

Report on the conservation status of 74 taxa from the Ravensthorpe Range

*Adrienne Markey, Carol Wilkins, Jessica Allen, Stephen Kern &
Damien Rathbone*

January 2011



Marianthus mollis, Eucalyptus oleosa subsp. corvina, Hibbertia abyssa, Calothamnus roseus, Photos:A. Markey



Department of
Environment and Conservation

Our environment, our future



Background:

A plot based survey (Kern *et al.* 2008) was undertaken of the Ravensthorpe Range in 2007 funded by the Department of Environment and Conservation's (DEC) Biodiversity Conservation Initiative (BCI) with the aim of gaining a better understanding of the patterns of the vegetation and flora across the range. A list was compiled of the Declared Rare and Priority Flora found during the survey as well as taxa that were endemic to the Ravensthorpe Range or had their distributions centered on the Range (Table 2 in Kern *et al.* 2008¹). Many of the endemic taxa and taxa with their distributions centered on the range had not been assessed for inclusion on the Priority Flora list and insufficient time was available during that project to fully compile all the information needed for such an assessment. Further funding was successfully gained to undertake these detailed conservation status assessments under a later round of the BCI. At the same time South Coast Region had funding available from the Ravensthorpe Nickel Project to undertake similar surveys across the greater Ravensthorpe Range area. As a consequence the South Coast Region and Science Division collaborated on this larger project, splitting the responsibility for undertaking the assessment between the two groups but using a standard format with the aim of providing a comprehensive document covering the whole area. This final report provides a conservation assessment of these 74 taxa.

The work aims at not only consolidating the population details for each taxa from the different DEC databases (DEFL, WA Herbarium, Kern *et al.* 2008¹, Markey *et al.* in prep²) but also provide a resource to allow easier identification of these taxa. The tables provides population identity (for DEFL populations), general locality, land tenure type and abundance estimates where available. Carol Wilkins from the WA Herbarium has prepared detailed taxonomic descriptions and lists of diagnostic characters for each taxon. Photos have also been included for all taxa. During progress of this project (commenced 2008), two taxa were phrase named and seven species were formerly described, four of these which were initially collected by Kern *et al.* 2008. Data provided to DEC's Species and Communities Branch has resulted in 8 additions, 12 changes and 25 deletions to the Priority Flora list for the 74 taxa considered in this report.

1 Kern, S., Jasper, R. and True, D. (2008) *Floristic survey of the Ravensthorpe Range, 2007*. Report prepared for Department of Environment and Conservation, Woodvale by Western Botanical, Bassendean. Ref:WB483.

2 Markey A., Kern S. and Gibson, N. (in prep) *Floristic communities of the Ravensthorpe Range, Western Australia*.

Taxa reviewed:

Acacia aemula subsp. *aemula*
Acacia bifaria
Acacia disticha
Acacia durabilis
Acacia improcera
Acacia larinica var. *crassifolia*
Acacia moirii subsp. *dasycarpa*
Acacia pinguiculosa subsp. *teretifolia*
Acacia rhamnophylla
Acacia sp. Ravensthorpe Range (B.R. Maslin 5463)
Acrotriche orbicularis
Allocauarina hystricosa
Astartea sp. Hopetoun area (A.S. George 10594)
Astroloma microphyllum
Banksia corvijuga
Banksia foliosissima
Beyeria cockertonii
Beyeria villosa
Caladenia arrecta
Calothamnus roseus
Chorizema circinale
Conostylis lepidospermoides
Cryptandra craigiae
Dampiera deltoidea
Dampiera sericantha
Dampiera sp. Ravensthorpe (G.F. Craig 8277)
Darwinia sp. Ravensthorpe (G.J. Keighery 8030)
Daviesia megacalyx
Daviesia newbeyi
Drosera grievii
Eucalyptus desmondensis
Eucalyptus gardneri subsp. *ravensthorpensis*
Eucalyptus oleosa subsp. *corvina*
Eucalyptus purpurata
Eucalyptus stoatei
Eucalyptus x erythrandra
Eucalyptus x stoataptera
Gastrolobium rigidum
Goodenia trichophylla
Grevillea fastigiata
Grevillea fulgens
Grevillea patentiloba subsp. *platypoda*
Grevillea punctata
Guichenotia anota
Guichenotia apetala
Gyrostemon sessilis
Hibbertia abyssa
Hibbertia atrichosepala
Hydrocotyle decipiens ms
Kunzea acicularis
Kunzea cincinnata
Kunzea similis subsp. *mediterranea*
Lasiopetalum sp. Desmond (N. McQuoid 653)
Lechenaultia acutiloba
Leptospermum sp. Bandalup Hill (G. Cockerton 11001)
Lissanthe pleurandroides
Marianthus mollis
Melaleuca penicula
Melaleuca ulicoides
Melaleuca sophisma
Melaleuca stramentosa
Microcorys pimeleoides
Micromyrtus navicularis
Pultenaea calycina subsp. *proxena*
Pultenaea craigiana
Pultenaea wudjariensis
Siegfriedia darwinioides
Spyridium glaucum
Spyridium sp. Jerdacuttup (A. Williams 332)
Stachystemon vinosus
Synaphea platyphylla
Tetratea applanata
Thysanotus parviflorus
Verticordia vicinella

Acknowledgements

Many people contributed in compiling the information and providing photos of the taxa covered in this guidebook. In particular the following people are acknowledged: Mike Fitzgerald, Frederick De Mey (DEC Esperance District); Maria Lee (DEC Ravensthorpe); Sarah Barrett (DEC Albany District); Ryonen Butcher, Ray Cranfield, Alex George, Mike Hislop, Bruce Maslin, Barbara Rye, Kevin Thiele, Juliet Wege, Paul Wilson (DEC WA Herbarium); Andrew Brown, Melanie Smith (DEC Species & Communities Branch); Anne Cochrane, Neil Gibson (DEC Science Division); Gil Craig (Ravensthorpe); Lyn Craven, Brendan Lepschi (Australian National Herbarium); Mike Crisp (ANU); Dave Halford (Queensland Herbarium); Murray Henwood (University of Sydney); Matthew Inman, Travis Inman (BHP); Humera Blakers (FQM); Geoff Cockerton (Western Botanical); and Nathan McQuoid (Mundaring).

Acacia aemula Maslin subsp. *aemula*

Family: FABACEAE

Other names: None.

Conservation status: Removed from DEC Priority list in 2010.

Flowering time: Late May to mid-June. Pods with mature seed collected in late November.

Information date: 15/1/2010



Photo: M. Fitzgerald

Taxonomy:

Description. Openly branched, rush-like *subshrub*, 0.2–0.5 m high, commonly prostrate or semi prostrate. *Stems* are straight with smooth, hairless branchlets that are circular in cross section, longitudinally grooved, and green between the yellow ribs. *Stipules* are triangular to lanceolate and 2–3 mm long. The *phyllodes* are far apart, resemble the branchlets and are occasionally continuous with the branchlets, or a few terminal phyllodes can be reduced to horizontally flattened scales. The *phyllodes* are smooth and hairless, and can be round in cross section and obscurely five sided, to flat and linear, 1–11 cm long and 1–2 mm wide, with a sharp, abrupt, terminal point. They have 5 rather prominent nerves (veins) being 2 on the upper surface, 2 lateral, and 1 on the lower surface. The gland is not prominent, and is 1–3 mm above the base of the phyllode. There are 6–11 flowers in golden, globular *heads*. *Flower stalks* are 1 or 2 per axil, rarely more, and are 5–15 mm long, often reflexed, either hairless or with appressed, minute, soft hairs. The calyx is 1/4–1/3 the length of the corolla, and divided for 1/4–1/3 of its length into four oblong-rounded, or more commonly triangular lobes. The calyx tube veins (nerves) are absent or obscure. The four fan-shaped, longitudinally striped petals are 2–3 mm long, without hairs and acute. There are numerous free stamens. The *Pods* are stalked, hairless and reddish-brown, 3–6 cm long and 4–5 mm wide, and taper gradually to a protracted point. They are thinly leathery, crustaceous, curved and acutely quadrangular due to the broad, flat, ‘winged’ margins that are to 2 mm wide on each valve. *Seeds* are longitudinally

oblong, 4–5 mm long and 3 mm wide, very dark brown to blackish, rather dull, minutely wrinkled and with a terminal, conical aril.

Distinctive features. *Acacia aemula* appears most closely related to *Acacia tetragonocarpa* Meisn. and *Acacia cummingiana* Maslin (neither of which occur in the Ravensthorpe district), but is readily distinguished from them both by the presence of phyllodes. These three species share a number of unusual inflorescence and fruit characters, for example the flowers are 4-merous, the petals are striped, pods are acutely quadrangular ('winged') and seeds have a terminal conical aril. *Acacia aemula* appears to be also related to *Acacia volubilis* F.Muell. (a rare species which grows near Cunderdin) in its phyllode venation (nervature), few flowered heads and striate petals, but it differs by having ± straight stems, generally longer phyllodes and 4-merous flowers.

Two subspecies of *Acacia aemula* are recognised. *Acacia aemula* subsp. *aemula* has smooth and slender stems compared with the thicker and more prominently ribbed stems of *A. aemula* subsp. *muricata* Maslin. The phyllodes of *A. aemula* subsp. *aemula* differ to *A. aemula* subsp. *muricata* in having a smooth surface, rather than rough with small sharp projections. *Acacia aemula* subsp. *aemula* also has golden-coloured flower heads, rather than cream.

Species name. From the Latin *aemulus* (rivalling or equalling), since at first glance the branchlets and phyllodes are superficially similar.

Distribution. Scattered distribution throughout the Eyre and Avon Botanical Districts, from the Stirling Range east to Cape Arid.

Habitat Requirements:

Soils: Most frequently reported from sandy soils.

Landforms: Typically occurs on low lying flats or sandplains, occasionally associated with rocky outcrops.

Vegetation: Reported from a range of vegetation types including tall woodland, mallee shrubland and heathland communities. *Acacia aemula* subsp. *aemula* is commonly associated with disturbed sites.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Stirling Range	Crown Reserve	28/05/1964	
	Condingup	Freehold	30/05/1966	
	Esperance	Crown Reserve	15/06/1970	
	Bremer Bay	Freehold	14/01/1979	'frequent'
	Munglinup	Crown Reserve	1/06/1979	
	Stirling Range	National Park	25/11/1980	
	Cape Arid	National Park	10/06/1985	
	West Mt Barren	Crown Reserve	17/10/1989	
	Cape Le Grand	Crown Reserve	26/06/1990	
	Mt Ragged Rd	UCL	21/10/1991	
	Mt Barker	Public Roads	1/05/1996	
	Coomalbidgup Road	Crown Reserve	9/11/1996	<10
	Ravensthorpe	Public Roads	17/05/1998	'rare'
	Chillinup Road	Public Roads	20/06/2000	'rare'
	Esperance	Crown Reserve	12/10/2000	
	South Stirling Nature	UCL	14/11/2002	'rare'

	Reserve			
	Wellstead	Freehold	9/05/2003	'uncommon'
	Wellstead	Private Property	14/05/2003	'uncommon'
	Green Range	Freehold	26/05/2003	1
	Springdale Rd	Crown Reserve	8/06/2003	'common'
	Manypeaks	Freehold	9/06/2003	5
	Manypeaks	Crown Lease	10/06/2003	'common'
	Manypeaks	Freehold	17/06/2003	'occasional'
	Manypeaks	Freehold	23/06/2003	'rare'
	Manypeaks	Freehold	1/07/2003	'rare'
	Manypeaks	Freehold	21/07/2003	2
	Wellstead	Freehold	2/06/2004	'rare'
	Road to Doubtful Is. Bay	Crown Reserve	16/06/2004	'occasional'
	Bandalup Hill	UCL	2/11/2004	
	East of Ravensthorpe	Freehold	25/11/2004	'occasional'
	Mason Bay Road	Public Roads	3/12/2004	
	Mason Bay Road	Public Roads	8/12/2004	
	Green Range	Private Property	18/04/2005	
	Hopetoun	Crown Reserve	13/05/2005	'common'
	Condinup	Public Roads	25/05/2005	'occasional'
	Hopetoun	Public Roads	12/07/2005	'occasional'
Total:				8



References:

Maslin, B.R. (1995). *Acacia* Miscellany 13. Taxonomy of some Western Australian phyllocladinous and aphyllodinous taxa (Leguminosae: Mimosoideae). *Nuytsia* 10(2): 151-179.

Note: Bruce Maslin has reviewed this description (2009).

Acacia bifaria Maslin

Family: FABACEAE

Other names: None.

Conservation status: Priority Three under DEC Conservation Codes for Western Australian Flora.

Flowering time: August to December.

Information date: 20/01/2009



Photo: A. Markey

Taxonomy:

Description. Prostrate or semi-prostrate, commonly domed *shrubs* to 0.5 m tall and 2 m across. The branchlets are slightly prominently flexuose, hairless and light brown to red. New shoots are reddish. The *stipules* are persistent, triangular to narrowly triangular or oblong triangular and to 1–5 mm long. The rounded, flat *phyllodes* are opposite each other and continuous with the branchlets, extending halfway down the next phyllode to form wings. They are green to subglaucous, leathery, 1–3.5 cm long and 4–10 mm wide, flat or occasionally undulate along the margins, and hairless except for the axils which have dense red-brown resinous hairs (sometimes intermixed white non resinous hairs). The main nerve is obscure or superficially absent and there is a nerve to an off centre apical mucron. The gland is not prominent. The *inflorescence* has 1–4 globular, light golden flower heads per axil, with stalks that are 2–12 mm long. The heads have 16–23 flowers each. The *flowers* have 5 sparsely hairy *sepals* that are 1/3 –1/2 the length of the petals, shortly joined at base, oblong to

narrowly oblong, and slightly thickened at the apex. The 5 hairless *petals* are narrowly elliptic and *c.* 1.5 mm long. The almost stalkless, hairless ovary has a style to *c.* 2.5 mm long. The black *Pods* are strongly coiled to twice coiled, almost rounded in cross section, slightly constricted between the seeds along the inner edge, and to 2 cm long and 2–3 mm wide. The *seeds* are oblong, *c.* 3 mm long, dark brown and with an aril.

Distinctive features. Closely related to *Acacia glaucoptera* Benth. but distinguished by its green to subglaucous phyllodes and the 16–23 flowers per head. The free portion of the phyllode is also generally shorter and narrower than in *A. glaucoptera*.

Species name. Derived from the Latin *bi-* (two) and *-farius* (ranked), referring to the phyllodes being in two ranks on opposite sides of the branchlet apex.

Distribution. Known only from the Ravensthorpe area from the Fitzgerald River to Mt. Desmond.

Habitat Requirements:

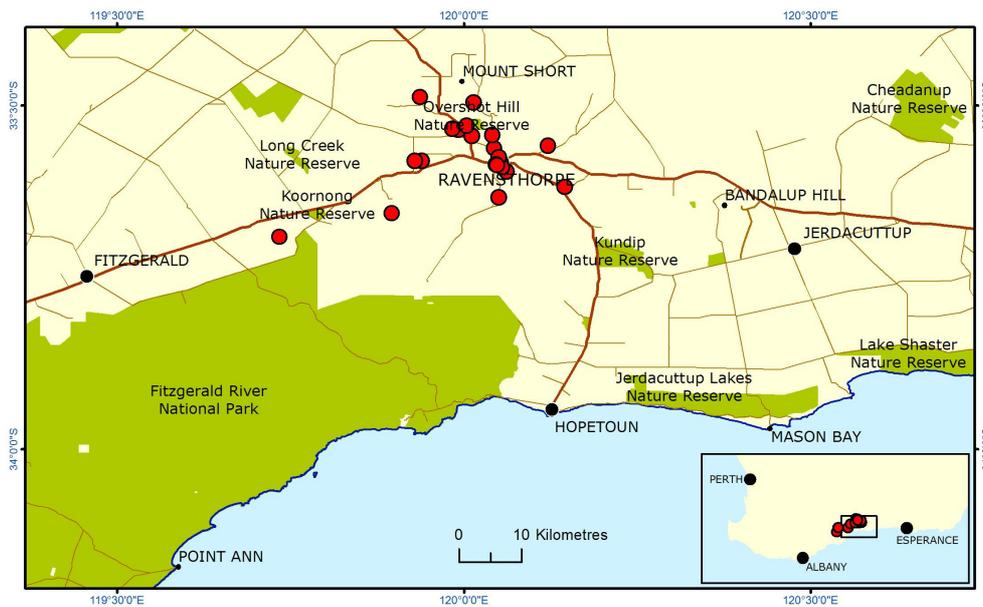
Soils: Recorded from red and brown sandy loams and clays, frequently associated with laterite or granite.

Landforms: The species is frequently found on the lower and mid-slopes of hills or in gently undulating terrain.

