



Department of
Environment and Conservation
Western Australian Herbarium



2008 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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DEC WA Herbarium and WWF-Australia

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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 project's inception the Western Australian Herbarium (Department of Environment and Conservation) has collaborated with WWF providing professional flora survey, vouchering and both physical and online 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 has been 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]

The above projects are due to conclude in September 2009. WWF and partners as of August 2009 are awaiting notification of a Caring for Our Country competitive bid to secure future biodiversity conservation funds for the FY09/10 period and beyond.

One of the major historic and on-going objectives of the initiative has been to carry out floristic surveys of selected priority remnant ecosystems 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 Western 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).

In 2000 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*). In 2005 and 2006 broader priority-setting analyses of additional threatened ecosystems/communities suggested 24 Beards-Hopkins Vegetation Associations in the Avon Region that are a priority for the work of the Healthy Ecosystems project. In the Avon NRM region a combination of these new priority vegetation associations and the older priority eucalypt woodlands was used to select remnants for flora surveys in the 2008 season. In the NAR the existing eucalypt woodland priorities again guided site selection for the 2008 season.

The primary aims of the project continue to be to identify 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 priority ecosystems 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 can 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 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 DEC 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), 9 sites in 2005 (entirely NAR sites), 30 sites in 2006 (10 NAR sites, the rest in ARB), 30 sites in 2007 (10 NAR sites, the rest in ARB; and 998 voucher specimens collected).

In 2008 a total of 22 sites were surveyed resulting in an additional 768 collections. This brings the total of vouchered specimens delivered to the WA Herbarium for curation to 8,789 collections in its facility in Kensington, Perth, Western Australia. And the number of discrete survey sites to 238



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

Methodology

Sites were surveyed and plants vouchered by Mike Hislop of the Western Australian Herbarium, with the assistance of Jenny Borger, Chris Curnow, Mike Griffiths, Phil Lewis and Helena Mills of WWF-Australia.

The surveys were conducted in September and early October 2008, and the methodology for each site comprised three parts:

Ten by Ten metre Quadrats

10 x 10 metre quadrats were located so as to provide a typical representation of species composition within the selected vegetation type. As far as possible all species found within the quadrat were collected.

A notable exception to this practice, were sterile grasses, which were sometimes encountered, especially in the first week of the surveys. The presence of these was noted by the WWF officers in their site reports, but they were not collected because it is usually not possible to reliably identify them in the sterile condition.

Each quadrat was permanently marked by a steel stake in the north-western corner, from where the coordinates were recorded using a GPS.

Random Stratified Collection

This involved opportunistic collection within the confines of the targeted vegetation type to allow a more comprehensive overview of its floristics, while maintaining the integrity of the formal survey.

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 2008 a total of 22 sites were surveyed resulting in 768 collections. Of the Eucalypt woodland sites three were dominated by *Eucalyptus salubris*, two by *E. salmonophloia*, four by *E. loxophleba*, five by *E. accedens* (with or without *E. marginata*) and one each by *E. wandoo* and *E. phaenophylla*.

Other woodland sites surveyed had *Allocasuarina huegeliana* (3) or *Banksia prionotes* (2) as the major component of the upper canopy. One heathland site was also surveyed, where the dominant shrubs were species of *Grevillea* and *Melaleuca*. As is usually the case the sites varied from more or less pristine to significantly degraded, the latter mostly as a result of a long history of grazing.

As always there was a good deal of variation across the Eucalypt woodland sites in terms of the numbers of species recorded for each quadrat. The reasons for this are likely to be complex and determined by many factors including distribution of species on a regional scale, position in the landscape, soil characteristics and underlying geology, site history and level of weed incursion as well as the major influence of recent rainfall history.

The richest woodland sites surveyed during the history of the Woodland Watch program are usually those found on shallow soils over granite, whether these are dominated by *Eucalyptus loxophleba* or *Allocasuarina huegeliana*. This was again the case in 2008 with the two sites, WW-222 and WW-225 (respectively, S of Doodlakine and S of Goomalling) both yielding 44 voucher specimens. The annual herbs provided a large proportion of this diversity as they frequently do in the more open Eucalypt woodlands. Although these generally also include a higher number of weed species.

At the other end of the scale, the lowest numbers of species paradoxically are either collected from more or less pristine woodlands (where a dense canopy, thick leaf litter and presumably a monopolization of water and nutrient resources leads to a very sparse shrub layer and few or no herbs and grasses) or degraded sites where there has been a long history of grazing. Site WW-234, the smallest of the sites surveyed in 2008 (18 vouchered specimens) falls into the latter category.

Collections of note

Noteworthy collections from the 2008 survey can be summarized under the following categories:

Probable undescribed taxa

***Acacia* sp. narrow phyllode (B.R. Maslin 7831) WW - 217.**

Closely related to *A. acuminata*, but recognisable by its narrower phyllodes, generally smaller habit and more inland distribution. It is widespread across the northern and eastern wheatbelt and into the goldfields.

***Acacia* sp. P174 (J.M. Brown 228) WW - 226/237.**

Probably most closely related to *A. applanata* from which it differs in having essentially un-winged stems and solitary flower heads. It has a scattered distribution from near Toodyay to the Darkan area.

***Astroloma* sp. Tutanning (A.S. George 7779) WW - 232/233/235/237.**

This apparently unnamed taxon is similar to and was for many years confused with *A. pallidum*. However the two have been recorded growing at the same site while maintaining their differences, as was indeed the case at WW 233 & 237. This lends further support to the recognition of *A. sp.* Tutanning as a separate species. It occurs mostly in the eastern Darling Range between Beverley and the Darkan area.

***Baeckea* sp. fine-leaved (C.M. Lewis 517) WW - 231.**

This taxon was until recently included within the very broadly circumscribed species, *B. crispiflora*. Its co-occurrence with the latter at WW 231 again strongly suggests that these two need to be formally recognised as separate species. It is widely distributed from the northern wheatbelt to the south coast.

***Calandrinia* sp. Blackberry (D.M. Porter 171) WW - 218/219/220/222.**

Considered by *Calandrinia* authority F. Obbens to be an unnamed taxon, it has mostly been confused in the past with *C. polyandra*. It is widely distributed across the drier parts of the greater south-west although may comprise more than one taxa (F. Obbens pers. comm.).

***Lepidosperma* sp. A2 Island Flat (G.J. Keighery 7000) WW - 231.**

Refers to a presumably unnamed taxon related to *L. viscidum*, a species which is now considered unlikely to occur in Western Australia (R. Barrett pers. comm.).

***Lepidosperma* sp. K Boorabbin (K.L. Wilson 2579) WW - 231.**

Refers to a presumably unnamed taxon related to *L. pruinatum*.

***Lepidosperma* sp. P1 small head (M.D. Tindale 166A) WW - 226/229.**

It is probable that, as currently conceived, this phrase-name comprises more than one segregate taxa (R. Barrett pers. comm.).

***Leucopogon* sp. Darling Range (F. & J. Hort 1804) WW - 235/236.**

The closest relatives of this un-named taxon are members of Group C as delineated by Hislop & Chapman (*Nuytsia* Vol. 17). Locally common in the eastern Darling Range and adjacent parts of the inner wheatbelt between York & Narrogin.

***Leucopogon* sp. Dudawa (M. Hislop & J. Borger MH 3829) WW - 220**

Another *Leucopogon* from Group C which lacks a formal name. This taxon is currently only known from specimens collected opportunistically from sandstone breakaway country adjacent to WW-220. It has been nominated as a Priority one taxon.

***Microcorys* sp. Mt Gibson (S. Patrick 2098) WW - 218.**

An unnamed taxon previously confused with *M. tenuifolia* but differing in its flatter leaves, shorter pedicels and shorter calyx lobes. Quite widely distributed in the northern wheatbelt and in the Murchison district.

***Stylidium* sp. Dewars Pool (K.F. Kenneally 11400) WW - 226.**

An apparently geographically restricted member of the *S. piliferum* complex. Currently listed as a Priority one taxon.

