 # *Acacia colletioides*
 07396643 # *Acacia dissona* var. *dissona*
 07396538 *Acacia erinacea*
 07396546 *Acacia hemiteles*
 07396635 # * *Aira cupaniana*
 07396694 # *Austrodanthonia setacea*

07396597 # *Austrostipa trichophylla*
07396708 # *Calotis hispidula*
07396724 # *Daucus glochidiatus*
07396554 # *Dodonaea viscosa*
07396481 *Eremophila drummondii*
07396627 # *Eucalyptus calycogona* subsp. *calycogona*
07396732 # *Eucalyptus flocktoniae* subsp. *flocktoniae*
07396449 *Eucalyptus loxophleba* subsp. *lissophloia*
07396457 *Eucalyptus salmonophloia*
07396600 # *Eucalyptus sheathiana*
07396619 # *Lomandra effusa*
07396570 # *Maireana georgei*
07396473 *Melaleuca acuminata* subsp. *acuminata*
07396678 # *Melaleuca ctenoides*
07396562 # *Melaleuca hamata*
07396589 # *Melaleuca spicigera*
07396503 *Olearia muelleri*
07396686 # *Rhagodia preissii* subsp. *preissii*
07396511 *Santalum acuminatum*
07396716 # * *Vulpia muralis*