Vegetation: Most frequently recorded from tall woodlands and from mallee communities with a heath understorey. Less frequently observed in heath and scrub communities.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Overshot Hill	Other Reserve	01/11/2008	'isolated plants'
	Mt Short	UCL	18/11/2007	'isolated plants'
	Elverdton Rd/ Mt Desmond	Other Reserve	15/11/2005	'frequent'
	Ravensthorpe	Private Property	22/09/2004	'occasional'
	Ravensthorpe	Shire Rd Verge	10/10/2001	'common'
	Ravensthorpe	Other Reserve	12/08/2001	'occasional'
	Ravensthorpe	Private Property	14/09/2000	'very common'
	Ravensthorpe	Shire Rd Verge	19/08/1995	'occasional'
	Ravensthorpe	Shire Rd Verge	30/08/1980	
	Moir Rd Ravensthorpe	Shire Rd Verge	10/01/1979	'common'
	Newdegate-Ravensthorpe Rd	MRD Rd Verge	14/10/1976	
	Ravensthorpe		15/12/1974	
	Ravensthorpe		21/12/1971	
	Hopetoun-Ravensthorpe Rd	Shire Rd Verge	20/12/1971	'common'
	Floater Rd Ravensthorpe	Shire Rd Verge	18/11/1971	'common'
	Unknown	Other	13/09/1971	
	Unknown	Other	12/09/1964	
			Total:	



References:

Maslin, B.R., (1995). *Acacia* miscellany 13, taxonomy of some Western Australian phyllocladinous and aphyllodinous taxa (Leguminosae: Mimosoideae). *Nuytsia* 10: 15-62.

Acacia disticha Maslin

Family: FABACEAE

Other names: None.

Conservation status: Removed from DEC priority list in 2010.

Flowering time: September to February.

Information date: 24/06/2008



Photo: A. Markey

Taxonomy:

Description. A medium dense, spreading *shrub* 0.4–2 m tall, dividing at the base into 3–5 principal, rigid branches. The *branchlets* are flattened towards their apex but becoming rounded in cross section with age, hairless, and apically greenish. The *stipules* may fall early, and are dark brown, depressed ovate to narrowly triangular, and to 0.7 mm long. The *phyllodes* are in 2 vertical ranks on the apical flattened branchlets, becoming spirally arranged with age. They are bright medium green to yellow green, slightly undulate, hairless, elliptic to obovate, to 15–33 mm long and 4–15 mm wide, but if persistent can reach 43 mm long and 22 mm wide, and have an obtuse apex. The gland is absent or inconspicuous. The *inflorescence* is a hairless raceme, *c.* 4 mm long with 2 or 3 heads of flowers, interspersed with a few solitary heads, or rarely all solitary heads, with stalks to 11 mm long. The loose flower heads are globular, bright cream, and have 6 or 7 flowers. The *flowers* have 4 sepals *c.* 1/4 the length of the petals, shallowly divided into 4 broadly triangular lobes. The 4 elliptic, almost free petals are greenish yellow and *c.* 3 mm long. The *stamens* are very numerous and bright cream. The stalked *ovary* is hairless with a style *c.* 2 mm

long. The dark brown *pods* are narrowly oblong, very slightly curved and twisted, raised over but not constricted between seeds, to 4 cm long and 5 mm wide, and crustaceous to sub-woody. The *seeds* are obloid, c. 4 mm long, medium to dark brown, glossy, and with a cream aril.

Distinctive features. Most similar to *Acacia pygmaea* Maslin, a species restricted to the Wongan Hills. *Acacia disticha* grows with *A. myrtifolia* but the latter species is distinguished by its prominently ribbed, angular branchlets that are not clearly flattened, prominently 1-nerved phyllodes with a more prominent gland, and longer, more undulate pods.

Species name. From the Latin word *distichus* (arranged in two opposite rows), in reference to the arrangement of the phyllodes in two vertical ranks along the margin of each flattened branchlet.

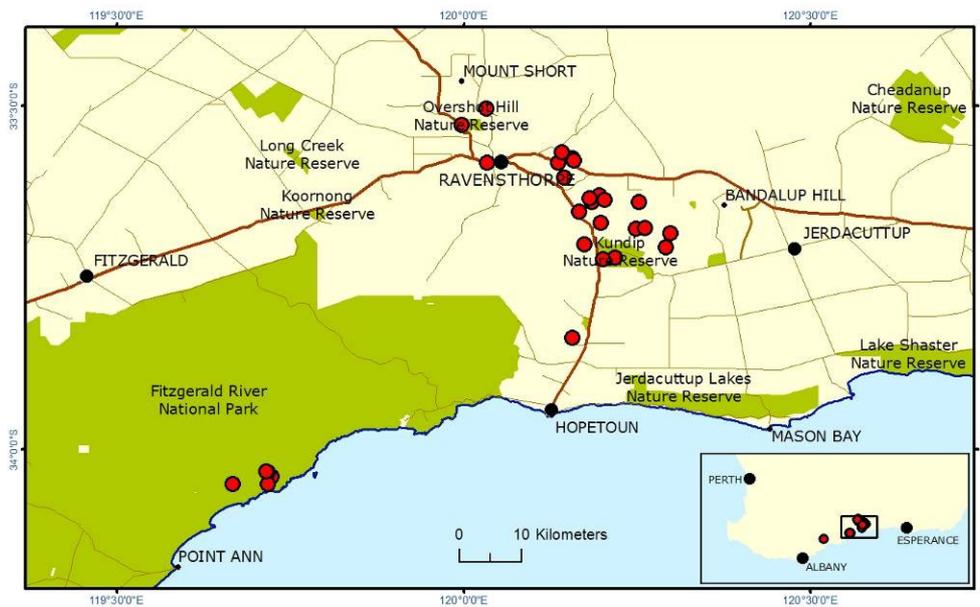
Distribution. The majority of populations are known from the Ravensthorpe Range, with outlier records coming from north of Hopetoun, Fitzgerald River National Park and Corackerup Creek.

Habitat Requirements:

- Soils:** Red-brown sandy loams and loamy clays, usually with rock fragments at the surface.
- Landforms:** Recorded frequently from drainage lines, slopes and hillcrests.
- Vegetation:** Tall mallee usually with a mid to high shrubland strata, frequently over *Lepidosperma* sedges.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Hopetoun-Ravensthorpe Rd	Shire Rd Verge	08/09/1992	
	Mt Desmond	Other Reserve	11/02/1997	4
	Kundip	Other Reserve	22/11/1998	
	Kundip	Other Reserve	07/12/2003	6
	Mt Desmond	Other Reserve	06/02/2004	10
	Ravensthorpe	UCL	16/11/2004	10
	Mt Desmond	Other Reserve	09/11/2006	1000
	Mt Desmond	Other Reserve	18/04/2007	<10% cover
	Ravensthorpe Range	UCL	21/04/2007	'isolated plants'
	Ravensthorpe Range	UCL	26/05/2007	<10% cover
	Mt Desmond	Other Reserve	07/09/2007	'isolated plants'
	Mt Desmond	Other Reserve	10/10/2007	'isolated plants'
	Mt McMahon	UCL	10/11/2008	'isolated plants'
	Thumb Peak	Fitzgerald River NP	27/11/2002	200+
	Twin Bay	Fitzgerald River NP	31/12/1983	'few plants'
	Thumb Peak	Fitzgerald River NP	01/11/1975	'frequent in patches'
	Missle Mt Barren	Fitzgerald River NP	20/12/1970	
Total:				1230+



References:

Maslin, B.R. (1995). *Acacia* Miscellany 12. *Acacia myrtifolia* (Leguminosae: Mimosoidae: section *Phyllodinae*) and its allies in Western Australia. *Nuytsia* 10: 85-101.

Acacia durabilis Maslin

Family: FABACEAE

Other names: None.

Conservation status: Removed from DEC priority list in 2010.

Flowering time: October to April.

Information date: 21/01/2009



Photo: A. Markey

Taxonomy:

Description. A spreading, moderately open, single-stemmed *shrub* to 2 m tall. The *branchlets* are rounded in cross section, hairless, with a whitish, waxy bloom between prominent reddish-brown ribs. The hardened, recurved, thorn-like *stipules* persist on the branches and are prominent, to 12 mm long and pungent. The *phyllodes* are elliptic, slightly asymmetric, normally 1.5–4 cm long and 1.5–3 cm wide, rather leathery and crowded towards the ends of the branches. They are slightly to moderately undulate, hairless and olive green, with midrib prominent yellowish, marginal nerves pale red but yellowing with age, with the apex obtuse with a distinct pungent apical mucro *c.* 1mm long. The gland is prominent on upper margin of the phyllode. The *inflorescence* consists of 1 or rarely 2 flower heads in the axils of the phyllodes, rarely interspersed with 1 or 2 headed racemes, with stalks to 27 mm long. The flower heads are globular, cream to pale yellow, and with 6–9 flowers. The hairless *flowers* have *sepals* *c.* 1/4 of the length of the corolla, that are cup-like and shallowly divided into 4 broadly triangular lobes. The 4 free *petals* are elliptic with an acute apex, and are *c.* 4 mm long. The *stamens* are very numerous and cream to pale yellow. The *ovary* is hairless and *c.* 1mm long with the style *c.* 3.5 mm long. The dark

reddish brown *Pods* are narrowly oblong, spirally twisted once or twice or partially twisted, very slightly raised over the seeds, and insignificantly constricted between the seeds. They are up to 6 cm long and to 8 mm wide, and are crustaceous to sub-woody. The *seeds* are ellipsoid, glossy brown, c. 4 mm long, and with a small yellowish aril.

Distinctive features. This species can be recognised by the following features: branchlets which are rounded in cross section and have prominent reddish-brown ribs; prominent and persistent, thorn-like stipules to c. 1 cm long; long inflorescence stalks with large cream heads; and twisted pods with non-undulate margins. It resembles *Acacia heterochroa* Maslin subsp. *heterochroa* which also occurs in the Ravensthorpe Range. *Acacia durabilis* differs in its more prominently ridged branchlets, its prominent, persistent stipules, phyllodes with a prominent basal gland and a shorter, deflexed, less pungent tip, in having cream to pale yellow flower heads rather than bright yellow, ± spirally twisted pods with non-undulate margins and seeds that are dilated at their point of attachment at the pod.

Species name. *Durabilis* is Latin for lasting or enduring, referring to the persistent and prominent stipules.

Distribution. Mostly recorded from the Ravensthorpe Range, with single outlier populations known from the Fitzgerald River National Park and Pallinup River.

Habitat Requirements:

Soils: Dark brown sandy clays and loams, with rock fragments at the surface.

Landforms: Slopes usually with a southern aspect.

Vegetation: Mid-high to high open mallee over mid-high to high shrubland, usually over open low scrub.

Biology:

Disturbance: Most abundant in disturbed areas, e.g. firebreaks.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Mt Desmond	Other Reserve	21/04/1962	
	Mt Desmond	Other Reserve	09/10/1975	
	Kundip	Water Reserve	01/09/1979	
	Mt Desmond	Other Reserve	08/01/1979	'rare'
	Mt Desmond	Other Reserve	15/12/1992	'scattered'
	Ravensthorpe Range	UCL	24/10/1998	'frequent'
	Kundip	Other Reserve	05/12/2003	1
	Kundip	Other Reserve	11/12/2003	
	Mt Desmond	Other Reserve	06/02/2004	5-10
	Elverdton Rd	Shire Rd Verge	17/11/2004	'frequent'
	Mt Desmond	Other Reserve	21/09/2005	'abundant'
	Mt Desmond	Other Reserve	29/11/2005	100+
	Floater Rd, Ravensthorpe Rg	UCL	30/11/2005	1000+
	Mt McMahon	UCL	02/10/2007	'<10% cover'
	Mt McMahon	UCL	02/10/2007	'isolated plants'
	Archer Drv, Ravensthorpe Rg	UCL	15/03/2007	'<10% cover'
	Mt Desmond	Other Reserve	18/04/2007	'isolated plants'
	Kundip	UCL	07/09/2007	'isolated plants'
	Mt Benson	UCL	04/12/2008	'isolated plants'
	Ravensthorpe Range	UCL	06/12/2008	'isolated plants'

	Mt McMahon	UCL	22/11/2008	'isolated plants'
	Mt Drummond	Fitzgerald River NP	13/11/1986	
	Total:			1110+



References:

Maslin, B.R. (1995). *Acacia* Miscellany 12. *Acacia myrtifolia* (Leguminosae: Mimosoidae: section *Phyllodinae*) and its allies in Western Australia. *Nuytsia* 10(1): 85-101.

Acacia improcera Maslin

Family: FABACEAE

Other names: None.

Conservation status: Priority Three under DEC Conservation Codes for Western Australian Flora.

Flowering time: July to August; mature pods collected in December.

Information date: 15/1/2010



Photo: S. Kern

Taxonomy:

Description. A spreading, mid-dense *shrub* 15–40 cm high and 80 cm wide, with longitudinally striped and white-waxy branches, dividing into numerous spinescent and not resinous branchlets. *Stipules* are triangular and to 1 mm long. *Phyllodes* have a pulvinus *c.* 0.5 mm long, and are obliquely ovate to elliptic or obovate, 3–6 mm long and 1.5–3.5 mm wide, with short, stiff, wide-spreading hairs. The midrib is commonly scarcely prominent, sometimes with a second less prominent, longitudinal nerve (vein) and lateral nerves absent or few and obscure. The apex of the phyllode is obliquely narrowed into a short, acute, slightly recurved apiculum and there is an insignificant gland on the upper margin that is 0.2–0.6 mm above the pulvinus. *Flower heads* are 1 per node, globular, light golden (fresh colour), 5–6 mm wide with 9–11 flowers on stalks that are 2.5–4 mm long. The *calyx* is short (1/4–1/3 length of petals) and irregularly dissected to *c.* 1/2 its length into 5 triangular lobes. The 5 *petals* are *c.* 1.5 mm long and without hairs. Stamens are numerous and free. The dark purple-brown *pod* is curved, and to 3 cm long and 4 mm wide. It is rounded over the seeds and slightly to prominently constricted between them, with the margin inrolled on one side. *Seeds* are bicoloured, dark brown and yellow with an aril that extends *c.* 3/4 of the length down one side of the seed.

Distinctive features. Inflorescence and flower characters suggest relatedness to *Acacia bidentata* Benth. and its allies, however, it differs in its phyllode shape (inequilaterally obovate to obtriangular-obdeltate in *A. bidentata*). Other distinguishing characters are its striate (striped), white, waxy branchlets, light golden few-flowered heads, curved pods and bicoloured seeds. *Acacia erinacea* Benth. is similar to *A. improcera* especially in the spinose branchlets and phyllode shape and size, but is distinguished most readily by its glabrous branchlets and phyllodes, 12–22-flowered heads and pod morphology. Although *A. improcera* superficially

resembles *Acacia brachyclada* W.Fitzg. in phyllode shape and size, the two are not closely related. *Acacia brachyclada* differs in its resinous branchlets, peduncle bases without bracts, free sepals, coiled pods and black seeds with the aril folded at one end.

Species name. From the Latin word *procerus* (very tall) with the prefix *im-* (contrary), in reference to its small stature.

Distribution. Has a scattered distribution from Lake King to Grass Patch including the Ravensthorpe area and the Bremer Range.

Habitat Requirements:

Soils: Grows in clay, rocky loam or sand.

Landforms: Undulating plains and flats.

Vegetation: Mostly occurs in mallee woodland and heathland. *Acacia improcera* has commonly been recorded from post fire regrowth, suggesting it might be a disturbance opportunist.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
01-	Bremer Range	UCL	12/10/2003	1000
02-	Bremer Range	UCL	11/10/2003	'patches of 10-100 plants'
03-	Mt Ridley	Unknown	15/08/1985	'common'
04-	Upper Oldfield	UCL	14/08/1985	1
05-	Logan's Rd	Rd Verge Shire	14/09/1983	
06-	Ravensthorpe	Unknown	13/12/1964	
07-	Mt Glasse	UCL	14/08/1979	'frequent'
08-	Bandalup Hill	Private Land	7/07/2005	5
09	Munglinup	Private	9/04/2002	
Total:				1016



References:

Maslin, B.R. (1999). *Acacia* miscellany 16. The taxonomy of fifty-five species of *Acacia*, primarily Western Australian, in section Phyllodineae (Leguminosae: Mimosoideae). *Nuytsia* 12(3): 311-411.

Note: Bruce Maslin has reviewed this description (2009).

Acacia laricina Meisn. var. *crassifolia* Maslin

Family: FABACEAE

Other names: None.

Conservation status: Removed from DEC priority list in 2010.

Flowering time: August to October.