Rare and Priority taxa

Nine new populations of Rare and Priority taxa were recorded during this survey:

Taxon	Site	Status
• <i>Acacia alata</i> var. <i>platyptera</i>	WW- 235	P4
• <i>Baeckea decipiens</i>	WW- 220 #1	P1
• <i>Glyceria drummondii</i>	WW- 220 #2	DRF
• <i>Grevillea roycei</i>	WW- 227	P3
• <i>Hibbertia montana</i>	WW- 235	P4
• <i>Stylidium tenuicarpum</i>	WW- 232	P4
• <i>Stylidium</i> sp. Dewars Pool (K.F. Kenneally 11400)	WW- 226	P1
• <i>Thysanotus tenuis</i>	WW- 222, 223	P3

The symbol # after the site number indicates that the species was collected in an adjacent vegetation type and so was vouchered separately. The voucher collections for these species are as follows: #1 M. Hislop & J. Borger MH 3828; #2 J. Borger & M. Hislop DS 1009-4

Collections of Geographical Significance

Taxon	Site	Notes
• <i>Conostylis pusilla</i>	WW- 229	Species at the north-eastern extremity of its range at this locality.
• <i>Daviesia decipiens</i>	WW- 236	A northerly range extension for this species
• <i>Goodenia pusilliflora</i>	WW- 225	At the south-western extremity of the species' range.
• <i>Hyalosperma zacchaeus</i>	WW- 218	Species at the western edge of its range.
• <i>Jacksonia foliosa</i>	WW- 229	At the southern extremity of its range.
• <i>Leptomeria ellytes</i>	WW- 236	A northerly range extension.
• <i>Logania micrantha</i>	WW- 233/237	This species has a disjunct distribution with outliers in the northern Darling Range well to the north of its main area of occurrence. These collections are representative of the northern populations.
• <i>Lomandra drummondii</i>	WW- 237	Northerly range extension.
• <i>Lomandra mucronata</i>	WW- 235/236	These collections are from the disjunct north-western populations of the species.
• <i>Lomandra nutans</i>	WW- 236	Another species with disjunct populations in the northern Darling Range.
• <i>Macrozamia fraseri</i>	WW- 233	A south-easterly range extension.
• <i>Maireana marginata</i>	WW- 220	At the northern extremity of its range.
• <i>Pimelea graniticola</i>	adjacent WW- 236	A significant westerly range extension.
• <i>Podolepis tepperi</i>	WW- 217	The northernmost record of the species in Western Australia.
• <i>Schoenus calcatus</i>	WW- 231	The southernmost record of the species in Western Australia.
• <i>Sclerolaena parviflora</i>	WW- 230	A southerly range extension for the species.

Other Collections of Interest

Taxon	Site	Notes
• <i>Astroloma</i> spp.	WW- 233	The sympatric* occurrence of four species of <i>Astroloma</i> (<i>A. ciliatum</i> , <i>A. compactum</i> , <i>A. pallidum</i> and <i>A. sp.</i> Tutanning (A.S. George 7779)) at this site is noteworthy.
• <i>Billardiera fusiformis</i>	WW- 228/238	These collections represent a northern narrow-leaved variant of this widespread species.
• <i>Brachyscome ciliaris</i>	WW- 230	As currently recognised <i>B. ciliaris</i> is a particularly variable species with a trans-continental distribution across southern Australia. This specimen is of relatively distinct perennial variant which occurs in southern parts of Western Australia.
• <i>Laxmannia squarrosa</i>	WW- 234/235	These collections represent a distinctive form of the species with very short peduncles. It has previously been known as <i>L. sessilis</i> , although that name is not currently in use.
• <i>Lepidosperma</i> spp.	WW- 227/ 230/231 WW- 232/ 235(2)	<i>Lepidosperma</i> 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 many new taxa for Western Australia. It is probable that the six unassigned specimens collected from these sites belong to currently unnamed taxa (R. Barrett pers. comm.).
• <i>Ptilotus</i> spp.	WW- 218	The sympatric occurrence of five species of <i>Ptilotus</i> (<i>P. eriotrichus</i> , <i>P. exaltatus</i> , <i>P. gaudichaudii</i> var. <i>parviflorus</i> , <i>P. holosericeus</i> and <i>P. obovatus</i>) is exceptional for a wheatbelt site.
• <i>Stylidium</i> aff. <i>petiolare</i>	Adjacent WW- 220	A collection of an unnamed and apparently restricted taxon related to <i>S. petiolare</i> . Its formal description will be included in a forthcoming revision of the tiny ephemeral members of the genus (J. Wege pers. comm.).
• <i>Synaphea spinulosa</i> subsp. <i>spinulosa</i>	WW- 227/228	A distinctive, narrow leaved variant under consideration for taxonomic recognition (R. Butcher pers. comm.).
• <i>Trachymene pilosa</i> variant	WW- 229	This is the uncommon 'heteromorphic**' variant with short bristles' referred to by B.L. Rye in <i>Nuytsia</i> 13(1): 55).
• <i>Velleia trinervis</i>	WW- 234	This collection is of a very low growing, more or less scapeless variant of the species which is known to occur in the Darling Range along with the typical taller form. The significance, if any, of this variation merits taxonomic investigation.

* sympatric: occurring in the same or overlapping geographical areas

** heteromorphic: with two or more distinct forms

Cumulative Findings

A number of significant collections were made during the 2008 surveys which continue to add to the scientific value of this important conservation project.

At least twelve of the species collected are thought to be currently undescribed, including one, now referred to by the phrase-name *Leucopogon* sp. Dudawa (M. Hislop & J. Borger MH 3829), which is completely new to science.

Nine new populations of Declared Rare or Priority taxa were found in 2008, making a total of 88 over the course of the project to date.

More generally, a very significant, cumulative outcome of the project has been to facilitate a major improvement in our knowledge of the floristics of four of the most important woodland types across the Western Australian wheatbelt.



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

Acknowledgements

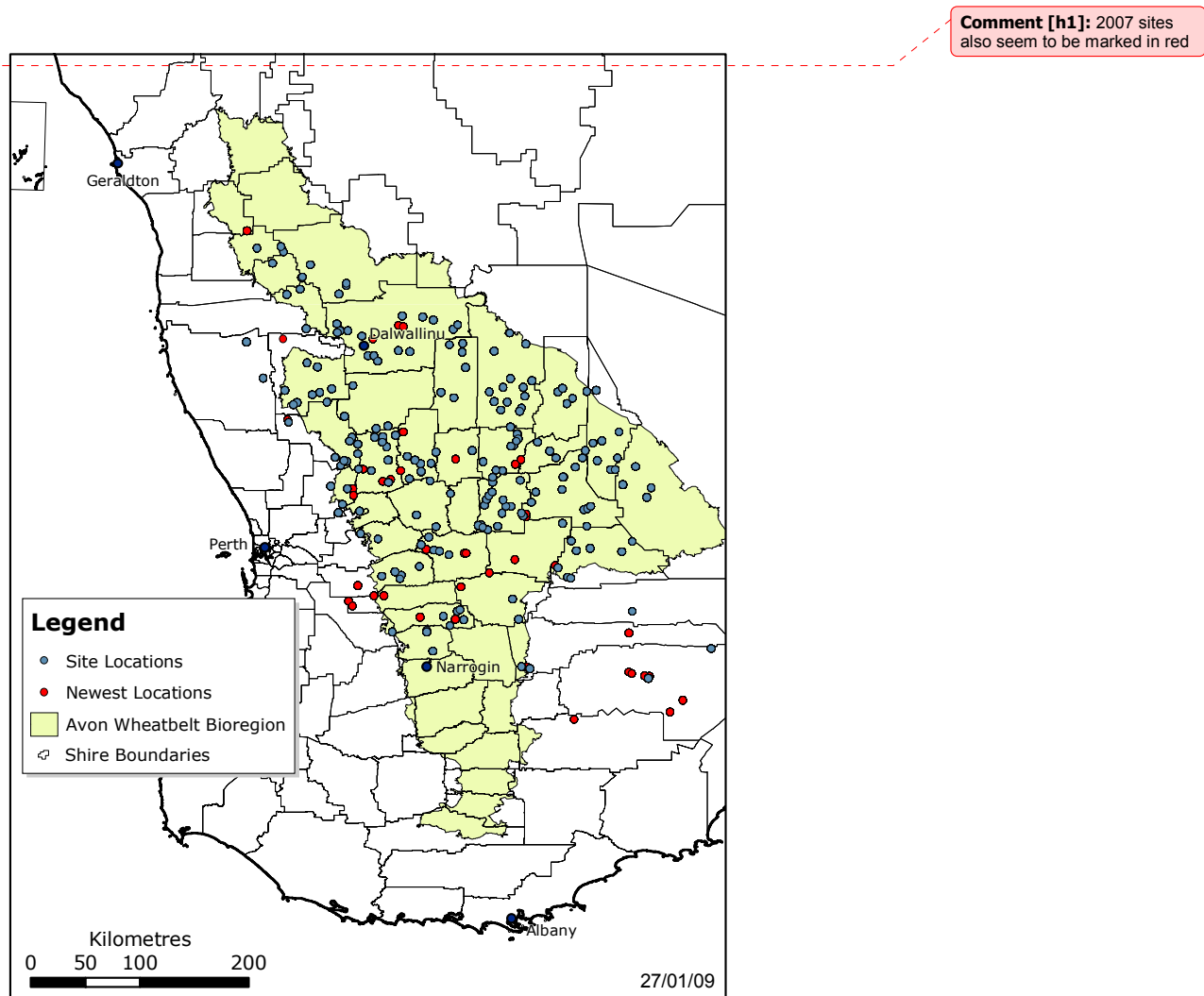
This document draws on information collected and provided by Mike Hislop, and was compiled and edited by Alex Chaoman. Document design follows that devised by Alex Chapman for earlier reports in this series. The map was prepared by Paul Gioia and the accompanying web site by Ben Richardson (see **References**). 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- 217 No. of Collections: 31 (41)

Locality: NE of Dalwallinu.

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

WWF & DEC Survey Team: J.Borger & M. Hislop.

07911327 *Acacia acuaria*

07911114 *Acacia erinacea*

07911041 *Acacia mackeyana*

07911157 *Acacia* sp. narrow phyllode (B.R. Maslin 7831) PN – this is an informal name currently in use at the W.A. Herbarium to refer to a presumably unnamed taxon which is closely related to *A. acuminata*.

07911076 *Alyxia buxifolia*

07911165 *Arthropodium dyeri*

07911335 #*Brachyscome perpusilla*

07911211 *Calotis hispidula*

07911181 *Crassula colorata* – a mixed collection of var. *colorata* and var. *acuminata*.

07911092 *Eremophila clarkei*

07911416 #*Eremophila decipiens* subsp. *decipiens*

07911033 *Eremophila oppositifolia* subsp. *angustifolia*

07911270 *Erodium cygnorum*

07911009 *Eucalyptus loxophleba* subsp. *supralaevis*

07910991 *Eucalyptus salubris*

07911017 *Eucalyptus subangusta* subsp. *subangusta*
 07911424 #*Eucalyptus wubinensis*
 07911300 *Goodenia berardiana*
 07911238 *Goodenia pusilliflora*
 07911254 *Hyalosperma glutinosum* subsp. *glutinosum*
 07911246 *Hydrocotyle pilifera* var. *glabrata*
 07911394 #*Maireana carnosae*
 07911084 *Maireana georgei*
 07911149 *Maireana marginata*
 07911378 #*Maireana trichoptera*
 07911068 *Olearia muelleri*
 07911408 #*Parietaria cardiostegia*
 07911122 *Podolepis lessonii*
 07911173 *Podolepis tepperi* – this collection represents the northernmost record of the species for W.A.
 07911203 *Rhodanthe laevis*
 07911289 *Rhodanthe pygmaea*
 07911440 #*Scaevola spinescens*
 07911025 *Sclerolaena diacantha*
 07911432 #*Stellaria filiformis*
 07911130 *Thysanotus manglesianus*
 07911262 *Trachymene ornata*
 07911106 *Trymalium daphnifolium*
 07911297 *Velleia cycnopotamica*
 07911319 *Waitzia acuminata* var. *acuminata*
 07911386 #*Zygophyllum apiculatum*
 07911351 #*Zygophyllum ovatum*

Site: WW- 218 No. of Collections: 18 (33)

Locality: NE of Dalwallinu.

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

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

07915373 *Acacia anthochaera*

07915624 #*Acacia tetragonophylla*

07915462 *Calandrinia eremaea*

07915470 *Calandrinia* sp. Blackberry (D.M. Porter 171) PN – this is an informal name currently in use at the W.A. Herbarium to refer to a presumably unnamed taxon related to *C. polyandra*.

07915578 #*Calotis multicaulis*

07915667 #*Cephalopterum drummondii*

07915381 *Enchylaena lanata*

07915608 #*Eremophila decipiens* subsp. *decipiens*

07915632 #*Eremophila oppositifolia* subsp. *angustifolia*

07915519 *Erodium cygnorum*

07915322 *Eucalyptus loxophleba* subsp. *supralaevis*

07915586 #*Exocarpos aphyllus*

07915535 #*Hyalosperma zacchaeus* – species at the western edge of its range at this locality.

07915446 *Maireana carnosa*

07915616 #*Maireana georgei*

07915594 #*Maireana trichoptera*

07915659 #*Microcorys* sp. Mt Gibson (S. Patrick 2098) PN – this is an informal name currently in use at the W.A. Herbarium to refer to a presumably unnamed taxon related to *M. tenuifolia*.

07915330 *Olearia muelleri*

07915438 *Olearia pimeleoides*

07915527 *Ptilotus eriotrichus* – this species is apparently sparsely distributed in the Northern wheatbelt.

07915411 *Ptilotus exaltatus* – an unusual co-occurrence of 5 *Ptilotus* spp at this site is noteworthy for this area.

07915675 #*Ptilotus gaudichaudii* var. *parviflorus*

07915500 *Ptilotus holosericeus*

07915403 *Ptilotus obovatus*

07915454 *Rhagodia drummondii*
07915497 *Rhodanthe polycephala*
07915365 *Santalum acuminatum*
07915640 #*Santalum spicatum*
07915357 *Sclerolaena diacantha*
07915683 #*Senecio glossanthus*
07915349 *Senna artemisioides* subsp. *filifolia*
07915543 #*Stellaria filiformis*
07915489 *Trachymene ornata*
07915551 #*Wahlenbergia gracilentia*

Site: WW- 219 No. of Collections: 15 (21)

Locality: NE of Dalwallinu.

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

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

07911491 *Acacia erinacea*

07911602 *Arthropodium dyeri*

07911572 *Brachyscome perpusilla*

07911599 *Calandrinia* sp. Blackberry (D.M. Porter 171) PN – this is an informal name currently in use at the W.A. Herbarium to refer to a presumably unnamed taxon related to *C. polyandra*.

07911645 #*Calotis hispidula*

07911483 *Eremophila oppositifolia* subsp. *angustifolia*

07911467 *Eucalyptus celastroides* subsp. *virella*

07911459 *Eucalyptus salubris*

07911475 *Eucalyptus wubinensis*

07911610 #*Goodenia berardiana*

07911580 *Hyalosperma glutinosum* subsp. *glutinosum*

07911564 *Isoetopsis graminifolia*

07911548 *Maireana carnosa*

07911521 *Maireana marginata*

07911653 #*Melaleuca acuminata* subsp. *websteri*

07911629 #*Podolepis lessonii*

07911505 *Ptilotus exaltatus*

07911513 *Ptilotus holosericeus*

07911556 *Sclerolaena diacantha*

07911661 #*Sclerolaena drummondii*

07911637 #*Trachymene cyanopetala*

Site: WW- 220 No. of Collections: 35 (48)

Locality: NE of Arrino.

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

WWF & DEC Survey Team: J.Borger, P. Lewis & M. Hislop.

07912536 *Acacia nyssophylla*

07912587 *Acacia tetragonophylla*

07912730 *Actinobole uliginosum*

07912501 *Austrostipa elegantissima*

07912900 #*Brachyscome perpusilla*

07912781 *Bulbine semibarbata*

07912722 *Calandrinia calyptrata*

07912846 *Calandrinia granulifera*

07912773 *Calandrinia* sp. Blackberry (D.M. Porter 171) PN – this is an informal name currently in use at the W.A. Herbarium to refer to a presumably unnamed taxon related to *C. polyandra*.

07912870 *Calotis hispidula*

07912641 *Calotis multicaulis*

07912951 #*Cephalopterum drummondii*

07912544 *Chenopodium gaudichaudianum*

07912757 **Cleretum papulosum* subsp. *papulosum*

07912625 *Comesperma integerrimum*

07912994 #*Conostylis prolifera*

07912854 *Crassula colorata* var. *acuminata*

07912919 #*Daucus glochidiatus*

07913001 #**Emex australis*

07912560 *Enchylaena lanata*

07912862 **Erodium aureum*

07912668 *Erodium cygnorum*

07912471 *Eucalyptus loxophleba* subsp. *loxophleba*

07912978 #*Goodenia berardiana*

07912765 *Goodenia pusilliflora*

07912528 *Hakea preissii*

07912617 **Hedypnois rhagadioloides* subsp. *cretica*

07912811 *Hyalosperma glutinosum* subsp. *glutinosum*

07912749 *Hypoxis glabella* var. *glabella*

07912633 **Lamarckia aurea*

07912838 *Lepidium oxytrichum*

07912676 **Lolium x hybridum*

07912498 *Maireana brevifolia*

07912595 *Maireana marginata* – species at the N edge of its range at this site.