Information date: 24/06/2008



Photo: S. Kern

Taxonomy:

Description. A dense, spreading or sometimes domed *shrub* to 0.5 m tall and 0.9 m across, with the outermost branches almost prostrate. The branchlets are thick, 1.5–2 mm across and with very dense, white hairs to 0.5 mm long towards the apex. The *stipules* are erect, narrowly triangular and to 6 mm long. The rather rigid and crowded *phyllodes* are continuous with the branchlets, but not forming wings. They are linear, 5-sided with a prominent nerve along each angle, to 5.5 cm long and to 1.7 mm wide, ascending, thick, slightly rough, hairless to scarcely hairy, and straight to shallowly incurved. The apex is asymmetrically and gradually narrowed into a long, sharp, rigid point *c.* 1 mm long. *Inflorescences* are solitary heads *c.* 5 mm diameter, in the phyllode axil, and on a densely hairy stalk to 10 mm long. The flower heads are globular, pale yellow, and have 17–21 flowers. *Flowers* have 5 oblong *sepals* to 0.8 mm long, united at the base for *c.* 1/2 their length, and with hairy apical margins. The 5 triangular-lobed *petals* are *c.* 2 mm long, fused at the base for 2/3 of their length, and sparsely hairy outside. *Stamens* are numerous, pale yellow and *c.* 2.8 mm long. The hairless *ovary* has 1 locule and a curved style *c.* 3 mm long that extends beyond the stamens. The red-brown *Pods* are rounded or almost so in cross section, not constricted between seeds, to 3 cm long and to 2 mm wide, thinly leathery and coarsely striped. *Seeds* not seen.

Distinctive features. Differs from *Acacia laricina* var. *laricina* in having phyllodes that are straight to shallowly incurved towards the branchlets, rather than shallowly recurved phyllodes. *Acacia laricina* var. *crassifolia* also has slightly thicker main

branchlets *c.* 1.5–2 mm across rather than slender main branchlets *c.* 1 mm across, and typically has 17–21 flowers per head rather than 20–30 flowers.

Varietal name. Derived from the Latin words *crassus* (thick) and *folium* (leaf) in reference to the coarse phyllodes.

Distribution. Most populations recorded from the Ravensthorpe Range with outlier records from Fitzgerald River National Park and Dunn Rock Nature Reserve.

Habitat Requirements:

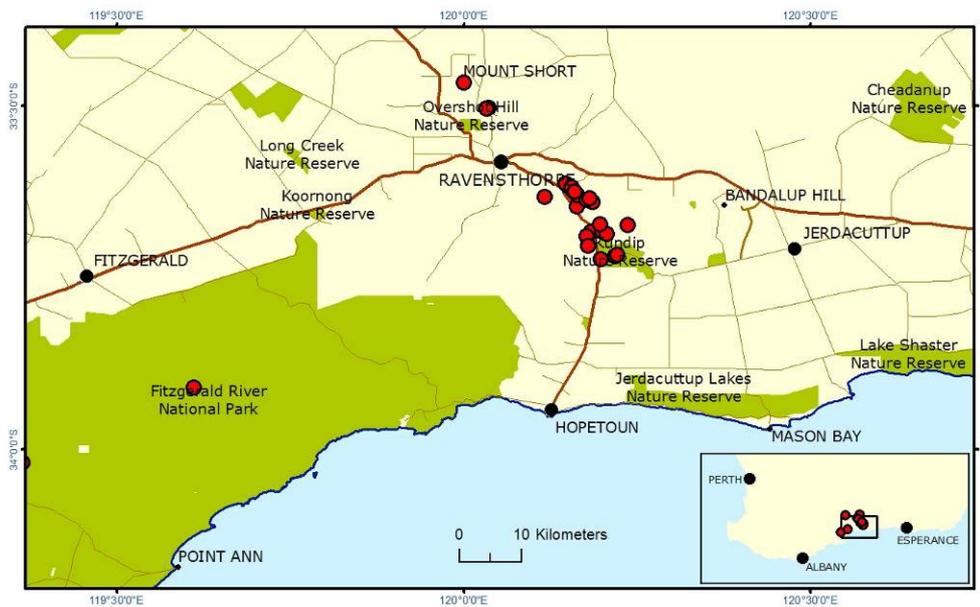
Soils: Brown or grey sandy loams or sandy clays, frequently with gravel or chert fragments at the surface.

Landforms: Moderately inclined mid-slopes to hillcrests.

Vegetation: Tall open mallee shrubland over mid-high shrubland (usually with *Melaleuca* spp.) over heath.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
01-	Hayes Road	Shire Rd Verge	26/04/2001	100
02-	Fitzgerald River NP	National Park	27/10/1994	'locally common'
03-	Kundip	Other Reserve	02/09/1982	
04-	Mt Desmond	Other Reserve	09/10/1975	
05-	Mt Desmond	Other Reserve	11/02/1997	2
06-	Mt Short	UCL	30/08/1963	
	Mt Short	UCL	06/09/2007	
	Mt Short	UCL	18/11/2008	'isolated plants'
	Ravensthorpe Range	UCL	27/09/2007	'<10% cover'
	Mt Desmond	Other Reserve	07/09/2007	'<10% cover'
	Mt Desmond	Other Reserve	26/04/2007	'<10% cover'
	Mt Desmond	Other Reserve	21/09/2005	'rare'
	Kundip	Other Reserve	21/09/2005	'rare'
	Mt Desmond	Other Reserve	01/09/1979	
	Mt Desmond	Other Reserve	22/09/2005	
	Mt Desmond	Other Reserve	06/02/2004	20
	Kundip	Other Reserve	08/12/2003	100
	Kundip	Other Reserve	05/12/2003	'occasional'
	Fitzgerald River NP	National Park	07/10/2007	30
Total:				252



References:

Maslin, B.R. (1999). *Acacia* Miscellany 16. The taxonomy of fifty-five species of *Acacia*, primarily Western Australia, in section *Phyllodinae* (Leguminosae: Mimosoidae). *Nuytsia* 12(3): 311-411.

Acacia moirii E. Pritz. subsp. *dasycarpa* Maslin

Family: FABACEAE

Other names: None.

Conservation status: Removed from DEC priority list in 2010.

Flowering time: May to August; mature pods collected in late October.

Information date: 15/1/2010



Photo: G. Craig

Taxonomy:

Description. A *shrub* 30–60 cm tall, single-stemmed or dividing at ground level into a few erect or slightly spreading branches. Its *branches* have fine, yellow ribs, dense short soft hairs, and are without axillary spines. The *stipules* are narrowly oblong to very narrowly triangular, 4–8 mm long and not spiny. The *leaves* have a *petiole* 2 mm long, and a sessile gland *c.* 0.5 mm in diameter. The *blade* is bipinnate (twice divided into pinnae) and unijugate (with one pair of pinnae on each division). The pinna rachis (i.e. the pinnule bearing axis) is 6–15 mm long, and the small point at the tip of the pinna rachis is straight, not spiny and 3–4 mm long. Each pinna has 3 or 4 pairs of green to grey flat *leaflets* (pinnules) which are normally 3–6 mm long, densely hairy above and below, and nerveless (veinless) above and 1-nerved below. The *inflorescence* is unbranched (simple); the *flower stalk* has a densely hairy basal bract to 20 mm long and the globular yellow *flower heads* are 6–8 mm wide when the flower opens and are comprised of 17–20 densely packed flowers. The *calyx* is 1/2–2/3 the length of the petals, with a prominently 5-nerved tube and five lobes. The five *petals* are 2–2.5 mm long and 1-nerved, with a basal tube for 1/2 of their length. The *stamens* are numerous and free. The *Pods* are somewhat hard and brittle, dark grey-brown, narrowly oblong and 15–40 mm long, with dense soft hairs throughout. *Seeds* are black, shiny, oblong, *c.* 2.5 mm long and 2 mm wide, with an abruptly thickened straight aril.

Distinctive features. *Acacia moirii* subsp. *dasycarpa* is more closely related to *Acacia moirii* subsp. *moirii* than to *Acacia moirii* subsp. *recurvistipula* Maslin. It is distinguished from subsp. *moirii* by its densely shortly hairy branches and leaflets, its somewhat longer stipules, and its straight (not reflexed) terminal setae. Is also a slightly taller shrub, and it is not as prolifically branched at the base as the typical subspecies.

Subspecies name. Derived from the Greek words *dasy* (shaggy or thickly hairy) and *carpa* (fruit), in reference to the densely hairy pods.

Distribution. Known to occur between the localities of Munghlinup and Fitzgerald, including several populations within the Fitzgerald River National Park. An outlier population has been reported from between Lake King and Newdegate.

Habitat Requirements:

Soils: Recorded from a variety of soil types including deep white sand, stony quartzite loams and sand over laterite.

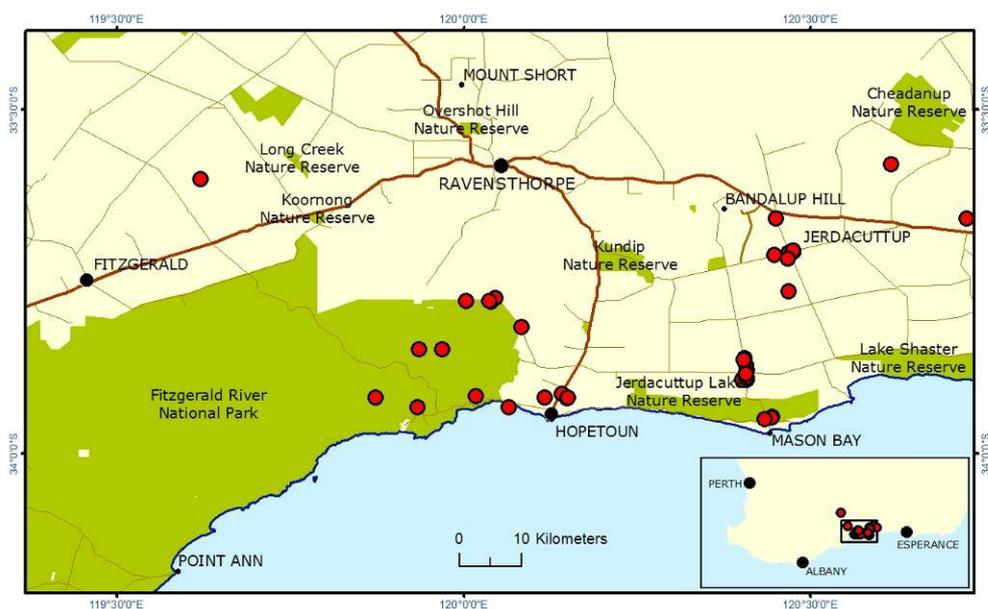
Landforms: From sandplains to rocky hillslopes.

Vegetation: Associated with a variety of vegetation types including tall open shrubland, low heath and mallee shrubland.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	East Mount Barren	National Park	28/10/1963	
	East Mount Barren	National Park	4/10/1966	
	West River	Freehold	1/03/1970	
	Eyre Range	National Park	30/05/1970	
	Eyre Range	National Park	30/05/1970	
	Hopetoun	Freehold	10/09/1970	
	No Tree Hill	Crown Reserve	2/10/1970	
	Lake King	Unknown	13/07/1971	
	Eyre Range	National Park	16/07/1971	
	Ravensthorpe	Freehold	5/08/1972	
	East Mount Barren	National Park	13/04/1974	
	No Tree Hill	Crown Reserve	8/10/1975	
	No Tree Hill	Crown Reserve	14/12/1975	
	Hamersley River Inlet	National Park	25/05/1983	'common'
	Fitzgerald River NP	National Park	12/09/1983	'occasional'
	East Mount Barren	National Park	18/11/1985	'occasional'
	Moir Track	Public Roads	17/10/1991	'common'
	Jerdacuttup	Freehold	8/09/1993	'common'
	Fence Road	Public Roads	8/09/1993	1
	Fence Road	Freehold	8/09/1993	20
	Munghlinup	Freehold	9/09/1993	
	East Mount Barren	National Park	17/11/1993	
	Hopetoun	Crown Reserve	8/05/1996	'occasional'
	Jerdacuttup North Road	Public Roads	12/06/1998	'rare'
	John Forrest Road	Public Roads	30/04/1999	'frequent'
	Jerdacuttup	Public Roads	8/08/1999	'common'
	Mason Bay Road	Public Roads	2/12/2004	
	Mason Bay Road	Freehold	3/12/2004	37
	Mason Bay Road	Freehold	3/12/2004	
	Mason Bay Road	Freehold	4/12/2004	
	Mason Bay Road	Crown Reserve	4/12/2004	

Mason Bay Road	Freehold	8/12/2004	2
Mason Bay Road	Crown Reserve	20/01/2005	
Mason Bay Road	Crown Reserve	23/01/2005	
Mason Bay Road	Crown Reserve	23/01/2005	
Hopetoun	Crown Reserve	13/05/2005	'common'
Hopetoun	Public Roads	12/07/2005	'occasional'
Mason Bay Road	Public Roads	13/08/2005	
Mason Bay Road	Public Roads	13/08/2005	
Mason Bay Road	Public Roads	14/08/2005	
Mason Bay Road	Public Roads	14/08/2005	
Mason Bay Road	Public Roads	15/08/2005	
Mason Bay Road	Public Roads	15/08/2005	
Mason Bay Road	Public Roads	5/09/2005	
Jerdacuttup	Freehold	Unknown	
Mason Bay Road	Public Roads	Unknown	
Fitzgerald River NP	National Park	7/12/2008	100
Jerdacuttup Rd	Public Roads	14/09/2008	'occasional'
Total:			160



References:

Maslin, B.R. (1975). Studies in the genus *Acacia* (Mimosaceae)-4. A revision of the Series *Pulchellae*. *Nuytsia* 1(5): 388.

Note: Bruce Maslin has reviewed this description (2009).

***Acacia pinguiculosa* R.S.Cowan & Maslin subsp. *teretifolia*
R.S.Cowan & Maslin**

Family: FABACEAE

Other names: None.

Conservation status: No formal conservation status.

Flowering time: Flowering from July to September; mature pods collected in December.

Information date: 15/1/2010



Photo: M. Fitzgerald

Taxonomy:

Description. Rounded or obconic *shrub* to 1.5 m high. *Branchlets* are smooth and without hairs or sparsely hairy. New shoots are resinous but not viscid. *Stipules* are up to 0.5 mm long and fall off early. The ascending to erect *phylloides* are round in cross section (terete), with hairs present or absent, 12–20 mm long and 1–1.5 mm wide, and have 6–8 nerves (veins) which may be hard to distinguish from the wrinkles. The phyllode pulvinus (swelling at the phyllode base) is 1–2 mm long, the gland is obscure or absent and the apex is rounded-obtuse. The *inflorescence* is unbranched (simple) or with 1 or 2 flower heads per axil, and on stalks to 13 mm long that have a basal, ovate, unhooded bract. The flowering heads are globular, bright, light to medium golden, 7–9 mm wide (when fresh), and have 10–17 flowers per head. The *flowers* have 5 *sepals* that are 1/4–1/2 the length of the petals and fused at their base for 2/3–3/4 of the total sepal length. The 5 *petals* are free, narrowly elliptic, without hairs and prominently 1-nerved, with an acute apex. The *stamens* are free and numerous. The hairless, crustaceous *pod* is narrowly oblong to linear, bi-convex to flat, straight to shallowly curved, 15–35 mm long and 2–3.5 mm wide, and wrinkled longitudinally when dry. *Seeds* are widely ellipsoid to ellipsoid, to 3.5 mm long and 2 mm wide, mottled grey or yellowish and brown, and with a terminal *aril*.

Distinctive features. Perhaps related to the *Acacia sulcata* group, but most of the taxa of that alliance have different phyllode nervature (venation), hooded bracts on the base of the flower stalks and undulate pods.

Two subspecies of *Acacia pinguiculosa* are recognised. Typical *Acacia pinguiculosa* subsp. *teretifolia* has terete phyllodes rather than the flattened phyllodes of subsp. *pinguiculosa*. However, populations at Bandalup Hill (G. Cockerton 7554) are considered by Bruce Maslin to be an ecotype of *A. pinguiculosa* subsp. *teretifolia* with flattened phyllodes and three nerves. The pods of *A. pinguiculosa* subsp. *teretifolia* are wrinkled longitudinally and crustaceous compared with the smooth and coriaceous pods of subsp. *pinguiculosa*.

Subspecies name. Derived from the Latin words *teres* (rounded in section) and *folium* (leaf), in reference to the terete form of the phyllodes.

Distribution. Widespread from the Stirling Ranges east to Mt Burdett and north to Frank Hann National Park.

Habitat Requirements:

Soils: Reported from a range of soil types including sand, gravel, loam and clay.

Landforms: Commonly on lower slopes or undulating plains.