07912714 **Medicago minima*

07912609 **Monoculus monstrosus*

07912579 *Olearia dampieri* subsp. *dampieri* ms

07912897 #*Oxalis exilis*

07912706 *Pimelea microcephala* subsp. *microcephala*

07912692 *Pimelea microcephala* subsp. *microcephala*

07912803 *Plantago debilis*

07913028 #*Ptilotus gaudichaudii* var. *parviflorus*

07912986 #*Ptilotus spathulatus* forma *spathulatus*

07912552 *Rhagodia drummondii*

07912889 #*Rhodanthe spicata*

07912935 #*Scholtzia parviflora*

07912943 #*Senna glutinosa* subsp. *chatelainiana*

07912927 #*Triglochin isingiana* – this is a recently applied name for the taxon previously known as *T. sp.* B Flora of Australia.

07912684 *Waitzia nitida*

The following specimens were collected opportunistically on the same property but in adjacent vegetation types, either in heath associated with an extensive sandstone breakaway (a) or in a restricted area of crabhole country (b).

07969899 *Baeckea decipiens* (a) – Priority one taxon.

07971036 *Glyceria drummondii* (b) – Declared Rare Flora.

07969902 *Leucopogon* sp. Dudawa (M. Hislop & J. Borger MH 3829) (a)

07969910 *Mirbelia longifolia* (a)

07971044 *Myriocephalus pygmaeus* (b)

07970927 *Stylidium* sp. (aff. *petiolare*) (a)

Site: WW- 221 No. of Collections: 32 (33)

Locality: E of Gillingarra.

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

WWF & DEC Survey Team: J.Borger, P. Lewis & M. Hislop.

07944233 *Acacia acuminata*
07944276 *Allocasuarina campestris*
07944268 *Allocasuarina huegeliana*
07944462 *Borya sphaerocephala*
07944470 **Briza maxima*
07944403 *Burchardia congesta*
07944373 *Caesia micrantha*
07944365 *Caladenia denticulata*
07944357 *Caladenia flava* subsp. *flava*
07944314 *Chamaescilla corymbosa*
07944535 *Cheilanthes austrotenuifolia*
07944306 *Dioscorea hastifolia*
07944349 *Drosera macrantha*
07944381 **Ehrharta longiflora*
07944438 *Erodium cygnorum*
07944225 *Eucalyptus loxophleba* subsp. *loxophleba*
07944519 *Gonocarpus nodulosus*
07944586 *Goodenia berardiana*
07944497 *Homalosciadium homalocarpum*
07944500 *Hydrocotyle pilifera* var. *glabrata*
07944489 **Hypochaeris glabra*
07944578 *Hypoxis occidentalis* var. *occidentalis*
07944527 *Lagenophora huegelii*
07944594 *#Lawrencella rosea*
07944322 *Neurachne alopecuroidea*

07944284 *Phyllanthus calycinus*

07944411 *Podolepis lessonii*

07944543 **Romulea rosea*

07944330 *Sowerbaea laxiflora*

07944292 *Stypandra glauca*

07944446 *Thysanotus patersonii*

07944551 *Trachymene ornata*

07944241 *Trymalium odoratissimum* subsp. *odoratissimum* – until very recently this species was known by the name *T. floribundum*

07944454 **Ursinia anthemoides*

Site: WW- 222 No. of Collections: 42 (44)

Locality: S of Doodlakine.

Woodland type: *Allocasuarina huegeliana* low woodland.

WWF & DEC Survey Team: P. Lewis & M. Hislop.

07913885 *Acacia acuminata*

07914091 **Aira cupaniana*

07913877 *Allocasuarina huegeliana*

07914318 **Anagallis arvensis* var. *caerulea*

07914237 *Arthropodium curvipes*

07913893 *Austrostipa elegantissima*

07913974 **Avena barbata*

07914113 *Blennospora drummondii*

07913907 *Borya sphaerocephala*

07914059 **Briza maxima*

07914326 *Caladenia hirta* subsp. *rosea*

07914121 *Calandrinia eremaea*

07914148 *Calandrinia* sp. Blackberry (D.M. Porter 171) PN – this is an informal name currently in use at the W.A. Herbarium to refer to a presumably unnamed taxon related to *C. polyandra*.

07913958 *Cheilanthes adiantoides*

07914334 *Drosera glanduligera*

07913990 *Drosera macrantha*

07914067 **Ehrharta longiflora*

07914261 *Erodium cygnorum*

07914342 #*Gilberta tenuifolia*

07914202 *Gonocarpus nodulosus*

07914008 *Goodenia berardiana*

07914199 *Hydrocotyle pilifera* var. *glabrata*

07914180 **Hypochaeris glabra*

07914288 *Lawrencella rosea*

07913982 *Lepidosperma costale*

07914296 *Millotia myosotidifolia*
07913915 *Neurachne alopecuroidea*
07914016 *Nicotiana rotundifolia*
07914105 **Parentucellia latifolia*
07914164 *Phyllangium sulcatum*
07914024 *Podolepis lessonii*
07914040 *Podotheca gnaphalioides*
07914156 *Poranthera microphylla*
07914032 *Rhodanthe manglesii*
07914350 *#Rhodanthe spicata*
07914172 *Thysanotus patersonii*
07914083 *Thysanotus tenuis* – Priority 3 taxon.
07914075 *Trachymene cyanopetala*
07914253 *Trachymene ornata*
07914229 **Trifolium subterraneum*
07913966 **Ursinia anthemoides*
07914245 *Velleia cycnopotamica*
07914210 *Wahlenbergia gracilentia*
07913931 *Waitzia acuminata* var. *acuminata*
07913923 *Waitzia nitida*

Site: WW- 223 No. of Collections: 13 (35)

Locality: S of Kununoppin.

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

WWF & DEC Survey Team: P. Lewis & M. Hislop.

07911971 #*Acacia acuaria*
07911742 *Acacia erinacea*
07911734 *Acacia hemiteles*
07911807 *Arthropodium dyeri*
07911793 *Austrostipa scabra*
07912102 #*Austrostipa trichophylla*
07912021 #*Borya constricta*
07911858 #*Brachyscome pusilla*
07911866 #*Caladenia roei*
07911718 *Daviesia nematophylla*
07912048 #*Desmocladius asper*
07911726 *Enchylaena lanata*
07912072 #*Eremophila oppositifolia* subsp. *angustifolia*
07911696 *Eucalyptus capillosa* subsp. *capillosa*
07911688 *Eucalyptus salmonophloia*
07912110 #*Eucalyptus sheathiana*
07912129 #*Eucalyptus yilgarnensis*
07912099 #*Exocarpos aphyllus*
07912137 #*Grevillea huegelii*
07911998 #*Lomandra collina*
07912056 #*Lomandra effusa*
07912005 #*Maireana carnosae*
07911955 #*Maireana georgei*
07912013 #*Maireana marginata*
07912080 #*Maireana trichoptera*

07911785 *Melaleuca atroviridis*
07911963 #*Melaleuca pauperiflora* subsp. *fastigiata*
07912064 #*Olearia muelleri*
07911831 #*Ophioglossum lusitanicum*
07911777 *Podolepis capillaris*
07911769 *Rhagodia drummondii*
07911750 *Santalum acuminatum*
07911823 #*Schoenia cassiniana*
07911874 #*Thysanotus tenuis* – Priority 3 taxon.
07911815 *Trachymene cyanopetala*

Site: WW- 224 No. of Collections: 25 (30)

Locality: SE of Wyalkatchem.

Woodland type: *Eucalyptus salubris* woodland.

WWF & DEC Survey Team: P. Lewis & M. Hislop.

07912153 *Acacia colletioides*
07912293 *Actinobole uliginosum*
07912188 *Austrostipa nitida*
07912196 **Brassica tournefortii*
07912218 **Bromus rubens*
07912250 *Calandrinia eremaea*
07912374 *Calotis hispidula*
07912358 *Chthonocephalus pseudevax*
07912331 **Cleretum papulosum* subsp. *papulosum*
07912285 *Crassula colorata* var. *acuminata*
07912455 #*Eremophila drummondii*
07912404 **Erodium moschatum*
07912420 #*Erymophyllum tenellum*
07912145 *Eucalyptus salubris*
07912269 *Euphorbia drummondii*
07912161 *Exocarpos aphyllus*
07912307 *Hyalosperma glutinosum* subsp. *glutinosum*
07912323 *Hyalosperma zacchaeus*
07912242 **Hypochaeris glabra*
07912447 #*Isoetopsis graminifolia*
07912463 #*Maireana carnosae*
07912226 *Maireana marginata*
07912315 **Pentaschistis airoides*
07912390 *Podolepis canescens*
07912439 #*Podolepis tepperi*

07912382 *Ptilotus spathulatus* forma *spathulatus*
07912277 *Rhodanthe chlorocephala* subsp. *rosea*
07912366 *Rhodanthe pygmaea*
07912412 **Trifolium subterraneum*
07912234 **Vulpia myuros* forma *myuros*

Site: WW- 225 No. of Collections: 40 (44)

Locality: S of Goomalling.

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

WWF & DEC Survey Team: P. Lewis & M. Hislop.

- 07943741 *Acacia acuminata*
- 07944128 *Arthropodium curvipes*
- 07943954 *Arthropodium dyeri*
- 07943911 *Austrostipa nitida*
- 07943792 *Austrostipa scabra*
- 07944012 *Blennospora drummondii*
- 07943873 *Borya sphaerocephala*
- 07944004 *Calandrinia calyptrata*
- 07944039 *Calandrinia eremaea*
- 07944047 *Calandrinia granulifera*
- 07944101 *Calotis hispidula*
- 07944209 *Ceratogyne obionoides*
- 07943903 *Cheilanthes austrotenuifolia*
- 07944144 *Crassula colorata* – a mixed collection of var. *colorata* and var. *acuminata*.
- 07944152 *Crassula decumbens* var. *decumbens*
- 07943997 #*Dampiera lavandulacea*
- 07943776 *Enchylaena lanata*
- 07944063 *Erodium cygnorum*
- 07943733 *Eucalyptus loxophleba* subsp. *loxophleba*
- 07943865 *Goodenia berardiana*
- 07944187 #*Goodenia pusilliflora* – specimen represents a south-westerly range extension for the species.
- 07943989 #*Hakea preissii*
- 07943830 **Hordeum leporinum*
- 07943857 *Hyalosperma glutinosum* subsp. *glutinosum*
- 07944136 *Hydrocotyle pilifera* subsp. *glabrata*

07943946 *Lomandra effusa*

07943822 *Maireana marginata*

07943938 *Neurachne alopecuroidea*

07944055 *Oxalis exilis*

07943962 *Plantago debilis*.

07943806 *Podolepis capillaris*

07943881 *Ptilotus declinatus*

07943768 *Ptilotus divaricatus* var. *divaricatus*

07943849 *Ptilotus drummondii*

07943814 *Ptilotus spathulatus* forma *spathulatus*

07944179 *Quinetia urvillei*

07944020 *Rhodanthe manglesii*

07943970 #*Sowerbaea laxiflora*

07944071 *Thysanotus patersonii*

07944195 *Trachymene cyanopetala*

07944160 **Trifolium subterraneum*

07944217 *Triglochin isingiana* – this is a recently applied name for the taxon previously known as *T. sp. B*
Flora of Australia.

07944098 *Velleia cynopotamica*

07943784 *Waitzia nitida*

Site: WW- 226 No. of Collections: 26 (33)

Locality: E of Toodyay.

Woodland type: *Eucalyptus wandoo* subsp. *wandoo*, *E. drummondii* woodland.

WWF & DEC Survey Team: P. Lewis & M. Hislop.

07913605 *Acacia celastrifolia*

07913710 *Acacia* sp. P174 (J.M. Brown 228) PN – this is an informal name currently in use at the W.A. Herbarium to refer to a presumably unnamed taxon related to *A. applanata*

07913818 #*Acacia sphacelata* subsp. *sphacelata*

07913761 *Actinobole uliginosum*

07913699 *Amphipogon turbinatus*

07911890 **Briza maxima*

07913656 *Caladenia flava* subsp. *flava*

07913664 *Conostylis setigera* subsp. *setigera*

07911920 *Crassula colorata* var. *acuminata*

07911939 *Crassula extrorsa*

07913869 #*Daviesia longifolia*

07913591 *Drosera macrantha*

07913575 *Eucalyptus drummondii*

07913567 *Eucalyptus wandoo* subsp. *wandoo*

07913648 *Gastrolobium spinosum*

07913613 *Hibbertia hibbertioides* var. *hibbertioides*

07913826 #*Hovea chorizemifolia*

07913842 #*Isotropis cuneifolia* subsp. *cuneifolia*

07913834 #*Lagenophora huegelii*

07913672 *Lepidobolus preissianus*

07913702 *Lepidosperma* sp. P1 small head (M.D. Tindale 166A) PN – it is probable that this phrase name currently includes more than one segregate taxa (Russell Barrett pers. comm.).

07913796 #*Melaleuca pungens*

07913753 *Millotia tenuifolia* var. *tenuifolia*

07913621 *Neurachne alopecuroidea*

07913583 *Opercularia vaginata*

07913850 *#Phyllanthus calycinus*

07913788 *Quinetia urvillei*

07911882 *Rhodanthe pygmaea*

07913680 *Schoenus armeria*

07913745 *Schoenus clandestinus*

07913729 *Stylidium* sp. Dewars Pool (K.F. Kenneally 11400) PN – Priority 1 taxon. This is an informal name currently in use at the W.A. Herbarium to refer to a presumably unnamed taxon from the *S. piliferum* complex.

07913737 *Trachymene cyanopetala*

07911912 **Ursinia anthemoides*

07911904 **Vulpia myuros* forma *myuros*

Site: WW- 227 No. of Collections: 19 (44)

Locality: E of Toodyay.

Woodland type: *Banksia prionotes*, *Xylomelum angustifolium* low woodland.

WWF & DEC Survey Team: P. Lewis, C. Curnow & M. Hislop.

07913443 #*Acacia brumalis*

07913451 #*Acacia restiacea*

07913141 #*Actinostrobos arenarius* – an unusual co-occurrence of these two species of *Actinostrobos* at this site.

07913133 #*Actinostrobos pyramidalis*

07913559 #*Allocasuarina humilis*

07913117 #*Allocasuarina thuyoides*

07913354 *Amphipogon turbinatus*

07913257 *Baeckea floribunda*

07913036 *Banksia prionotes*

07913168 #*Beaufortia elegans*

07913524 #*Boronia coerulescens*

07913400 #*Calytrix leschenaultii*

07913397 #*Calytrix violacea* – the two collections of *C. violacea* from this site represent quite different variants of the species. Their co-occurrence here, while maintaining their distinct morphologies, indicates that it may well be necessary to recognise a second taxon.

07913419 #*Calytrix violacea*

07913508 #*Cassutha aurea* var. *hirta*

07913516 #*Comesperma scoparium*

07913389 *Conostylis setigera* subsp. *setigera*

07913311 *Cryptandra nutans*

07913540 #*Dampiera lavandulacea*

07913435 #*Dampiera spicigera*

07913265 *Daviesia nudiflora* subsp. *drummondii*

07913281 *Desmoclados myriocladus*

07913273 *Desmoclados myriocladus*

07913095 #*Eremaea pauciflora* var. *pauciflora*

07913478 #*Grevillea hookeriana* subsp. *hookeriana*

07913222 *Grevillea roycei* – Priority 3 taxon.

07913109 #*Hakea incrassata*

07913087 #*Hakea obliqua* subsp. *parviflora*

07913052 *Jacksonia fasciculata*

07913532 #*Laxmannia squarrosa*

07913338 *Lepidobolus preissianus*

07913125 #*Lepidosperma* sp. – *Lepidosperma* specialist, Russell Barrett believes that this belongs to a new species of which he has recently become aware. As with many new species of *Lepidosperma* there is as yet no formal way of referring to it.

07913230 *Leptospermum erubescens*

07913079 *Leptospermum spinescens*

07913060 *Melaleuca leptospermoides*

07913346 *Mesomelaena preissii*

07913486 #*Muehlenbeckia adpressa*

07913362 *Neurachne alopecuroidea*

07913303 *Petrophile brevifolia*

07913427 #*Petrophile ericifolia* subsp. *subpubescens*

07913370 *Schoenus clandestinus*

07913249 *Synaphea spinulosa* – A distinct narrow leaved variant that is under consideration for taxonomic recognition (R. Butcher pers. com.).

07913494 #*Thysanotus patersonii*

07913044 *Xylomelum angustifolium*

Site: WW- 228 No. of Collections: 27 (41)

Locality: E of Quairading.

Woodland type: *Banksia prionotes*, *Xylomelum angustifolium* low woodland.