Vegetation: Open mallee shrubland, heath or dwarf scrub.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Stirling Range NP	National Park	24/10/2001	
	Ongerup	Private Property	20/08/1996	'scattered'
	Forrestania	UCL	24/03/1992	
	Jackson Rock	UCL	26/10/1992	
	Lake King	Private Property	4/09/1970	
	Mount Gibbs	UCL	9/12/1984	'frequent'
	Mount Gibbs	UCL	27/10/1992	
	Frank Hann NP	National Park	13/08/1985	
	Ravensthorpe	UCL	30/08/1980	'common'
	Frank Hann NP	National Park	8/08/1978	
	Frank Hann NP	National Park	13/11/1979	'rare'
	Ravensthorpe	UCL	30/08/1980	'dense populations'
	Frank Hann NP	National Park	13/08/2000	'few'
	Ravensthorpe	UCL	16/08/2003	'frequent'
	Frank Hann NP	National Park	21/11/1999	
	Ravensthorpe	Private Property	30/08/1980	'common'
	Ravensthorpe	UCL	18/08/1983	
	Frank Hann NP	National Park	15/09/1964	
	Coujinup Hill	UCL	13/05/1983	
	Munglinup	Private Property	17/08/1985	'common'
	Munglinup	UCL	15/10/2000	
	Munglinup	Nature Reserve	26/09/1985	
	Ninety Mile Tank	UCL	13/08/1985	'common'
	Bremer Range	UCL	21/07/1979	'scattered'
	Cascades Rd	UCL	25/07/1995	100+
	Munglinup	Private Property	29/10/1968	
	Munglinup	Private Property	5/11/1982	
	Munglinup	Private Property	20/12/1971	'uncommon'
	Young River	Private Property	27/09/1968	
	Esperance	Private Property	28/08/2000	1
	Cape le Grande NP	National Park	11/08/2001	

	Cape le Grande NP	National Park	7/10/1966	
	Cape le Grande NP	National Park	11/09/1971	
	Cape le Grande NP	National Park	9/11/1971	'occasional'
	Cape le Grande NP	National Park	16/08/1988	'dominant'
	Mt Burdett	Nature Reserve	2/08/1983	
	Total:			101+



References:

Maslin, B.R. (1999). *Acacia* miscellany 17. Miscellaneous new taxa and lectotypifications in Western Australian *Acacia*, mostly section *Plurinerves* (Leguminosae: Mimosoideae). *Nuytsia* 12(3): 413-452.

Note: Bruce Maslin has reviewed this description (2009).

Acacia rhamphophylla Maslin

Family:	FABACEAE
Other names:	Kundip Wattle.
Conservation status:	Listed as Declared Rare Flora under the Western Australian Wildlife Conservation Act 1950.
IUCN criteria:	Vulnerable D2.
Flowering time:	August and September.
Information date:	18/06/2009



Photo: S. Barrett

Taxonomy:

Description. Spreading, openly branched *shrub* 0.2–0.4 m high, sparingly divided at ground level into dark grey stems. The *branchlets* are circular in cross section with dense, short, straight hairs. The *stipules* are bristle-like, 5–7 mm long, recurved, dark red-brown, aging blackish, persisting. The dark green *phyllodes* are linear, narrowed at the base, crowded, hairless, straight to shallowly curved, and are to 17 mm long and 1.5 mm wide. They have a prominent midrib on the lower margin, the lateral nerves are absent and the thick upper margin is 2-nerved. The apex is beaked off-centre, and commonly terminates in a short hook. The circular *gland* is near or on the pulvinus, or absent. There are 12–16 *flowers* in bright, light golden, globular *heads*. The *inflorescence stalks* are 1 per axil, and are 8–13 mm long, recurved in fruit and hairless. The nerveless *calyx* is *c.* 1/3 the length of the petals, and divided for 1/2 of its length into five, narrowly oblong to slightly spoon-shaped, fringed lobes. The five *petals* are *c.* 1 mm long, without hairs and fused in their lower half. There are numerous free stamens. The blackish *Pods* have yellow to light brown marginal nerves and are hairless or sparsely hairy. They are mainly 10–15 mm long and *c.* 2.5 mm wide, thinly crustaceous, curved but sometimes slightly so, almost rounded in cross section and commonly constricted between the seeds. The dark brown to blackish *seeds* are longitudinally obloid-ellipsoid to ovoid, to 2.5 mm long and 1.5 mm wide, minutely wrinkled, and have a small white terminal aril.

Distinctive features. *Acacia rhamphophylla* appears most closely related to *Acacia laricina* Meisn. and *Acacia cedroides* Benth. *Acacia laricina* often has longer, pungent phyllodes that are continuous on the branchlets, has densely hairy flower stalks, cream to pale yellow flower heads with fewer flowers, a calyx with lobes united at the base, and larger seeds and pods. *Acacia cedroides* has finely striate-ribbed branchlets, phyllodes in whorls around the branchlets rather than alternate, shorter, linear triangular stipules, calyx lobes united at the base, and much larger seeds. *Acacia rhamphophylla* is also allied to *Acacia pusilla* Maslin, another Ravensthorpe Range endemic which has smaller, subterete, nearly veinless phyllodes, shorter stipules, shorter flower stalks bearing heads with fewer flowers and coiled pods (*A. rhamphophylla* pods are curved and sometimes only slightly so).

Species name. From the Greek words *rhamphos* (a curving bill or beak) and *phyllon* (a leaf) in reference to the beaked phyllode apex.

Distribution. Endemic to the Ravensthorpe Range from the Kundip area.

Habitat Requirements:

- Soils:** In well drained sandy clay, on or near the contact zone between serpentine and banded iron formations.
- Landforms:** On stony slopes overlooking a seasonal drainage line.
- Vegetation:** Open shrub mallee.
- Associated species:** *Eucalyptus cernua*, *E. pleurocarpa*, *Alyogyne hakeifolia*, *Beaufortia schaueri*, *Acacia durabilis*, *A. pinguiculosa*, *Coopernookia polygalacea*, *Hybanthus floribundus* and *Melaleuca* sp.

Biology:

- Age Structure:** In recent years a significant number of deaths amongst mature *A. rhamphophylla* have been observed in the population. This may suggest a senescent population and reinforce the necessity for germination stimulants.
- Disease:** The majority of *Acacia* species are resistant to *Phytophthora cinnamomi*. However *A. rhamphophylla*, and two closely related species, have not been tested to date (B. Shearer, pers. comm.).
- Disturbance:** The species responds to disturbance, such as mining activities and vehicles, with recruitment from seed. While plants are most common in disturbed areas, they also occur in lower numbers under mature vegetation.
- Fire:** While many *Acacia* species recruit following fire, no *A. rhamphophylla* juveniles were found in neighbouring vegetation burnt during a wildfire in 2000.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
01	Mt Desmond	Other Reserve	04/09/2008	1500
Total:				1500



References:

Hartley, E.R. & Barrett, S. (2005). *Acacia rhamphophylla*: Interim Recovery Plan 2005-2010. CALM, WA.

Maslin, B.R. (1999). *Acacia* Miscellany 16. The taxonomy of fifty-five species of *Acacia*, primarily Western Australia, in section *Phyllodinae* (Leguminosae: Mimosoidae). *Nuytsia* 12(3): 311-411.

Robinson, C.J. & Coates, D.J. (1995). Declared Rare and Poorly Known Flora in the Albany District. Western Australian Wildlife Management Program No 20. CALM, WA.

Acacia sp. Ravensthorpe Range (B.R. Maslin 5463)

Family: FABACEAE

Other names: None.

Conservation status: Priority One under DEC Conservation Codes for Western Australian Flora.

Flowering time: August to October.

Information date: 21/01/2009



Photo: A. Markey

Taxonomy:

Description. A prostrate, domed or spreading *subshrub* to 0.5 m tall. The *branchlets* are often somewhat flattened towards their apex, becoming rounded in cross section with age, and the phyllodes are frequently continuous with the branchlets, rather than with an obvious pulvinus (phyllode petiole). The branchlets are hairless or with scattered distinctively appressed hairs. Apically the new growth is red. The *stipules* are dark brown, may fall early, are narrowly triangular and to 2 mm long. The dark green *phyllodes* are somewhat crowded, slightly asymmetric, narrowly elliptic, occasionally lanceolate, 1–2 cm long and 2–5 mm wide, hairless, and with an acute apex and an off-centre mucron, that is coarsely to sharply pointed. The midrib is indistinct, and the gland is 3–5 mm above the pulvinus. The *inflorescence* is a single, globular, golden and hairless flower head in the axil of the phyllode, *c.* 4 mm in diameter and with 20–30 flowers. The flower stalks are 5–9 mm long. The *flowers* have 5 free *sepals* *c.* 1/2 the length of the petals. The 5 narrowly elliptic, almost free *petals* are pale yellow and *c.* 1 mm long. *Stamens* are very numerous and golden. The stalkless *ovary* is hairless with a style *c.* 1.5 mm long. The dark brown *pods* are linear, once or twice coiled, raised over but not constricted between the seeds. They are *c.* 21 mm long with one margin having scattered hairs or with scattered hairs all over the pod. The medium brown, glossy *seeds* are ellipsoid, to 2 mm long, and have a cream aril.

Distinctive features. Most similar to *Acacia excentrica* Maiden & Blakely, but differs in having branchlets which are glabrous or with appressed hairs (rather than with spreading hairs); phyllodes which are frequently continuous with the branchlets (but not always forming cauline wings), with a midrib that is usually central and

drying the same colour as the lamina (rather than drying yellow in *A. excentrica*), and with nerves on the upper margin which are very indistinct rather than distinct. *Acacia* sp. Ravensthorpe Range (B.R. Maslin 5463) always has one inflorescence stalk per axil that is 5–9 mm long, rather than one or two stalks per axil, that are mainly longer (10–15 mm long, more rarely 6–9 mm long). The gland of *Acacia* sp. Ravensthorpe Range (B.R. Maslin 5463) is mainly 3–5 mm above the pulvinus (1–2 (rarely 3) mm above in *A. excentrica*).

Species name. Undescribed.

Distribution. Endemic to the Ravensthorpe Range.

Habitat Requirements:

Soils: Usually recorded from rocky loam or rocky clay soils.

Landforms: Recorded from the upper and lower slopes of the Ravensthorpe Range.

Vegetation: In mallee shrublands.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
01-	Mt McMahon	UCL	30/03/2007	'isolated plants'
	Mt Desmond	Other Reserve	09/10/1975	
	Mt Desmond	Other Reserve	27/09/1983	'infrequent'
	Elverdton Rd	Shire Rd Verge	01/09/1979	
	Kundip	Water Reserve	31/08/1980	1
	Mt McMahon	UCL	19/11/2008	'isolated plants'
	Mt McMahon	UCL	22/11/2008	'isolated plants'
	Ravensthorpe Range	UCL	06/12/2008	'isolated plants'
	Ravensthorpe Range	UCL	11/12/2008	'isolated plants'
Total:				1



References.

Maslin, B.R. (2001). *WATTLE Acacias of Australia*. (ARBS: Canberra).

Note: Bruce Maslin has reviewed this description (2009).

Acrotriche orbicularis Hislop

Family: ERICACEAE

Other names: Previously listed under the phrase name *Acrotriche* sp. Ravensthorpe (S. Kern *et al.* LCH 16953).

Conservation status: Priority One under DEC Conservation Codes for Western Australian Flora.

Flowering time: August and September.

Information date: 1/10/2010



Photo: A. Markey

Taxonomy:

Description. Dwarf *shrub* 50–60 cm high and *c.* 80 cm wide. The *stems* have dense, short, white hairs, with the surface becoming grey, flaky. The *leaves* are alternate, crowded, and with cream stalks to 1.5 mm long. The leaf blade is rigid, grey-green from a whitish, waxy bloom on the surface, round to broadly elliptic (rarely broadly obovate), to 7.5 mm long and 7.5 mm wide, with flat margins and a scarcely pointed to rounded apex. The upper surface is scarcely concave, and the lower surface has inconspicuous venation that resembles ribs of a fan. The young growth has dense, short, white hairs, particularly on the margins and towards the apex of the leaf, becoming hairless. The *inflorescence* is an almost stalkless cluster of *c.* 4–6 flowers in a leaf axil. *Flowers* have numerous bracts and bracteoles, and a disc enveloping the lower half of the ovary. There are 5 persistent, overlapping, ovate, cup-like *calyx* lobes to 1 mm long, exceeded by the tubular green *corolla* which has 5 recurved lobes. The corolla tube is *c.* 2 mm long and the lobes are *c.* 0.8 mm long. The corolla is hairless outside, and inside has a tuft of hairs near the tip, and the throat is closed by white hairs. There are 5 shortly stalked stamens inserted around the throat of the corolla tube. The *ovary* has *c.* 5 fused carpels with style lobes fused into one with stigmatic lobes as many as the locules. There is one ovule per locule. The *fruit* and seed are unseen.

Distinctive features. *Acrotriche orbicularis* is most likely to be confused with *Acrotriche cordata* (Labill.) R.Br. The latter is a variable species, with some variants having leaves of a similar appearance, but they differ in lacking the pruinose coating

of *A. orbicularis*. *Acrotriche orbicularis* also has significantly shorter corolla lobes, which are very sparsely and irregularly hairy, rather than hairs in well defined transverse bands, and has only a few hairs in the unmodified throat, rather than dense hairs issuing from a raised cushion-like outgrowth as seen in *A. cordata*.

Species name. From the Latin word *orbiculus* (rounded, flat with a circular outline), in reference to the leaf shape.

Distribution. Only known from the Bandalup Hill area, east of Ravensthorpe.

Habitat Requirements:

Soils: Calcareous brown loam.

Landforms: Moderately inclined mid-slope.

Vegetation: *Eucalyptus purpurata* low woodland and *Eucalyptus indurata* mallee shrubland.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Bandalup Hill	Mining lease	24/05/2007	7303
	Bandalup Hill	Mining lease	30/05/2010	200+
	Bandalup Hill	Mining lease	30/05/2010	500+
	Bandalup Hill	Mining lease	30/05/2010	500+
	Maydon	UCL	30/05/2010	200+
Total:				8703+



References.

Hislop, M. (2010). A new locally endemic species of *Acrotriche* (Ericaceae: Styphelioideae: Stypheliaceae) from the Ravensthorpe area. *Nuytsia* 20: 19–25.

Allocasuarina hystricosa Wege

Family: CASUARINACEAE

Other names: Previously listed under the phrase name *Allocasuarina scleroclada* subsp. Bandalup (G. Cockerton 7773).

Conservation status: Priority Four under DEC Conservation Codes for Western Australian Flora.

Flowering time: Male flowers have been collected in February; female flowers in February, April, June and December.

Information date: 15/1/2010



Photo: S. Kern

Taxonomy:

Description. A *shrub* that reaches 3 m high. It has long, erect, needle-like, grey-green to yellow-green, segmented branchlets that grow to 30 cm long and function as leaves. The hairless segments (articles) are long, mostly 15–35 mm in length and are between whorls of leaves. These *leaves* are minute, and reduced to a whorl of 10–12 membranous, non-overlapping, flattened, erect teeth to 1.5 mm long. Male and female flowers are on separate plants (dioecious). *Male flowers* are aggregated in a spike with 12–15 whorls of flowers per cm; each flower consisting of one stamen and 2 scale like perianth (calyx and corolla) parts subtended by a bract. *Female flowers* consist of 2 fused carpels with a long, reddish style, subtended by a bract and bracteoles. Adjoining female flowers combine to form a stalkless, oblong to elliptic, rarely subglobose head of flowers, and at maturity the bracteoles become woody to form a cone. *Cone* bracts are inconspicuous. The broadly ovate bracteoles are distinctive in having one long protruding central spine 1.5–6 mm long, and 1–4 minor lateral spines. These may fall off with age. The cone is sessile, oblong to elliptic or almost rounded, and always square at the tip. It is approximately 20 mm long and 15 mm wide and is made up of indehiscent nuts each with a single, hairless, red-brown, terminally-winged seed (samara) that is 4.5–9 mm long.

Distinctive features. *Allocasuarina hystricosa* is similar to *Allocasuarina scleroclada* (L.A.S.Johnson) L.A.S.Johnson in possessing relatively long articles, non-overlapping teeth arranged in whorls of 10–12, cones and samaras of similar size and shape, and comparable male flowers. *Allocasuarina scleroclada* differs in having drooping

branchlets, and the cone bracteole and its spiny protuberance are prominently thickened and completely fused. *Allocasuarina scleroclada* also tends to have longer articles and longer teeth, although there is some gradation in these features between the two species.

Allocasuarina hystricosa also resembles *Allocasuarina spinosissima* (C.A.Gardner) L.A.S.Johnson. Both species have an erect habit, large cones and samaras, and spinose cone bracteole protuberances. *Allocasuarina spinosissima* differs in having male flower spikes with fewer whorls per cm, cone bracteoles with only a single spine per protuberance (although this spine can sometimes split along its length giving the appearance of lateral spines), shorter and wider articles, shorter teeth that overlap slightly at the base, and in being monoecious (male and female reproductive structures in separate flowers but on the same plant).

Species name. From the Latin word *hystricosus* (prickly or thorny), in reference to the spine-bearing protuberances on the cones.

Distribution. Mostly recorded from the Ravensthorpe Range, Bandalup Hill and nearby surrounds with an isolated population known from the Eyre Range (Fitzgerald River National Park). A possible outlier from Cape Arid National Park needs investigation.