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

- 07945744 *Acacia acuminata*
- 07945922 *Actinobole uliginosum*
- 07946147 #*Actinostrobus arenarius*
- 07945884 **Aira cupaniana*
- 07945698 *Allocasuarina huegeliana*
- 07945876 *Austrodanthonia acerosa*
- 07945795 *Austrostipa elegantissima*
- 07945809 *Austrostipa scabra*
- 07945671 *Banksia prionotes*
- 07945787 *Billardiera fusiformis* – narrow-leaved variant of the species.
- 07945973 *Blennospora drummondii*
- 07946007 *Calandrinia calyptrata*
- 07945841 *Ceratogyne obionoides*
- 07946155 *Clematis delicata*
- 07945825 *Comesperma integerrimum*
- 07945957 *Crassula colorata* var. *colorata*
- 07945949 *Crassula exserta*
- 07945752 *Dianella revoluta*
- 07945760 *Dianella revoluta*
- 07946023 #*Dodonaea pinifolia*
- 07946074 #*Eremaea pauciflora* var. *pauciflora*
- 07946112 #*Glischrocaryon aureum* var. *aureum*
- 07946066 #*Grevillea hookeriana* subsp. *hookeriana*
- 07946058 #*Grevillea integrifolia*
- 07945779 *Hakea incrassata*

07945906 *Hyalosperma demissum*
07946104 #*Laxmannia paleacea*
07946139 #*Lepidobolus preissianus*
07945736 *Leptospermum erubescens*
07945868 *Millotia perpusilla*
07945965 *Millotia tenuifolia* var. *tenuifolia*
07945833 *Neurachne alopecuroidea*
07945701 *Olearia dampieri* ms
07946090 #*Patersonia drummondii*
07945914 *Podolepis tepperi*
07945930 *Podotrochea angustifolia*
07945817 *Rhagodia drummondii*
07946120 #*Schoenus pleiostemoneus* – atypical variant with ciliate leaf sheath.
07946015 #*Synaphea spinulosa* – A distinct narrow leaved variant that is under consideration for taxonomic recognition (R. Butcher pers. com.).
07945981 #*Thysanotus patersonii*
07946031 #*Verticordia chrysantha*
07946082 #*Verticordia picta*
07945892 **Wahlenbergia preissii*
07945728 *Xylomelum angustifolium*

Site: WW- 229 No. of Collections: 33

Locality: E of Quairading.

Vegetation type: Heath dominated by *Grevillea paniculata*, *G. hookeriana* subsp. *hookeriana* and *Melaleuca carrii*.

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

07947526 *Acacia latipes* subsp. *latipes*

07947607 *Amphipogon strictus*

07947518 *Amphipogon turbinatus*

07947542 *Austrostipa elegantissima*

07947720 *Brachyscome iberidifolia*

07947445 *Calytrix leschenaultii*

07947674 *Ceratogyne obionoides*

07947577 *Conostylis pusilla* – species at the NE edge of its range at this locality.

07947453 *Dampiera lavandulacea*

07947461 *Desmocladius asper*

07947437 *Gastrolobium spinosum*

07947550 *Gompholobium obcordatum*

07947372 *Grevillea hookeriana* subsp. *hookeriana*

07947380 *Grevillea paniculata*

07947593 *Harperia lateriflora*

07947690 *Hyalosperma demissum*

07947410 *Jacksonia foliosa* – species at the S edge of its range at this locality.

07947712 *Lawrencella rosea*

07947666 *Lepidobolus preissianus*

07947658 *Lepidobolus preissianus*

07947402 *Lepidosperma* sp. P1 small head (M.D. Tindale 166A) PN – it is probable that this phrase name currently includes more than one segregate taxa (Russell Barrett pers. comm.).

07947429 *Melaleuca carrii*

07947496 *Mesomelaena preissii*

07947615 *Neurachne alopecuroidea*

07947623 *Podolepis canescens*

07947682 *Ptilotus humilis* subsp. *humilis*

07947739 *Rhodanthe citrina*

07947399 *Santalum acuminatum*

07947534 *Schoenus subflavus*

07947585 *Stylidium dichotomum*

07947704 *Trachymene pilosa* – this is the uncommon ‘heteromorphic variant with short bristles’ (*sensu* Rye in *Nuytsia* 13(1): 55).

07947488 *Verticordia acerosa* var. *preissii*

07947569 **Vulpia myuros* forma *myuros*

07947631 *Waitzia acuminata* var. *acuminata*

Site: WW- 230 No. of Collections: 29 (34)

Locality: SE of Newdegate.

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

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

07947127 *Acacia erinacea*

07947348 #*Acacia hemiteles*

07947186 *Actinobole uliginosum*

07947259 *Austrodanthonia setacea*

07947143 *Austrostipa elegantissima*

07947011 *Austrostipa exilis*

07947178 *Brachyscome ciliaris* – this is the perennial variant of the species which occurs in the southern part of its range.

07947275 *Calandrinia calyptrata*

07947283 *Calandrinia eremaea*

07947267 *Calandrinia granulifera*

07947240 *Calotis hispidula*

07947305 *Crassula colorata* var. *colorata*

07947224 *Daucus glochidiatus*

07947070 *Dodonaea bursariifolia*

07947046 #*Dodonaea viscosa* subsp. *spatulata*

07947356 #*Eremophila decipiens* subsp. *decipiens*

07947038 *Eucalyptus pileata*

07947054 *Eucalyptus salmonophloia*

07947062 *Eucalyptus tenera*

07947097 *Exocarpos aphyllus*

07947364 #*Grevillea huegelii*

07947291 *Lepidium rotundum*

07947216 *Lepidosperma* sp. – *Lepidosperma* specialist, Russell Barrett considers that this represents an unnamed species related to *L. diurnum*. As with many new species of *Lepidosperma* there is as yet no formal way of referring to it.

07947135 *Melaleuca adnata*

07947208 *Millotia tenuifolia* var. *tenuifolia*

07947089 *Olearia muelleri*

07947321 *Podolepis tepperi*

07947313 *Ptilotus holosericeus*

07947100 *Santalum acuminatum*

07947003 *Sclerolaena parviflora* – represents a southerly range extension for the species at this locality.

07947194 *Stenopetalum sphaerocarpum* – a poorly collected species, apparently with a very scattered distribution.

07947119 *Templetonia sulcata*

07947232 *Triglochin isingiana* – this is a recently applied name for the taxon previously known as *T. sp. B* Flora of Australia. The southernmost record of the species at the W.A. Herbarium.

07947151 *Wahlenbergia gracilentia*

Site: WW- 231 No. of Collections: 34 (40)

Locality: N of Pingrup.

Woodland type: *Eucalyptus phaenophylla* subsp. *phaenophylla* mallee woodland.

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

07946910 *#Acacia multispicata*

07946597 *Allocasuarina campestris*

07946562 *Baeckea crispiflora* – a noteworthy co-occurrence at this site of this species and a closely related as yet unnamed taxon *Baeckea* sp. fine-leaved (C.M. Lewis 517).

07946848 *Baeckea* sp. fine-leaved (C.M. Lewis 517) PN

07946643 *Beyeria sulcata* var. *brevipes* – a new name for the taxon previously known as *B. brevifolia* var. *brevipes*.

07946775 *Blennospora drummondii*

07946937 *#Ceratogyne obionoides*

07946864 *Chamaexeros fimbriata*

07946724 *Comesperma scoparium*

07946732 *Comesperma volubile*

07946740 *Crassula colorata* var. *colorata*

07946759 *Crassula exserta*

07946821 *Cryptandra pungens*

07946619 *Dampiera lavandulacea*

07946694 *Dodonaea caespitosa*

07946651 *Dodonaea pinifolia*

07946600 *Enchylaena lanata*

07946554 *Eucalyptus phaenophylla* subsp. *phaenophylla*

07946856 *Gahnia ancistrophylla*

07946589 *Hibbertia exasperata*

07946872 *Hyalosperma demissum*

07946708 *Lepidobolus preissianus*

07946716 *Lepidosperma* sp. – this is likely to represent an unnamed taxon related to *L. brunonianum* (R. Barrett pers. comm.).

07946678 *Lepidosperma* sp. A2 Island Flat (G.J. Keighery 7000) PN – this is an informal name currently in use at the W.A. Herbarium to refer to a presumably unnamed taxon related to *L. viscidum*.

07946686 *Lepidosperma* sp. K Boorabbin (K.L. Wilson 2579) PN – this is an informal name currently in use at the W.A. Herbarium to refer to a presumably unnamed taxon related to *L. pruinatum*.

07946953 #*Leucopogon obtusatus*

07946813 *Lomandra mucronata*

07946929 #*Melaleuca carrii*

07946570 *Mesomelaena preissii*

07946767 *Millotia tenuifolia* var. *tenuifolia*

07946635 *Mirbelia multicaulis*

07946791 *Neurachne alopecuroidea*

07946996 *Opercularia vaginata*

07946627 *Phebalium tuberosum*

07946899 *Podotroche angustifolia*

07946902 #*Pterostylis sargentii*

07946880 *Rhodanthe laevis*

07946783 *Schoenus calcatus* – the southernmost record of the species at the WA Herbarium.