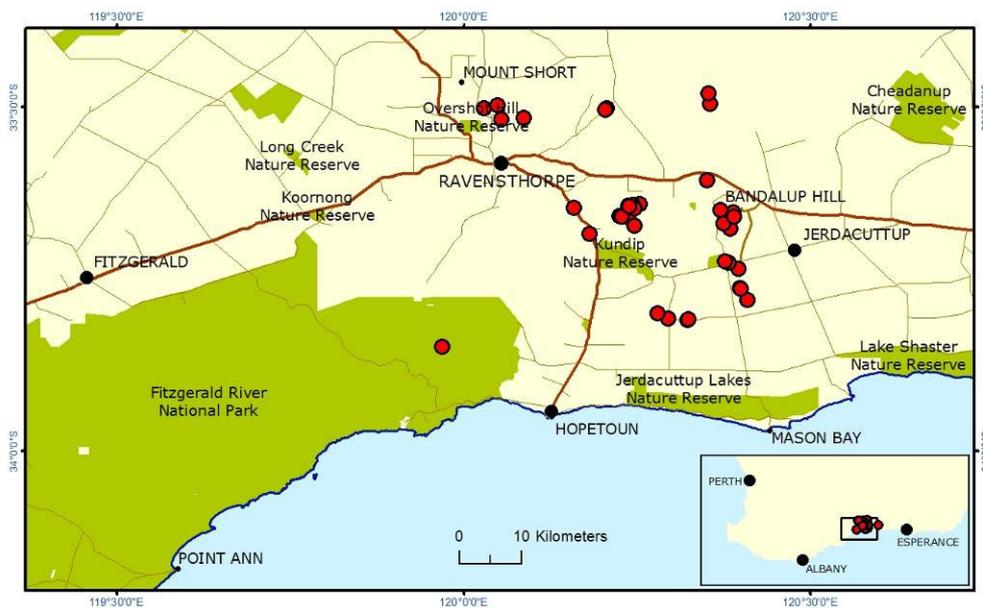
Habitat Requirements:

Soils: In orange, red or brown loam or clay.
Landforms: Occurring on plains, lower slopes and hilltops.
Vegetation: Recorded from mallee shrubland or heathland.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Fitzgerald River NP	National Park	2/11/1965	
	Cape Arid NP	National Park	6/12/1971	
	Carlingup	UCL	31/12/1997	200
	Upper Oldfield	UCL	11/10/2000	25
	Bandalup Hill	Mining Lease	19/07/2002	
	Bandalup	Other Reserve	18/09/2002	25
	Ravensthorpe	UCL	6/11/2003	
	Ravensthorpe	UCL	6/11/2003	
	Ravensthorpe	UCL	30/04/2004	600
	Ravensthorpe	UCL	7/11/2004	489
	Ravensthorpe	UCL	22/11/2004	10
	Middle Road	Rd Verge Shire	12/11/2004	50
	Mason Bay Rd	Rd Verge Shire	20/01/2005	58
	Jerdacuttup	Other Reserve	22/01/2005	57
	Jerdacuttup	Private Property	3/06/2005	11
	Mason Bay Rd	Rd Verge Shire	14/04/2005	6
	Ravensthorpe	UCL	7/03/2005	
	Mason Bay Rd	Rd Verge Shire	7/06/2005	59
	Mason Bay Rd	Rd Verge Shire	7/06/2005	5
	Ravensthorpe	Rd Verge Shire	8/06/2005	4
	Bandalup Hill	Mining Lease	8/06/2005	53
	Hopetoun-Rav Rd	Rd Verge Shire	11/02/2005	25
	Ravensthorpe	Rd Verge Shire	20/01/2006	5
	Ravensthorpe	Rd Verge Shire	20/01/2006	11
	Carlingup	UCL	4/10/2006	200

	Carlingup	UCL	4/10/2006	50
	Mason Bay Rd	Rd Verge Shire	8/12/2006	122
	Ravensthorpe	Private Property	14/02/2007	
	Ravensthorpe	UCL	27/06/2007	
	Ravensthorpe Range	UCL	23/05/2007	'10-30% cover'
	Ravensthorpe Range	UCL	23/05/2007	'isolated plants'
	Ravensthorpe Range	UCL	27/05/2007	'<10% cover'
	Bandalup Hill	Mining Lease	29/05/2007	'<10% cover'
	Ravensthorpe Range	UCL	27/09/2007	'isolated plants'
	Ravensthorpe Range	UCL	29/09/2007	'10-30% cover'
	Ravensthorpe Range	UCL	11/10/2007	'10-30% cover'
Total:				2065



References:

Wege, J.A. (2007). *Allocasuarina hystricosa* (Casuarinaceae): a new species from south-west Western Australia, with notes on related species. *Nuytsia* 17: 403-414.

Astartea sp. Hopetoun area (A.S. George 10594)

Family: MYRTACEAE

Other names: None.

Conservation status: Priority Three under DEC Conservation Codes for Western Australian Flora.

Flowering time: From late November to January.

Information date: 15/1/2010



Photo: M. Fitzgerald

Taxonomy:

Description. A single-stemmed or basally multi-branched, slender *shrub*, 0.7–1.5 m high that sometimes has weeping flowering branches. The young stems are red-brown, with narrow wings up to 0.2 mm wide. The stalked *leaves* are somewhat wrinkled, and have oil glands. They are opposite or in opposite bundles, mostly grouped in clusters on the flowering stem, are erect to widely spreading, more or less narrowly obovate from the side view, and 4.5–7 mm long and 0.5–0.7 mm wide with an acute apex. *Flowers* are solitary in each leaf axil, but there are commonly several pairs of flowers per main branchlet or on each small lateral branchlet. *Bracteoles* have a hooded apex. The flower pedicel (stalk) is 1.2–1.5 mm long, and the flower is 6–9 mm wide. The *hypanthium* (floral cup) is broadly pyriform (pear-shaped), c. 1.5 mm long and usually somewhat broadly 5-ribbed, somewhat wrinkled and gland-dotted. The five *sepals* are 0.4–0.6 mm long and there is a short horn to 0.1 mm long on the outer surface or they are strongly ridged, and the margin is dry, membranous and entire. The five *petals* are broadly obovate and pale pink to white. The 14–21 *stamens* are attached to the hypanthium and arranged in regular bundles of 2–5, which are opposite the sepals, and their filaments are joined at the base. *Staminodes* are few or absent. The *ovary* has 3 locules each with 7–11 ovules and the style is immersed in a central depression and has a capitate stigma. The *fruit* is a woody capsule to 2.5 mm wide, dehiscent from 3 valves. Viable *seeds* are golden-brown with dark red, often reticulate markings, and they are intermixed with numerous, dark red-brown chaff pieces.

Distinctive features. This species overlaps in range with *Astartea* sp. Jerdacuttup (C.A. Strid 21898) and the two species sometimes occur in close proximity, with a possible hybrid collection (R.T. Schuh, G. Cassis & R. Silveira 136) from Lake Shaster, which is like *Astartea* sp. Jerdacuttup (C.A. Strid 21898) in its leaves but differs in having the sepals with obvious ridges and short horns of *Astartea* sp. Hopetoun area (A.S. George 10594). *Astartea* sp. Jerdacuttup (C.A. Strid 21898) can normally be distinguished readily by its smoother sepals, more numerous stamens with smaller more square-shaped (in outline) anthers. It appears to have paler flowers and to occur in wetter habitats than *Astartea* sp Hopetoun area (A.S. George 10594).

Species name. Undescribed

Distribution. This species extends from west of Quoin Head in the Fitzgerald River National Park east to near Esperance.

Habitat Requirements:

Soils: Sandy soils commonly associated with laterite.

Landforms: It occurs in winter-wet depressions or near drainage lines along the coastal plain

Vegetation: Commonly associated with *Melaleuca cuticularis* (paperbark). Also recorded with *Nuytsia* over open sedgeland and in vegetation dominated by *Eucalyptus occidentalis*.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Fitzgerald River	National Park	02/12/1960	
	Fitzgerald River	National Park	20/12/1970	
	Stokes NP	National Park	27/02/2006	1
	Stokes NP	National Park	27/02/2006	5
	Springdale Rd	Rd Verge Shire	27/02/2006	10
	Springdale Rd	Rd Verge Shire	27/02/2006	1300
	Esperance	Rd Verge Shire	27/02/2006	8
	Esperance	Rd Verge Shire	27/02/2006	350
	Fitzgerald River NP	National Park	13/03/2006	
	Fitzgerald River NP	National Park	13/03/2006	2500
Total:				4516



References:

Note: Information was provided by Dr Barbara Rye (PERTH herbarium) from her *Astartea* revision (in prep.).

Astroloma microphyllum Stscheegl.

Family: ERICACEAE

Other names: None.

Conservation status: Removed from DEC priority list in 2010.

Flowering time: Recorded as flowering from April to July.

Information date: 28/01/2011



Photo: S. Kern

Taxonomy:

Description. This dwarf *shrub* is multi-stemmed from the base, prostrate and grows to 20 cm high and 50 cm across. The young branchlets are densely hairy. The small, ovate, ascending *leaves* are crowded on the upper branchlets. The leaves are light green above and paler below, with a few scattered, very short hairs (< 0.05 mm long) or hairless on the upper surface, 2–3.2 mm long and 0.8–1.2 mm wide, with flat margins and irregularly spaced, minute teeth that are c. 0.1 mm long. The leaf apex is acute, straight or recurved and with a prominent and sharp terminal point, c. 0.2 mm long. *Flowers* are red, axillary, solitary and shortly stalked, with several bracts which pass gradually into bracteoles and then with overlapping, ovate, pink-red *sepals* to 4.5 mm long. The *corolla* is elongated and cylindrical, 8–9 mm long, and its tube is hairless except for the inside surface which has a ring of flattened hairs towards the base. The triangular corolla lobes are erect, c. 3 mm long and thickened towards the apex. The inner surface of the lobes is bearded with tangled pink to white hairs, except for the hairless apical tip. There is a cup-shaped, unlobed *disc* below the ovary. The *ovary* has 5 carpels with 1 ovule per carpel. The *style* is thread-like and as long as the corolla tube or shorter, with a five-lobed stigma. The 5 *anthers* are fused to the throat of the corolla tube. The *fruit* is partially enclosed within persistent sepals and is woody, indehiscent, broadly ellipsoid and up to 5 mm long. It is smooth and green, becoming dark red-brown and wrinkled.

Distinctive features. *Astroloma microphyllum* is closely related to other red-flowered species of *Astroloma* but has very small leaves, and smaller flowers and fruit. *Astroloma prostratum* R.Br. occurs in the Ravensthorpe area but has longer leaves

(10–13 mm) and an obtuse rather than mucronate sepal apex. Other species of *Astroloma* in the region have similar mucronate sepals, however, *A. compactum* R.Br. has narrowly obovate leaves that are 6–10 mm long and 2–4 mm wide; *A. epacridis* (DC.) Druce has leaves with recurved or revolute margins; and *A. serratifolium* (DC.) Druce is an erect shrub to 1 m high, with serrate rather than entire leaf margins. *Astroloma baxteri* DC. has red flowers with bearded scales rather than a ring of hairs at the base. *Astroloma ciliatum* (Lindl.) Druce has no hairs at all at the base of the corolla tube and the top of the corolla tube is black not red.

Species name. From the Greek *micro-* (small) and *-phylla* (leaf).

Distribution. Annette Wilson is revising *Astroloma* and considers that only populations from Twertup Creek in the Fitzgerald River National Park can be considered to be *A. microphyllum*. However, specimens from Bandalup Hill and from Point Anne to Bremer Bay appear referable to this species. More specimens need to be collected from all areas and further studies conducted on the taxonomic boundaries of this problem group.

Habitat Requirements:

Soils: In sand, sandy loam and occasionally clay.

Landforms: Typically occurs on flat plains and gentle lower slopes.

Vegetation: Recorded from mallee shrublands and heathland.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Jerramungup	Private Property	6/04/1963	
	Fitzgerald River NP	National Park	11/07/1970	
	Fitzgerald River NP	National Park	12/07/1970	
	Oldfield River	UCL	3/07/1972	
	Fitzgerald River NP	National Park	27/10/1973	'scattered'
	Jerramungup	Private Property	26/05/1983	
	Pyramid Lake	UCL	25/06/1983	
	Fitzgerald River NP	National Park	2/09/1986	'occasional'
	Mount Groper	Crown Reserve	12/09/1987	'rare'
	Nyabing	Road Reserve	7/06/1988	
	Fitzgerald River NP	National Park	24/09/1988	'frequent'
	Newdegate	Nature Reserve	1/12/1988	
	Fitzgerald River NP	National Park	24/09/1989	'frequent'
	Fitzgerald River NP	National Park	15/09/1992	
	Fitzgerald River NP	National Park	27/06/1995	
	Fitzgerald River NP	National Park	15/09/1996	
	Kukerin	Nature Reserve	3/03/1999	
	Kukerin	Nature Reserve	15/03/1999	
	Fitzgerald River NP	National Park	8/10/2003	
	Gibson	Public Roads	18/05/2005	'occasional'
	Bandalup Hill	Mining lease	25/05/2006	'occasional'
	Fitzgerald River NP	National Park	23/04/2007	6-20
	Bandalup Hill	UCL	2/05/2010	28
	Ravensthorpe	Nature Reserve	28/03/2010	15
	Ravensthorpe	UCL	27/04/2010	11
	Bandalup Hill	UCL	27/04/2010	6
	Bandalup Hill	UCL	27/04/2010	15
	Bandalup Hill	Mining lease	30/05/2010	50+
	Munglinup	Nature Reserve	1/06/2010	200+
			Total:	331



References:

Stschehl. (1859). in *Bull. Soc. Imp. Naturalistes Moscou* 32(1): 7.

***Banksia corvijuga* (A.S.George) A.R.Mast & K.R.Thiele**

Family: PROTEACEAE

Other names: Previously named *Dryandra corvijuga* A.S.George.

Conservation status: Priority Three under DEC Conservation Codes for Western Australian Flora.

Flowering time: September to October.

Information date: 23/06/2008



Photo: S. Kern

Taxonomy:

Description. An erect *shrub* to 1.5 m high, without a lignotuber. The dense *leaves* have stalks to 6 cm long, are broadly linear, 10–20 cm long and 5–13 mm wide, and with an acute apex. The hairy upper surface soon becomes hairless, while the lower surface has persistent, dense hairs between the veins. The margin has 10–25 triangular and oblique teeth on each side that point towards the apex, and their margins are recurved down to the undersurface. The tooth apex is acute and pungent. The *inflorescence* is on a short lateral branchlet and has *c.* 60 yellow flowers that are equally spaced over an almost flat receptacle. The conspicuous, shining, brown *involucral bracts* surrounding the condensed head are 4–6 cm long, obtuse at the apex, and covered by short, appressed hairs. The *perianth* (calyx and corolla) is 38–41 mm long, with the outer surface above the base hairless. The 4 tepals (perianth segments) form a tube in bud then separate almost to the base when the flower opens, and have a claw with long hairs on the margin. The tepal limbs (apical free portion) are 7–9.5 mm long, hairless and with an anther at the apex. The hairless *pistil* is 44–46 mm long and exceeds the perianth, has a 1 locule ovary, and a slender style with a narrowly cylindrical, ribbed pollen presenter (a swelling below the stigma that retains pollen shed in the bud), *c.* 4 mm long. The *fruit* are hairless, almost woody, 2-valved *follicles* that are elliptic-obovate, 15 mm long and with a septum separating the 2 seeds. The *seeds* have a terminal membranous wing.

Distinctive features. Differs from *Banksia foliosissima* (C.A.Gardner) A.R.Mast & K.R.Thiele in having hairless rather than densely hairy perianth bases and fruit, a longer perianth, leaves that are shorter and broader, leaves with fewer teeth that point towards the apex rather than straight out to the side, and longer involucral bracts with short, appressed hairs rather than long wooly hairs.

Distribution. Restricted to the Ravensthorpe Range.

Species name. From the Latin words *corvus* (a raven) and *jugum* (chain of mountains), in reference to the Ravensthorpe Range.

Habitat Requirements:

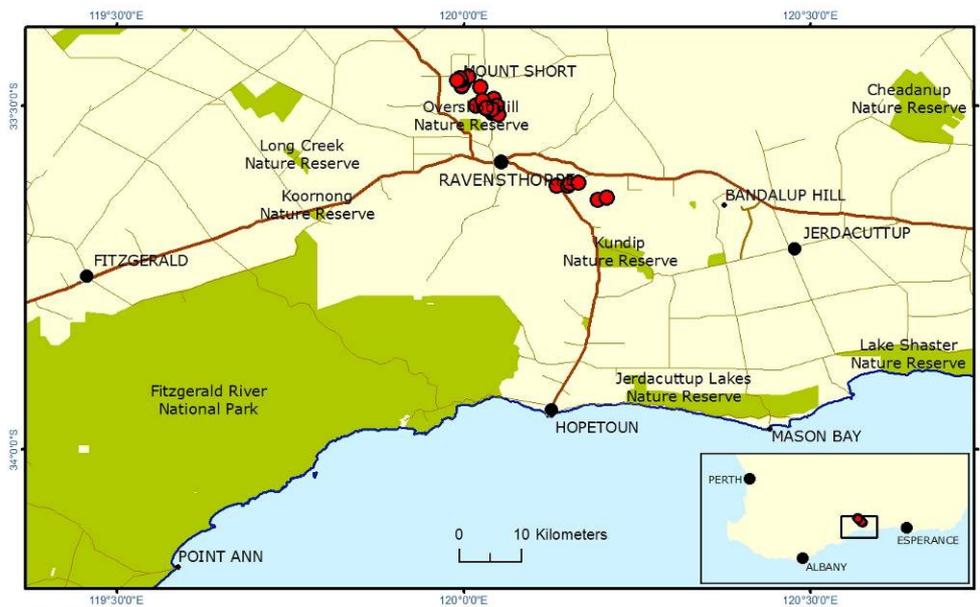
Soils: Brown clayey sands or sandy loams with lateritic fragments at the surface.