07946988 *Schoenus pleiostemoneus* – atypical variant with ciliate leaf sheath.

07946945 #*Stylidium caricifolium*

07946805 *Waitzia acuminata* var. *acuminata*

Site: WW- 232 No. of Collections: 22 (34)

Locality: E of Pingelly.

Woodland type: *Allocasuarina huegeliana* low woodland.

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

07946163 *Allocasuarina huegeliana*

07946406 *Amphipogon strictus*

07946546 *#Astroloma* sp. Tutanning (A.S. George 7779) PN – this is an informal name currently in use at the W.A. Herbarium to refer to a presumably unnamed taxon related to *A. pallidum*.

07946252 *Austrostipa elegantissima*

07946449 *#Baeckea preissiana*

07946368 *Blennospora drummondii*

07946244 *Caustis dioica*

07946473 *#Chloanthes coccinea*

07946295 *Dampiera eriocephala*

07946430 *#Dampiera sacculata*

07946503 *#Gastrolobium parviflorum*

07946201 *Gastrolobium spinosum*

07946465 *#Gastrolobium trilobum*

07946228 *Glischrocaryon aureum* var. *aureum*

07946538 *#Goodenia scapigera* subsp. *scapigera*

07946481 *#Hakea gilbertii*

07946260 *Hemigenia incana*

07946171 *Isopogon divergens*

07946511 *#Jacksonia restioides*

07946279 *Lepidobolus preissianus*

07946317 *Lepidosperma* sp. – this is likely to represent an unnamed taxon related to *L. diurnum* (R. Barrett pers. comm.).

07946457 *#Melaleuca tuberculata* var. *tuberculata*

07946341 *Millotia tenuifolia* var. *tenuifolia*

07946287 *Neurachne alopecuroidea*

07946198 *Opercularia vaginata*

07946392 *Phyllangium sulcatum*

07946325 *Podotheca angustifolia*

07946384 *Rhodanthe laevis* – belongs to a local variant of the species which is glandular hairy as compared to the typical variant which is entirely glabrous.

07946414 #*Stylidium androsaceum*

07946309 *Stylidium tenuicarpum* – Priority 4 taxon.

07946333 *Thysanotus patersonii*

07946376 *Trachymene pilosa*

07946422 #*Verticordia acerosa* var. *preissii*

07946236 *Xanthorrhoea drummondii*

Site: WW- 233 No. of Collections: 32 (39)

Locality: W of Brookton.

Woodland type: *Eucalyptus marginata* subsp. *thalassica*, *E. accedens* woodland.

WWF & DEC Survey Team: M. Griffiths & M. Hislop.

07948034 *Acacia barbinervis* subsp. *barbinervis*

07947801 *Acacia celastrifolia*

07948042 *Acacia preissiana*

07947976 *Amphipogon amphipogonoides*

07947909 *Astroloma ciliatum* – an unusual co-occurrence of 4 species of *Astroloma* at this site.

07947925 *Astroloma compactum*

07947917 *Astroloma pallidum*

07948131 #*Astroloma* sp. Tutanning (A.S. George 7779) PN – this is an informal name currently in use at the W.A. Herbarium to refer to a presumably unnamed taxon related to *A. pallidum*. Its co-occurrence with *A. pallidum* at this site supports its status as a distinct taxon.

07948018 *Banksia sessilis* var. *sessilis*

07947763 *Billardiera venusta*

07947828 *Bossiaea ornata*

07947933 *Caesia micrantha*

07948166 #*Conostylis pusilla*

07947992 *Dampiera obliqua*

07947895 *Daviesia preissii*

07948107 #*Dodonaea pinifolia*

07947755 *Eucalyptus accedens*

07947747 *Eucalyptus marginata* subsp. *thalassica*

07948115 #*Gastrolobium villosum*

07947984 *Hibbertia commutata*

07948123 *Labichea punctata*

07948085 *Lagenophora huegelii*

07947887 *Lepidosperma obtusum*

07948093 #*Logania micrantha* – belongs to the disjunct N populations of the species.

07947836 *Lomandra micrantha* subsp. *micrantha*
07947844 *Lomandra spartea*
07947771 *Macrozamia fraseri* – a south-easterly range extension for the species at this locality.
07947798 *Marianthus bicolor*
07947879 *Neurachne alopecuroidea*
07948158 #*Opercularia echinocephala*
07947852 *Patersonia rudis* subsp. *rudis*
07948174 #*Stylidium ciliatum*
07947968 *Stylidium rhynchocarpum*
07947860 *Tetraria capillaris*
07948050 *Thysanotus patersonii*
07948069 *Trachymene pilosa*
07948026 *Trichocline spathulata*
07947941 *Trymalium ledifolium* var. *rosmarinifolium*
07948077 *Xanthosia candida*

Site: WW- 234 No. of Collections: 10 (18)

Locality: W of Brookton.

Woodland type: *Eucalyptus marginata* subsp. *thalassica*, *E. accedens* woodland.

WWF & DEC Survey Team: M. Griffiths & M. Hislop.

07949995 *Banksia sessilis* var. *sessilis*

07950152 #*Banksia squarrosa* subsp. *squarrosa*

07950063 #*Blennospora drummondii*

07950101 #*Brachyscome pusilla*

07950128 #*Crassula colorata* var. *colorata*

07949987 *Eucalyptus accedens*

07949979 *Eucalyptus marginata* subsp. *thalassica*

07950144 #*Eucalyptus wandoo* subsp. *wandoo*

07950055 *Lagenophora huegelii*

07950160 *Laxmannia squarrosa* – this is the short peduncle variant of the species which has been known by the name *L. sessilis*.

07950047 *Millotia tenuifolia* var. *tenuifolia*

07950012 *Neurachne alopecuroidea*

07950098 #*Pterochaeta paniculata*

07950136 #*Rhodanthe citrina*

07950004 *Stylidium ciliatum*

07950039 *Trachymene pilosa*

07950071 #*Velleia trinervis* – this collection represents a very low growing variant of the species, with very short scapes, which occurs in the E Darling Range.

07950020 **Vulpia myuros* forma *myuros*

Site: WW- 235 No. of Collections: 24 (36)

Locality: W of Brookton.

Woodland type: *Eucalyptus accedens* woodland.

WWF & DEC Survey Team: M. Griffiths & M. Hislop.

07948247 *Acacia alata* var. *platyptera* – Priority 4 taxon.

07948549 #*Acacia lasiocalyx*

07948360 *Acacia pulchella* var. *glaberrima*

07948352 *Astroloma epacridis*

07948530 #*Astroloma* sp. Tutanning (A.S. George 7779) PN – this is an informal name currently in use at the W.A. Herbarium to refer to a presumably unnamed taxon related to *A. pallidum*.

07948263 *Austrodanthonia setacea*

07948190 *Banksia nobilis* subsp. *nobilis*

07948395 *Blennospora drummondii*

07948204 *Bossiaea pulchella*

07948336 *Conostylis setigera* subsp. *setigera*

07948344 *Dampiera obliqua*

07948468 #*Daviesia rhombifolia*

07948476 #*Dillwynia laxiflora*

07948182 *Eucalyptus accedens*

07948557 #*Gastrolobium rhombifolium* – a geographically restricted species which may warrant inclusion on the Priority Flora List.

07948522 #*Glischrocaryon aureum* var. *aureum*

07948484 #*Grevillea monticola*

07948565 #*Grevillea tenuiflora*

07948301 *Hibbertia hibbertioides* var. *hibbertioides*

07948492 #*Hibbertia montana* – Priority 4 taxon.

07948433 *Laxmannia squarrosa* – this is the short peduncle variant of the species which has been known by the name *L. sessilis*.

07948212 *Lepidosperma* sp. – this is likely to represent an unnamed taxon related to *L. diurnum* (R. Barrett pers. comm.).

07948271 *Lepidosperma* sp. – this is likely to represent an unnamed taxon related to *L. leptostachyum* (R. Barrett pers. comm.).