Landforms: Most frequently recorded from moderate slopes with a western aspect.

Vegetation: Usually tall open mallee shrubland.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
01	Ravensthorpe	UCL	21/03/2000	
02a	Ravensthorpe	Other Reserve	02/12/1993	13
03a	Mt Short	Other Reserve	27/10/2006	
03b	Mt Short	UCL	27/10/2006	
04	Floater Rd	Shire Rd Verge	25/10/1987	
05	Ravensthorpe	UCL	26/04/2001	100
06	Mt Desmond	Other Reserve	01/12/1993	
07	Ravensthorpe	UCL	16/11/2004	
08	Ravensthorpe	Other Reserve	15/11/2004	100
09	Mt Short	Other Reserve	06/04/2006	100
	Mt Desmond	Other Reserve	09/01/1979	
	Ravensthorpe Range	UCL	26/09/2007	'<10% cover'
	Ravensthorpe Range	UCL	11/10/2007	'isolated plants'
	Ravensthorpe Range	UCL	28/05/2007	'<10% cover'
	Ravensthorpe Range	UCL	12/09/2007	'<10% cover'
	Mt Short	UCL	13/04/2007	'isolated plants'
	Ravensthorpe Range	UCL	18/11/2008	'<10% cover'
Total:				313



References:

George, A.S. (1996). New taxa and new infrageneric classification in *Dryandra* R.Br. (Proteaceae: Grevilleoideae). *Nuytsia* 10(3): 313-408.

Mast, A.R. and Thiele, K. (2007). The transfer of *Dryandra* R.Br. to *Banksia* L.f. (Proteaceae). *Australian Systematic Botany* 20: 63–71.

Banksia foliosissima (C.A.Gardner) A.R.Mast & K.R.Thiele

Family: PROTEACEAE

Other names: Previously named *Dryandra foliosissima* C.A.Gardner.

Conservation status: Priority Four under DEC Conservation Codes for Western Australian Flora.

Flowering time: May to August.

Information date: 24/06/2008



Photo: S. Kern

Taxonomy:

Description. A dense, erect *shrub* 1–2 (rarely 3) m high, without a lignotuber. The crowded *leaves* have stalks to 4 cm long, are narrowly linear, pinnatifid (cut deeply into lobes but not to the midrib), to 27 cm long and 4–8 mm wide, and with an acute apex. The hairy upper surface soon becomes hairless, while the lower surface has persistent very dense hairs. The margin is strongly recurved and has 25–45 well spaced, triangular teeth on each side. The tooth apex is acute and pungent. The *inflorescence* is stalkless or on a short lateral branchlet and has *c.* 90–100 yellow flowers that are equally spaced over an almost flat receptacle. The dark brown, oblong to lanceolate *involucral bracts* surrounding the condensed head are *c.* 3 cm long, shorter than the pistil, acute at the apex, and densely woolly hairy. The golden *perianth* (calyx and corolla) is 27–30 mm long, hairy above the base and with appressed hairs on the claws. The 4 tepals (perianth segments) form a tube in bud then separate almost to the base when the flower opens, and have a long claw with short appressed hairs on the outer surface. The tepal limbs (apical free portion) are 5–6 mm long with long silky hairs on the outside and an *anther* at the apex. The incurved, hairless *pistil* is 30–40 mm long and exceeds the perianth, has a 1 locule ovary, and a slender style with a narrowly cylindrical, ribbed pollen presenter (a swelling below

the stigma that retains pollen shed in the bud) that is *c.* 4 mm long. The *fruit* has up to 6, 2-valved, densely hairy *follicles* that are obovate, to 21 mm long, and with a septum separating the 2 seeds. The *seeds* have a terminal membranous wing.

Distinctive features. Distinguished by its erect, crowded-leaved habit, narrow leaves with small, well separated teeth, golden flowers and large densely hairy, firmly attached fruit follicles. Differs from *Banksia corvijuga* (A.S.George) A.R.Mast & K.R.Thiele in having the base of the perianth and the fruit hairy rather than hairless, a shorter perianth, longer and mainly narrower leaves with more teeth that point sideways rather than towards the apex, and shorter involucral bracts with long wooly hairs rather than with short and appressed hairs.

Species name. From the Latin *folium* (leaf) and *-osus* (abundance), referring to its many leaves.

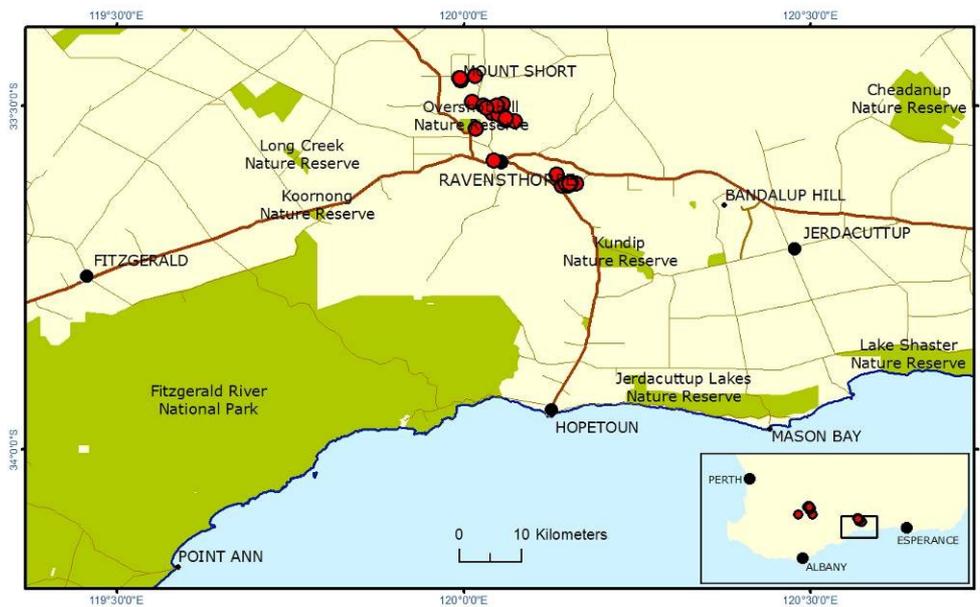
Distribution. Known from the Ravensthorpe Range, Tarin Rock and Harrismith regions.

Habitat Requirements:

Soils: Brown sandy loams or clayey sands, with lateritic fragments at the surface.
Landforms: Moderate slopes usually with a westerly aspect.
Vegetation: Tall open mallee shrubland.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
01	Ravensthorpe	VCL	26/04/2001	2000
02	Mt Desmond	Other Reserve	01/12/1993	100
03	Elverdton Rd	Other Reserve	08/09/1993	4
04	Dumblebung-Lake Grace Rd	Water Reserve	19/12/1983	
05a	Tarin Rock NR	Nature Reserve	26/07/1984	60
05b	Dumblebung-Lake Grace Rd	MRD Rd Verge	14/06/2000	
05c	Tarin Rock NR	Nature Reserve	26/07/2002	50
05d	Tarin Rock NR	Nature Reserve	26/07/2002	70
05e	Tarin Rock NR	Nature Reserve	26/07/2002	50
06a	Dumblebung-Lake Grace Rd	MRD Rd Verge	26/07/2002	20
06b	Tarin Rock NR	Nature Reserve	26/07/2002	
	Mt Desmond	Other Reserve	15/09/1963	4
	Mt Short	UCL	14/03/2007	'isolated plants'
	Ravensthorpe	UCL	17/03/2007	'<10% cover'
	Ravensthorpe	UCL	22/03/2007	'<10% cover'
	Mt Short	UCL	28/04/1981	
	Mt Short	UCL	12/09/2007	'10-30% cover'
	Ravensthorpe	UCL	11/10/2007	'<10% cover'
	Ravensthorpe Range	UCL	18/11/2008	'10-30% cover'
	Ravensthorpe Range	UCL	19/11/2008	'<10% cover'
	Mt Benson	UCL	21/11/2008	'30-70% cover'
	Mt Benson	UCL	4/12/2008	'isolated plants'
Total:				2358



References:

Gardner, C.A. (1964). Contributions Florae Australiae occidentalis. XIII *J. & Proc. Roy. Soc. Western Australia* 47: 54-64.

George, A.S. (1999). *Dryandra*. In *Flora of Australia*, Volume 17b (ABRS/CSIRO: Melbourne).

Mast, A.R. and Thiele, K. (2007). The transfer of *Dryandra* R.Br. to *Banksia* L.f. (Proteaceae). *Australian Systematic Botany*. 20: 63–71.

Beyeria cockertonii Halford & R.J.F.Hend.

Family: EUPHORBIACEAE

Other names: Previously listed under the phrase name *Beyeria* sp. Bandalup Hill (G. Cockerton 7553).

Conservation status: Listed as Declared Rare Flora under the Western Australian Wildlife Conservation Act 1950.

IUCN criteria: Vulnerable D2.

Flowering time: June to September.

Information date: 15/1/2010



Photo: D. Rathbone

Taxonomy:

Description. This erect shrub grows to 0.25 m high and is resinous on most parts. The *young branchlets* are yellow and sparsely hairy with simple hairs. *Leaves* are alternate, narrowly oblong to linear, 5–8 mm long and to 1.2 mm wide, with entire margins that are rolled downwards to the midrib and concealing the lower surface. The upper surface is smooth and hairless, the lower surface has star-shaped (stellate) hairs, and the apex is rounded to truncate and slightly recurved. Male and female reproductive structures are in separate flowers but on the same plant (*monoecious*). The stalked *flowers* are solitary in the leaf axils with 5 yellow, hairless, *calyx* lobes with resinous outer surfaces and 5 erect *petals*. The disc is of 5 discrete, fleshy glands. *Male flowers* are stalked, with suborbicular to very broadly ovate *calyx* lobes that are *c.* 1.3 mm long and rounded to broadly obtuse at the apex. The *petals* are slightly shorter than or equal to the calyx lobes, depressed obovate, *c.* 0.8 mm long, and are hairless outside and sparsely to moderately hairy inside towards the apex. There are 10–16 *stamens* crowded on a hemispherical receptacle. The *female flowers* have erect, triangular calyx lobes that are \pm appressed to and enclosing the gynoecium (apart from the stigma), ovate to broadly ovate, *c.* 1.3 mm long, and acute at the apex. The *petals* are less than half the length of the calyx lobes, broadly obovate, *c.* 0.4 mm long and rounded to truncate at the apex. The *ovary* has 3 hairless locules and a hairless style, 0.1–0.3 mm long with a 3-lobed stigma. The smooth and hairless *capsule* is \pm ellipsoid, 3–4 mm long and on an erect, angular stalk that is widened under the fruit. The calyx is persistent and *c.* one third the length of the mature fruit. Each fruit has 1–

3 dark brown, ellipsoid *seeds* that are *c.* 2.5 mm long (including aril).

Distinctive features. *Beyeria cockertonii* is morphologically most similar to *Beyeria brevifolia* (Muell.Arg.) Benth. but can be distinguished by its thin, viscid covering over most parts, its shorter habit (up to 0.25 m high compared with up to 1.8 m high), shorter pedicels (1–3 mm long compared with 5–15 mm long), its female flowers with a 3-lobed rather than cap-like stigma, and a 3-locular rather than 2-locular ovary.

Species name. Named after botanical consultant Geoff Cockerton who discovered this species.

Distribution. *Beyeria cockertonii* is known only from the Bandalup Hill area.

Habitat Requirements:

Soils: Medium to heavy clay associated with komatiite or basalt.

Landforms: Moderately inclined hillslopes.

Vegetation: Grows in open mallee shrubland and heathland. Associated species include, *Acacia ophiolithica*, *Eucalyptus flocktoniae*, *Hakea verrucosa*, *Pomaderris brevifolia* and *Verticordia oxylepis*.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
1	Bandalup Hill	Mining lease	4/10/2007	300000
2	Bandalup Hill	Private Property	3/10/2007	17888
Total:				317888



References:

Halford, D.A. & Henderson, R.J.F. (2008). A taxonomic revision of *Beyeria* Miq., *Austrobaileya* 7(4): 604-605.

***Beyeria villosa* Halford & R.J.F.Hend.**

Family: EUPHORBIACEAE

Other names: Previously listed under the phrase name *Beyeria* sp. A Ravensthorpe (A.S. George 9474).

Conservation status: Priority Four under DEC Conservation Codes for Western Australian Flora.

Flowering time: August to October; fruiting in October.

Information date: 15/1/2010



Photo: S. Kern

Taxonomy:

Description. A much branched, erect and spreading *shrub* to 1.5 m high. *Young branchlets* have dense, simple and bifid hairs to 0.7 mm long. *Leaves* are alternate, narrowly oblong to linear, 7–14 mm long and 1.4–2.1 mm wide, with the margins entire and rolled downwards to the midrib. The upper surface is resinous with scattered simple hairs, the lower surface is densely hairy and the apex is rounded to slightly truncate. Male and female reproductive structures are in separate flowers but on the same plant (*monoecious*). *Flowers* are without a stalk and present in the leaf axils, either solitary or in clusters of 2 or 3. The 5 calyx lobes are yellow-brown with a resinous outer surface and there are 5 petals slightly shorter than or equal to the sepals. The disc is of 5 discrete fleshy glands, 0.2–0.3 mm long. *Male flowers* have very broadly ovate calyx lobes, *c.* 0.6 mm long and 0.5 mm wide, and the *petals* are broadly elliptic, *c.* 0.6 mm long and 0.5 mm wide. The hemispherical receptacle is *c.* 0.6 mm across, and hairless with 10 crowded stamens. The *female flowers* have oblong or broad-ovate *calyx* lobes, *c.* 0.5 mm long that are \pm appressed to and enclosing the ovary, but not the stigma. The obovate *petals* are *c.* 0.6 mm long, and wither but do not fall off; and there is a densely hairy ovary with 2 locules and a style 0.2–0.4 mm long, with hairs towards the base and a discoid stigma. The *fruit* is a sub-globose capsule that is 1–3-seeded, on an erect, angular stalk that is widened under the fruit.

Distinctive features. *Beyeria villosa* is not easily confused with any other species of *Beyeria*. It can be distinguished by its comparatively small, \pm sessile flowers and

densely hairy young branchlets.

Species name. From the Latin word *villosus* (shaggy with fairly long, soft, straight and ascending hairs).

Distribution. *Beyeria villosa* is known from the Ravensthorpe Range, Bandalup Hill and nearby surrounds including the Kundip Nature Reserve.

Habitat Requirements:

Soils: Calcareous grey to brown clayey soils.

Landforms: Gently to moderately inclined hillslopes.

Vegetation: Most frequently recorded from *Eucalyptus indurata* mallee woodland or *Eucalyptus purpurata* woodland.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Ravensthorpe Range	Crown Reserve	1/08/1969	
	Ravensthorpe Range	UCL	25/10/1987	'scattered'
	Bandalup Hill	Mining Lease	18/02/1998	'abundant'
	Bandalup Hill	Mining Lease	3/11/2001	300000+
	Bandalup Hill	Crown Reserve	15/04/2002	
	Ravensthorpe Range	UCL	15/04/2004	'abundant'
	Ravensthorpe Range	Road Reserve	30/04/2004	20
	Ravensthorpe Range	UCL	2/05/2004	6000
	Bandalup Hill	Mining Lease	7/12/2004	
	Ravensthorpe Range	Crown Reserve	28/02/2005	50
	Ravensthorpe Range	UCL	19/03/2007	'10-30% cover'
	Ravensthorpe Range	UCL	23/05/2007	'<10% cover'
	Ravensthorpe Range	UCL	24/05/2007	'<10% cover'
	Ravensthorpe Range	UCL	24/05/2007	'<10% cover'
	Ravensthorpe Range	UCL	24/05/2007	'<10% cover'
	Ravensthorpe Range	Crown Reserve	27/05/2007	'10-30% cover'
	Ravensthorpe Range	UCL	27/09/2007	'<10% cover'
	Ravensthorpe Range	UCL	29/09/2007	'<10% cover'
	Kundip	Nature Reserve	02/05/2010	500+
	Bandalup Hill	UCL	26/04/2010	200+
Total:				306740+



References:

Halford, D.A. & Henderson, R.J.F. (2008). A taxonomic revision of *Beyeria* Miq., *Austrobaileya* 7(4): 631-633.

Caladenia arrecta Hopper & A.P.Br.

Family: ORCHIDACEAE

Other names: Reaching Spider Orchid.

Conservation status: Removed from DEC priority list in 2010.

Flowering time: July to October.

Information date: 15/1/2010



Photo: S. Kern

Taxonomy:

Description. Solitary *herbs*, or more rarely growing in clumps. The *scape* (flowering stem) is 12–35 cm high and hairy. The *leaves* are single, erect, pale green with the basal third blotched with purple. They are hairy, linear and up to 30 cm long and 2 cm wide. There are 1 or 2 (rarely 3) *flowers* that are 5–8 cm long and 3–5 cm across, and predominantly red-maroon to pale greenish-yellow with variable suffusions of lines and spots of a dull maroon. The *sepals* and *petals* are stiffly held, linear in the basal half, then abruptly narrowing for 1–2 mm before expanding to a swollen apical section that is 10–17 mm long on the sepals, and 5–10 mm long on the petals. This swollen section is light brown to yellow, consisting of minute, densely packed, globular, glandular cells. The *dorsal sepal* is erect and slightly incurved, and the *lateral sepals* are straight, spreading obliquely downwards and all are 2.5–4 cm long. The *petals* are distinctively upcurved with a vertical apex and 2–3 cm long. The 3-lobed lip-like modified median petal (labellum) is yellowish-green with pink to red, radiating stripes, terminating in a uniformly dark maroon apex, and has a distinctive, central arrangement of protrusions (calli) present. These calli are in two pairs of rows, with a clear gap between them. The *stamens* and *style* are united to form a column to

15 mm long, which is broadly 2-winged, dark dull-maroon with pale yellow blotches and a terminal anther. The *ovary* is below the flower and densely covered in hairs. The *stigma* is immediately below the anther. *Fruit* unseen.

Distinctive features. Can be confused with *Caladenia longiclavata* E.Coleman (Clubbed Spider orchid) and *Caladenia magniclavata* Nicholls (Big Clubbed Spider Orchid) but is readily distinguished from both by its upswept petals and distinctive calli which are arranged in two pairs of rows with a clear gap between them.

The shrubland form of *Caladenia arrecta* has smaller darker-coloured flowers, grows in different habitat to the type form and may have other features supporting recognition as a subspecies.

Species name. Derived from the Latin word *arrectus* (set upright, pointing upwards), referring to the distinctive upswept petals.

Distribution. Occurs in forest and woodland areas from Bindoon south to Augusta and east to Mt Manypeaks, with scattered populations in shrublands and winter-wet flats dominated by low heath further east to near Condingup.

Habitat Requirements:

Soils: Grows in a range of soils from sand to lateritic loam.

Landforms: Recorded from a variety of landforms including plains, hillslopes and drainage lines.

Vegetation: At the western end of its distribution *Caladenia arrecta* typically grows in *Eucalyptus marginata* (Jarrah) forest. Towards the eastern end of its range it commonly occurs in mallee shrubland.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Bridgetown		Unknown	
	Busselton		Unknown	
	Mahogany creek		16/08/1930	
	Munglinup	Private Property	12/08/1951	
	Dewars Pool		23/08/1959	
	Walpole		27/09/1960	
	Nannup		19/09/1966	
	Karridale		9/09/1972	
	Needilup		11/08/1975	
	Witchcliffe		30/08/1975	
	Gibson	UCL	27/08/1978	
	Bindoon		31/08/1984	15
	Margaret River		9/10/1984	2
	Margaret River		10/09/1985	5+
	Pallinup River	Private Property	15/08/1986	
	Augusta		28/09/1986	4
	Pallinup River	Private Property	15/08/1987	
	Harvey		25/09/1987	
	Fitzgerald River NP	National Park	1/09/1990	500+
	Denny's Road		15/10/1992	
	Bridgetown		11/09/1995	'scattered'
	Thomas River	Public Roads	22/08/1997	40
	Douglas Road		10/07/1999	'few'
	Wellstead	Private Property	17/08/2000	'occasional'

	Pallinup River	Private Property	23/07/2001	'occasional'
	Eagle Bay		7/09/2001	
	Mason Bay Road	Public Roads	14/08/2005	
	Kingston forest block		22/09/2008	'occasional'
	Total:			566+



References:

Hopper, S. & Brown, A.P. (2001). Western Australian Orchidology, 2 *Caladenia. Nuytsia* 14: 50-51, Figures 2 R-W.

Note: Andrew Brown has reviewed this description (2009).

Calothamnus roseus A.S.George

Family: MYRTACEAE

Other names: Previously listed under the phrase name *Calothamnus* sp. Kundip (A.S. George & E.G.H. Oliver ASG 17657).

Conservation status: Priority One under DEC Conservation Codes for Western Australian Flora.

Flowering time: September to November.

Information date: 1/10/2010



Photo: A. Markey

Taxonomy:

Description. A *shrub* to 2.5 m high, without a lignotuber and with bark flaking in coarse strips. The stems are hairless. The stalkless *leaves* are smooth, gland-dotted, hairless, linear, round in cross section, 25–45 mm long and 0.5–0.7 mm wide. The *flowers* are clustered mainly in groups of 3, are \pm slightly immersed in the stems, and situated mostly below the leaves. They are strongly scented. The *hypanthium* is 5–6 mm long, with a covering of dense, reflexed hairs. The 4 *sepals* have triangular lobes 3.5–4 mm long and are densely hairy. The 4 *petals* are 6–7 mm long and fall when the flower opens. The 4 deep pink, flattened *staminal bundles* are equal in length and 28–33 mm long. There are *c.* 15 marginal filaments per bundle stalk with linear anthers that are *c.* 2 mm long. The *ovary* has 3 locules with a strongly downcurved style that is *c.* 20 mm long. The stalkless *fruit* is an ovoid, bell-shaped, densely hairy capsule, 13–16 mm long, and smooth. There are 2 persistent, enlarged sepals that are woody, and 2 sepals that are turned outwards,

not enlarged, and wear off. The numerous, smooth *seeds* are narrow, 2–2.5 mm long and angular.

Distinctive features. Differs from *Calothamnus rupestris* Schauer in having generally longer leaves, reflexed hairs covering the hypanthium, deep pink rather than red staminal bundles, a shorter ovary, and larger fruit.

Species name. Derived from the Latin word *roseus* (rose-coloured or ‘pink’), in reference to the colour of the staminal bundles.

Distribution. Endemic to the Kundip area southeast of Ravensthorpe.

Habitat Requirements:

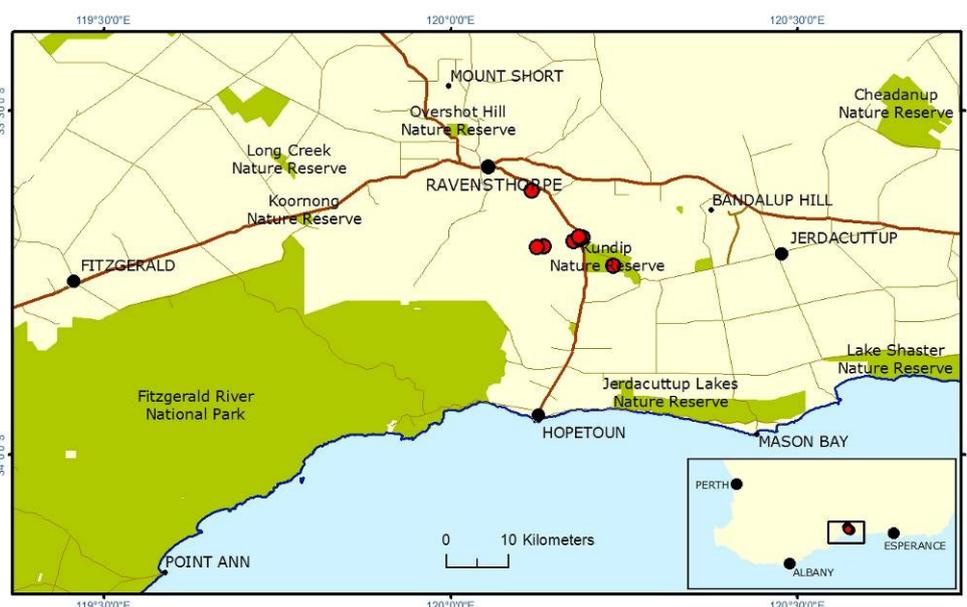
Soils: Occurs mostly in quartzite-derived soil.

Landforms: Populations have been found on hillslopes and hillcrests.

Vegetation: Mallee shrublands.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Kundip	Nature Reserve	06/12/2010	
	Kundip	UCL	04/11/2008	100+
	Kundip	Other Reserve	06/10/2007	‘isolated plants’
	Kundip	Other Reserve	06/10/2007	
	Hopetoun-Ravensthorpe Rd	Shire Rd Verge	29/09/2004	‘common’
	Kundip	Other Reserve	20/02/1985	
Total:				100+



References.

George, A.S. (2010). *Calothamnus* (Myrtaceae): precursor paper to Flora of Australia. *Nuytsia* 20: 183–200.

Chorizema circinale J.M.Taylor & Crisp

Family:	FABACEAE
Other names:	None.
Conservation status:	Priority One under DEC Conservation Codes for Western Australian Flora.
Flowering time:	September to December.
Information date:	23/06/2008



Photo: G. Craig

Taxonomy:

Description. A prostrate, wiry, scrambling *shrub* to 0.5 m high. *Branchlets* are densely hairy becoming hairless. The often sparse, leathery *leaves* are without stipules, shortly stalked, alternate or sub-opposite, linear-ovate or oblong, and to 12 mm long and 1.5–3.5 mm wide. The apex is distinctively strongly recurved or somewhat spirally coiled, acute and with a sharp, terminal abrupt non spiny point (mucron). There are scattered hairs and a prominent reticulate (network) venation on the upper leaf surface. The margins are rolled down to the lower surface which has a prominent midrib and dense, persistent hairs. The *inflorescence* is a terminal, 1–4-flowered raceme to 6 cm long, with a silvery-haired flower axis that is gently zigzagged. The flower stalks are bent down sharply and *c.* 3 mm long. The *bracts* and *bracteoles* are persistent. The *calyx* is to 9 mm long, and covered with dense, silky, grey or white hairs. The upper 2 lobes are united with the free tips to 1 mm long and with an acute apex. The lower 3 lobes are a little shorter, narrowly triangular and to 5 mm long. The *standard petal* is broadly ovate, to 13 mm long including the claw, and dull yellow with orange red markings. The two *wing petals* are narrowly obovate, to 13 mm long, and dull yellow with orange red markings. The *keel petals* are narrowly ovate, to 12 mm long, and yellow or greenish, with the apex tapering to a narrow point. The 10 *stamens* have filaments to 6 mm long. The shortly stalked *ovary* has dense long silvery-white hairs outside, an incurved style to 2 mm long, and 12 ovules. The ovoid *pod* is usually nodding, to 12 mm long and 6 mm wide, and is densely hairy. The *seeds* are kidney-shaped, mottled light brown, and shiny.

Distinctive features. *Chorizema cytisoides* Turcz., *Chorizema obtusifolium* (Sw.) J.M.Taylor & Crisp, *Chorizema ulotropis* J.M.Taylor & Crisp and *Chorizema uncinatum* C.R.P.Andrews all show a superficial resemblance to *C. circinale* in their narrowly ovate or linear leaves with revolute margins and reticulate venation. Of these, *C. circinale* has the most strongly recurved or even somewhat spirally coiled leaf apex. *Chorizema cytisoides* and *C. obtusifolium* have longer leaves (more than 12 mm and up to 20 or 40 mm long, respectively) that are linear and almost straight or terminating in a hooked point at the apex. *Chorizema ulotropis* has longer (to 20 mm long) and narrower, linear leaves that are c. 1 mm broad and a keel that is orange yellow at the base and dark brown towards the apex. *Chorizema uncinatum* differs in having leaves terminating in a hooked point which are only rarely strongly recurved (never spirally coiled), more numerous flowers and bracteoles that fall early.

Species name. From the Latin word *circinalis* (curved or bent like a crosier), in reference to the strongly recurved or curled leaves.

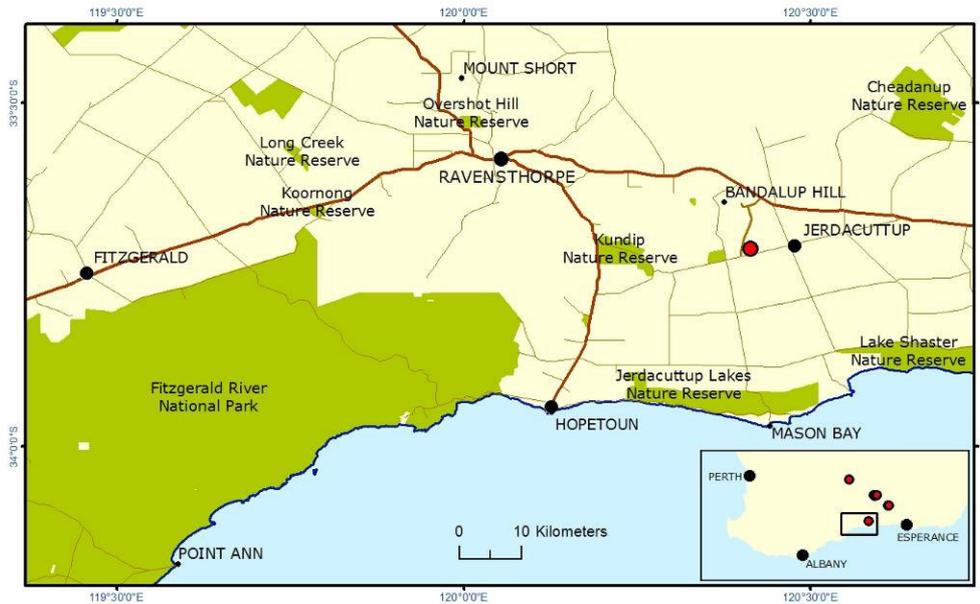
Distribution. Known from isolated populations east of Southern Cross, northwest of Grasspatch, Ninety Mile Tank and the Ravensthorpe area.

Habitat Requirements:

Soils: On yellow sand or sandy clay loam.
Landforms: Almost flat or undulating landscape.
Vegetation: Usually heath.
Associated species: Recorded with *Grevillea excelsior*, *G. aneura*, *Banksia elderiana*, *Allocasuarina campestris*, *Verticordia* spp. and *Melaleuca* spp.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
01-	North Cascade	Gravel Reserve	19/09/1993	70
02-	Jilbadji Nature Reserve	Nature Reserve	01/11/2004	200
	Ninety Mile Tank	UCL	16/12/1979	
	Jerdacuttup		06/09/1983	
Total:				270



References:

Burgman, M.A. (1985). Rare plants of the eastern Roe Botanical District. Rare and geographically restricted plants of Western Australia. Unpublished Report 27. CALM, Como, W.A.

Craig, G. & Coates, D. (2001). Threatened, Rare and Priority Flora of the Esperance District. Western Australian Wildlife Management Program No. 21. CALM, WA.

Taylor, J.M. & Crisp, M.D. (1992). A revision of *Chorizema* (Leguminosae: Mirbelieae). Australia. *Australian Systematic Botany* 5: 249-335.

Note: Mike Crisp has reviewed this species description (2009).

Conostylis lepidospermoides Hopper

Family: HAEMODORACEAE

Other names: Sedge Conostylis.

Conservation status: Listed as Declared Rare Flora under the Western Australian Wildlife Conservation Act 1950.

IUCN criteria: Vulnerable D1.

Flowering time: Late September to October.

Information date: 05/08/2008



Photo: G. Craig

Taxonomy:

Description. A tufted, rhizomatous, perennial *herb*. The *leaves* are basal with a sheathing base, linear though somewhat flattened, 17–36 cm long and to 1.6 mm wide. They are yellowish-green, becoming yellow at the base, with the lamina hairless and the margins with two rows of short, dark brown bristles that are pressed up against the leaf surface. The *inflorescence* is loosely cymose with 1–6 erect, densely hairy *flowers*. The flowering stem (*scape*) is unbranched or 1–2-branched, 1–4 cm long and much shorter than the leaves. The *bracts* are 5–21 mm long, brown, dry and membranous, hairless within and with scattered to dense hairs on the outer surface. The *flower stalks* are 6–8 mm long. The *perianth* (sepals and petals) has 6 segments, and is tubular in the lower half, 13–18 mm long, with dense hairs to 1.5 mm long on the outer surface that are like feather plumes. The segments are lemon-yellow outside and on the inner margins, otherwise golden yellow inside. The lobes are equal, erect to spreading, and 6–10 mm long. The 6 erect *stamens* are inserted 5–7 mm above the ovary near the top of the tube, and have yellowish cream *anthers* that are equal in length and to 5.5 mm long. The slender *filaments* are much narrower than the anthers and *c.* 1 mm long. The hairless *ovary* is semi-inferior with 3 locules, and a *style* to 11.5 mm long that has a minutely 3-lobed *stigma*. Ovules are numerous. *Fruit* and *seed* not seen.