- 07948255 *Leucopogon* sp. Darling Range (F. & J. Hort 1804) PN – this is an informal name currently in use at the W.A. Herbarium to refer to a presumably unnamed taxon related to *L. rubricaulis*.
- 07948379 *Lomandra mucronata* – belongs to the disjunct NW populations of the species which occurs in the E Darling Range.
- 07948239 *Loxocarya striata*
- 07948441 #*Microcorys capitata*
- 07948409 *Millotia tenuifolia* var. *tenuifolia*
- 07948298 *Neurachne alopecuroidea*
- 07948506 #*Persoonia quinquenervis*
- 07948220 *Petrophile divaricata*
- 07948387 *Petrophile heterophylla*
- 07948417 *Pterochaeta paniculata*
- 07948328 *Stylidium ciliatum*
- 07948514 #*Tetratheca confertifolia*
- 07948425 *Trachymene pilosa*

Site: WW- 236 No. of Collections: 21 (39)

Locality: W of Brookton.

Woodland type: *Eucalyptus accedens* woodland.

WWF & DEC Survey Team: M. Griffiths & M. Hislop.

- 07948824 #*Acacia celastrifolia*
- 07948735 #*Asterolasia squamuligera*
- 07948883 *Banksia armata* var. *armata*
- 07949014 #*Banksia nobilis* subsp. *nobilis*
- 07948905 *Banksia proteoides*
- 07948808 #*Beaufortia incana*
- 07948778 #*Boronia scabra* subsp. *scabra*
- 07948786 #*Bossiaea eriocarpa*
- 07948743 #*Dampiera juncea*
- 07948999 #*Daviesia cordata*
- 07948956 *Daviesia decipiens* – a northerly range extension for this species.
- 07948875 *Daviesia rhombifolia*
- 07948719 #*Dillwynia laxiflora*
- 07948573 *Eucalyptus accedens*
- 07948638 *Gahnia australis*
- 07948913 *Gastrolobium obovatum*
- 07948700 #*Gastrolobium parvifolium*
- 07948751 #*Gastrolobium trilobum*
- 07948972 *Goodenia watsonii* subsp. *glandulosa*
- 07948794 #*Grevillea monticola*
- 07948832 #*Grevillea tenuiflora*
- 07948840 #*Hibbertia exasperata*
- 07948727 #*Hovea chorizemifolia*
- 07948964 *Hypocalymma angustifolium*
- 07948980 #*Isopogon crithmifolius*

- 07948816 #*Isopogon teretifolius* subsp. *teretifolius*
- 07948948 *Jacksonia floribunda*
- 07948670 *Lepidobolus preissianus*
- 07948697 *Lepidosperma leptostachyum* – this material is referable to var. *asperatum* which is soon to be recognised as a species in its own right (R. Barrett pers. comm.).
- 07948859 #*Leptomeria ellytes* – a northerly range extension for this species.
- 07949006 #*Leucopogon pubescens*
- 07948921 *Leucopogon* sp. Darling Range (F. & J. Hort 1804) PN – this is an informal name currently in use at the W.A. Herbarium to refer to a presumably unnamed taxon related to *L. rubricaulis*.
- 07948646 *Lomandra mucronata* – belongs to the disjunct NW populations of the species which occurs in the E Darling Range.
- 07948662 *Lomandra nutans* – belongs to the disjunct N populations of the species occurring in the E Darling Range.
- 07948581 *Melaleuca tuberculata* var. *tuberculata*
- 07948611 *Microcorys capitata*
- 07948689 *Neurachne alopecuroidea*
- 07948603 *Persoonia trinervis*
- 07948891 *Petrophile divaricata*
- 07948654 *Schoenus armeria*
- 07949022 *Pimelea graniticola* – collected opportunistically on 5-11-08 from a neighbouring vegetation association. Represents a significant westerly range extension for the species.

Site: WW- 237 No. of Collections: 38 (48)

Locality: W of Beverley.

Woodland type: *Eucalyptus accedens* woodland.

WWF & DEC Survey Team: M. Griffiths & M. Hislop.

07949170 *Acacia pulchella* var. *glaberrima*

07949316 *Acacia* sp. P174 (J.M. Brown 228) PN – this is an informal name currently in use at the WA Herbarium to refer to a presumably unnamed taxon related to *A. applanata*

07949057 *Acacia stenoptera*

07949499 #*Astroloma pallidum*

07949502 #*Astroloma* sp. Tutanning (A.S. George 7779) PN – this is an informal name currently in use at the W.A. Herbarium to refer to a presumably unnamed taxon related to *A. pallidum*. Its co-occurrence with *A. pallidum* at this site supports its status as a distinct taxon.

07949111 *Banksia armata* var. *armata*

07949138 *Banksia drummondii* subsp. *hiemalis*

07949189 *Billardiera venusta*

07949456 #*Bossiaea ornata*

07949065 *Caustis dioica*

07949413 *Conostylis pusilla*

07949278 *Conostylis serrulata*

07949227 *Dampiera linearis*

07949391 *Desmocladius fasciculatus*

07949421 *Drosera callistos*

07949383 *Drosera macrantha*

07949030 *Eucalyptus accedens*

07949154 *Gompholobium marginatum*

07949472 #*Grevillea spinosissima*

07949197 *Hakea stenocarpa*

07949146 *Hemiandra incana*

07949103 *Hibbertia crassifolia* – identification rather tentative. *H. crassifolia* and its close relative *H. aurea* form a complex which appears to comprise a number of ± distinct entities. The group is much in need of taxonomic revision.

07949073 *Hibbertia hibbertioides* var. *hibbertioides*

07949081 *Isopogon crithmifolius*

07949480 #*Labichea punctata*

07949243 *Lechenaultia biloba*

07949367 *Lepidosperma leptostachyum* – this material is referable to var. *asperatum* which is soon to be recognised as a species in its own right (R. Barrett pers. comm.).

07949251 *Lepidosperma obtusum*

07949049 *Leptospermum erubescens*

07949162 *Logania micrantha* – belongs to the disjunct N populations of the species.

07949448 *Lomandra caespitosa*

07949286 *Lomandra drummondii* – specimen represents the northernmost collection of the species at the W.A. Herbarium.

07949308 *Lomandra hermaphrodita*

07949510 #*Lomandra purpurea*

07949332 *Lomandra spartea*

07949235 *Melaleuca aspalathoides*

07949324 *Mesomelaena tetragona*

07949359 *Neurachne alopecuroidea*

07949375 *Patersonia juncea*

07949200 *Petrophile serruriae*

07949537 #*Petrophile striata*

07949219 *Pimelea suaveolens* subsp. *suaveolens*

07949464 #*Poranthera ericoides*

07949405 *Stylidium repens*

07949529 #*Synaphea damopsis*

07949340 *Tetralia octandra*

07949545 #*Tetralia hirsuta*

07949294 *Xanthosia ciliate*

Site: WW- 238 No. of Collections: 21 (37)

Locality: NE of Pingelly.

Woodland type: *Allocasuarina huegeliana* low woodland.

WWF & DEC Survey Team: M. Griffiths & M. Hislop.

- 07949944 #*Acacia lasiocalyx*
- 07949715 **Aira cupaniana*
- 07949553 *Allocasuarina huegeliana*
- 07949626 *Austrodanthonia acerosa*
- 07949634 *Austrostipa elegantissima*
- 07949588 *Banksia sessilis* var. *sessilis*
- 07949936 #*Billardiera fusiformis* – N narrow-leaved variant of the species.
- 07949901 #*Blennospora drummondii*
- 07949839 #*Caladenia flava* subsp. *flava*
- 07949863 #*Calandrinia calyptata*
- 07949766 *Crassula colorata* var. *colorata*
- 07949928 #*Crassula decumbens* var. *decumbens*
- 07949847 #*Crassula extrorsa*
- 07949790 **Ehrharta longiflora*
- 07949693 **Galium murale*
- 07949871 #*Hakea petiolaris* subsp. *trichophylla*
- 07949731 *Homalosciadium homalocarpum*
- 07949855 #*Hyalosperma demissum*
- 07949782 *Hydrocotyle rugulosa*
- 07949618 *Labichea lanceolata* subsp. *brevifolia*
- 07949642 *Lagenophora huegelii*
- 07949774 *Levenhookia pusilla*
- 07949758 *Millotia tenuifolia* var. *tenuifolia*
- 07949650 *Phyllangium sulcatum*
- 07949669 *Podotheca angustifolia*

07949820 #*Poranthera microphylla*

07949707 *Rhodanthe citrina*

07949804 #*Rhodanthe laevis* – belongs to a local variant of the species which is glandular hairy as compared to the typical variant which is entirely glabrous.

07949960 #*Schoenus nanus*

07949898 #*Siloxerus multiflorus*

07949561 *Stackhousia monogyna*

07949596 *Stypandra glauca*

07949723 *Trachymene pilosa*

07949812 #*Velleia cycnopotamica*

07949677 **Vulpia myuros* forma *myuros*

07949685 **Vulpia muralis*

07949952 #*Wahlenbergia preissii*