Distinctive features. A distinctive species as it has the largest flowers in the genus, with no obvious close relatives in the area. It is inconspicuous when not in flower due to its slender perennial grass-like leaves.

Species name. Refers to the sedge-like habit of this species (resembling the genus *Lepidosperma*).

Distribution. Has a narrow geographical range and only occurs in the southern sandplains east of Ravensthorpe and north as far as 90 Mile Tank.

Habitat Requirements:

Soils: Yellow or grey sand over laterite or clay.
Landforms: Flat or gently undulating plains.
Vegetation: Low heath and sedge communities.
Associated species: *Lambertia inermis*, *Banksia media*, *Eucalyptus pleurocarpa*.

Biology:

Competition: Vulnerable to weed invasion.
Disease: Presumed to be vulnerable to *Phytophthora* Dieback Disease.
Fire: Readily resuckers after a hot fire.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
01-	Frank Hann NP	National Park	17/10/1974	
02-	Mills Rd	Shire Rd Verge	22/09/1993	
03-	Middle Road	Shire Rd Verge	09/09/1976	1
04a	West Point Rd	Shire Rd Verge	01/10/1979	1
04b	West Point Rd	Shire Rd Reserve	30/08/1992	24
05-	Frank Hann NP	National Park	27/10/1980	
06a	West Point Rd	Shire Rd Verge	11/09/1992	49
06b	Upper Oldfield	Private Property	11/09/1992	1
07-	Lort River	Private Property	16/10/1968	
08-	Cascade	Private Property	26/09/1968	
09-	West Point Rd	Shire Rd Verge	10/09/1992	75
10-	Dunn Swamp	UCL	21/09/1979	
11-	Rockhole Rd	Shire Rd Verge	15/09/1992	50
12-	South Coast Hwy	MRD Rd Verge	27/09/1968	
13-	West Point Rd	Shire Rd Verge	01/10/1983	
14-	West Point Rd	Shire Rd Verge	06/09/1983	
15-	South Coast Hwy	MRD Rd Verge	02/02/1994	3
16-	Middle Road	Shire Rd Verge	10/09/1993	500
17-	Upper Oldfield	UCL	09/09/2002	100
Total:				804



References:

Craig, G. & Coates, D. (2001). Threatened, Rare and Priority Flora of the Esperance District. Western Australian Wildlife Management Program No. 21. CALM, WA.

Hopper, S.D.(1987). *Conostylis*. In *Flora of Australia*, Volume 45 (AGPS: Canberra).

Note: Steve Hopper has reviewed this species description (2009).

Cryptandra craigiae Rye

Family: RHAMNACEAE

Other names: Previously listed under the phrase name *Cryptandra* sp. Hopetoun (G.F. Craig 6408)

Conservation status: Priority One under DEC Conservation Codes for Western Australian Flora.

Flowering time: May to June.

Information date: 23/06/2008



Photo: G. Craig

Taxonomy:

Description. *Shrubs*, erect at first then tending to become much more spreading, 5–25 cm high and up to 35 cm wide. They are not spinescent when young but at maturity have numerous, spiny branchlets that are somewhat curved and mostly 10–25 mm long. The *young stems* have a moderately dense to sparse covering of hairs to 0.6 mm long. The fringed *stipules* are to 2.5 mm long, taper to a protracted point and are shortly fused at their base around the short petiole. The *leaf blade* is linear in outline or very narrowly oblong, to 5 mm long and 0.8 mm wide, with margins that are recurved to strongly rolled down, often concealing the densely hairy lower surface. The upper surface is green, usually coarsely hairy or hairless, and sometimes with minute pointed outgrowths towards the apex. The apical point is 0.05–0.2 mm long. There are approximately 4 ovate, fringed *bracts* subtending the flower that are *c.* 1.3 mm long. The white or cream *flowers* are in dense clusters that are to 5 mm in diameter, with usually 4–6 flowers per cluster and with one cluster terminating each branchlet. The *floral tube* is *c.* 1 mm long (enlarging in fruit), and is moderately densely hairy throughout, with the hairs tending to be more dense on the section fused to the ovary. The fused basal part of the floral tube is green, and with short stellate and simple hairs, while the free part is white or cream, with scattered simple hairs to 0.5 mm long, and more numerous, very short, simple hairs. The 5 *sepals* are to 0.9 mm long, with simple hairs. The 5 clawed *petals* are *c.* 0.6 mm long and are cupped, enclosing the anthers. The *floral disc* is inserted at the junction of the ovary and the floral tube, and is densely stellate-hairy. The *ovary* has 3 locules and a *style* to 0.9 mm long. The *fruit* divides into 1-seeded fruitlets, and is *c.* 2.5 mm long, with dense, minute, stellate (multi-armed, star-like) hairs on the summit. The *seeds* have a shortly 3-lobed aril.

Distinctive features. The lack of stellate hairs on its stems and floral tube distinguishes *Cryptandra craigiae* from most members of its genus. Its close relatives are unclear, but it might be closest to *Cryptandra scoparia* Reissek. It can be further distinguished from *C. scoparia* by its hairier floral tube, but they are similar in having simple hairs.

Species name. Named in honour of Gillian Craig, a consultant botanist who discovered this species.

Distribution. This species is known from two locations near Hopetoun and one southeast of Ravensthorpe.

Habitat Requirements:

Soils: White to grey sand and orange-brown, sandy clay loam.

Landforms: Mainly on low-lying sand dunes and on low rises adjacent to swampy areas. Has also been recorded from a gutter on a disturbed road verge.

Vegetation: Sparse low heath and rushes.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
01a	Hopetoun	Other Reserve	03/11/2006	50
01b	Hopetoun	Other Reserve	13/05/2005	
02-	Hopetoun	Other Reserve	13/05/2005	'occasional'
03-	Hopetoun-Ravensthorpe Rd	Shire Rd Verge	02/06/2005	3
Total:				53



References:

Rye, B.L. (2007). New species and keys for *Cryptandra* and *Stenanthemum* (Rhamnaceae) in Western Australia. *Nuytsia* 16(2): 325–382.

Note: Barbara Rye has reviewed this description (2009).

Dampiera deltoidea Rajput & Carolin

Family: GOODENIACEAE

Other names: None.

Conservation status: Priority Four under DEC Conservation Codes for Western Australian Flora.

Flowering time: September to December.

Information date: 15/1/2010



Photo: A. Cochrane

Taxonomy:

Description. A *shrub* to 35 cm high, that is sparsely branched and hairless except for the flowers. The *stems* have 2 broad wings, are 3–4 mm wide, slightly constricted at the nodes and have a distinct midrib. The short *leaves* are appressed against both sides of the stem, simple, alternate, stalkless, 10–16 mm long and 6–9 mm wide. They have a distinctive triangular to oblong-elliptic shape, with the base the same width as the broadly-winged stem. *Bracts* and *bracteoles* are present. The *flowers* are blue-purple and in clusters of 3 in the upper axils of the leaves. The hairless *calyx* is fused to the gibbous (pouch-like) ovary with 5 minute, ovate-elliptic lobes to 0.7 mm long. The *corolla* tube is deeply split into 5 lobes with broad, distinctly veined blue wings that are 2.7–3.2 mm wide. The 2 upper lobes are deeply separated, unequally winged and erect, with 2 concave auricles (ear-shaped appendages) enclosing a brown indusium (the cup surrounding the stigma at the apex of the style) that is 1 mm long and 0.3–0.5 mm wide. The 3 lower lobes are also broadly but equally winged and the outer surface has closely appressed, grey hairs. The 5 *anthers* are inserted near the base of the corolla tube and cohere in a tube around the style. The *fruit* is an indehiscent capsule with one locule, ± orbicular, 2–3 mm wide, becoming hairless and veined.

Distinctive features. Distinguished from other species of *Dampiera* that have a pouch-like ovary by its short triangular-ovate, to oblong-elliptic leaves, which are the same width at their base as the broadly-winged stem. It is related to *Dampiera alata* Lindl. but it can be easily separated by the closely appressed hairs on the corolla (rather than spreading hairs) and by the distinctly veined wings of the corolla lobes.

Species name. From the Latin word *deltoideus*, referring to the shape of the leaves.

Distribution. This species is known from the Ravensthorpe Range (including Bandalup Hill) and Fitzgerald River National Park.

Habitat Requirements:

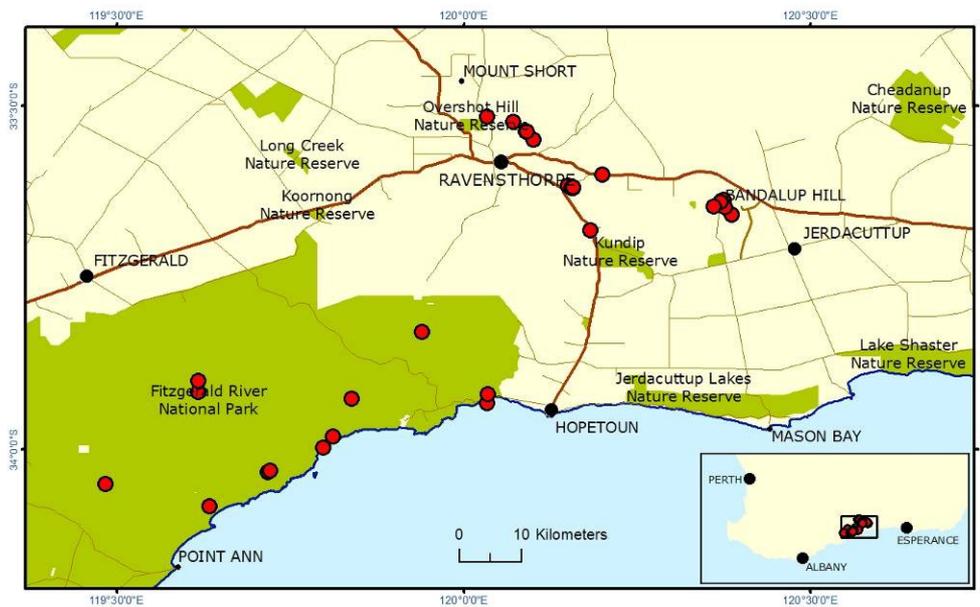
Soils: In sand and loam soils, commonly associated with laterite or quartzite.

Landforms: Generally occurs on rocky hillslopes and occasionally sandplains.

Vegetation: It grows in mallee shrubland or heathland. Reported to be abundant following fire.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
1	Fitzgerald River NP	National Park	13/11/1995	20
2	Ravensthorpe	UCL	26/04/2001	100
3	Fitzgerald River NP	National Park	24/04/2001	100
4	Bandalup Hill	Mining lease	1/10/1998	6000
5	Ravensthorpe	Other Reserve	1/10/1998	5
6	Ravensthorpe Range	UCL	1/10/1998	9
7	Fitzgerald River NP	National Park	1/10/1998	50
8	Fitzgerald River NP	National Park	1/01/1999	5000
	Elverdton	Other Reserve	15/09/1963	
	Fitzgerald River NP	National Park	31/10/1965	
	Fitzgerald River NP	National Park	4/10/1966	
	Mount Drummond	Other Reserve	13/08/1967	
	Mount Drummond	Other Reserve	13/08/1967	
	Fitzgerald River NP	National Park	1/09/1970	
	Fitzgerald River	Unknown	8/11/1970	
	Fitzgerald River NP	National Park	24/09/1993	'frequent'
	Bandalup Hill	Mining lease	16/02/1998	'rare'
	Ravensthorpe	Private property	25/10/1998	'common'
	Fitzgerald River NP	National Park	10/10/2003	'locally common'
	Bandalup Hill	Mining lease	11/09/2004	
	Bandalup Hill	Mining lease	13/09/2004	
	Bandalup Hill	Mining lease	14/09/2004	
	Ravensthorpe Range	Road reserve	4/11/2004	2000+
	Ravensthorpe Range	Other Reserve	17/12/2005	
	Bandalup Hill	Mining Lease	9/10/2007	'<10% cover'
	Bandalup Hill	Mining Lease	9/10/2007	'isolated plants'
	Ravensthorpe Range	UCL	16/11/2007	'isolated plants'
	Kundip	Other Reserve	4/12/2008	10000
	Ravensthorpe Range	Other Reserve	19/08/2009	500
	Bandalup Hill	Mining Lease	2/05/2010	50
	Kundip	Other Reserve	2/06/2010	1000+
	Ravensthorpe Range	UCL	10/09/2008	'isolated plants'
Total:				24834



References:

Rajput, M.T.M. & Carolin, R.C. (1988). The genus *Dampiera* R.Br. (Goodeniaceae): Systematic arrangement, nomenclature notes and new taxa *Telopea* 3: 183-216.

Carolin, R.C. (1992). *Dampiera*. In *Flora of Australia*, Volume 35 (AGPS: Canberra).

Dampiera sericantha Benth.

Family: GOODENIACEAE

Other names: None.

Conservation status: Priority Three under DEC Conservation Codes for Western Australian Flora.

Flowering time: Has been recorded flowering in May and August to January.

Information date: 15/1/2010



Photo: S. Kern

Taxonomy:

Description. An erect, slender, perennial *herb* 5–30(60) cm high, that is hairless except for the flowers. The slender, slightly flattened *stems* are rigid, and straight with blunt angles or sinuous. The stalkless *leaves* are simple, alternate, flat, narrow at the base then wedge-shaped or narrowly obovate, 2.5–16 mm long and 1.5–6 mm wide, with the margin entire or angular toothed, and the apex is acute. The deep blue *flowers* are usually on a solitary flowering branch in the upper axils of the leaves that is to 2.5 cm long, and has 1 or 2 flowers. The 2 *bracteoles* are *c.* 3 mm long. The *calyx* is fused to the ovary, with 5 minute lobes to 0.3 mm long concealed under hairs. The *corolla* has a total length of 9–11 mm, with the tube deeply split into 5 lobes with broad, blue wings that are 1.2–2 mm wide. The 2 upper lobes are deeply separated, unequally winged and erect, with 2 concave auricles (ear-shaped appendages) enclosing a brown indusium (the cup surrounding the stigma at the apex of the style). The 3 lower lobes are more broadly and equally winged, with up to 3 calli (protruding tissue mass) per row on the upper surface. The outer surface of all lobes has closely appressed, silvery-grey hairs. The 5 *anthers* are inserted near the base of the corolla tube, cohering in a tube around the style. The *ovary* is narrowly ellipsoid and 2–2.5 mm long. *Fruit* not seen.

Distinctive features. *Dampiera sericantha* is similar to *Dampiera parvifolia* R.Br. but is more rigid and *D. parvifolia* has numerous bracteoles under the flowers rather than two.

Species name. From the Greek words *sericos* (silken) and *anthos* (flower).

Distribution. Occurs in the Esperance to Ravensthorpe area.

Habitat Requirements:

Soils: Sandy soils, occasionally with lateritic gravel.

Landforms: Grows on sandplains and coastal dunes.

Vegetation: Typically known from coastal and sub-coastal heathland. It has been recorded in post fire regrowth.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Shark Lake	UCL	21/05/1969	
	Mason Bay Rd	Rd Verge Shire	12/08/2005	350
	Mason Bay Rd	Rd Verge Shire	14/08/2005	2
	Mason Bay Rd	Rd Verge Shire	4/09/2005	2
	Hopetoun	Other Reserve	13/05/2005	50
	Ravensthorpe	Rd Verge Shire	7/03/2005	100
	Mason Bay Rd	Rd Verge Shire	21/01/2005	
	Mason Bay Rd	Rd Verge Shire	2/12/2004	
	Mason Bay Rd	Rd Verge Shire	1/12/2004	4
	Helms Arboretum	Other Reserve	12/10/2000	
	South Coast Hwy	Rd Verge MRD	9/09/1993	20
	Unknown	Other Reserve	17/11/1984	
	Unknown	Other Reserve	29/11/1979	
	Unknown	Other Reserve	25/10/1982	
	Springdale Rd	Rd Verge Shire	20/01/2006	150
	South Coast Hwy	Rd Verge MRD	13/12/1960	
	Unknown	Rd Verge Shire	13/12/1960	
	Helms Arboretum	Other Reserve	1/12/1993	
	Unknown	Rd Verge Shire	5/10/1992	1
	Unknown	Rd Verge Shire	2/11/1962	
		Total:		679



References:

Bentham, G. (1868). *Flora Australiensis*, Volume 4, p. 118 (Reeve & Co.: London).

Carolin, R.C. (1992). *Dampiera*. In *Flora of Australia*, Volume 35 (AGPS: Canberra).

Dampiera sp. Ravensthorpe (G.F. Craig 8277)

Family: GOODENIACEAE

Other names: None

Conservation status: Priority Three under DEC Conservation Codes for Western Australian Flora.

Flowering time: July to November.

Information date: 11/06/2009



Photo: G. Craig

Taxonomy:

Description. A grass-like *shrub* to 45 cm high, multi-stemmed from the base, and with scattered, appressed, white hairs on the stems and leaves. The *stems* are almost round in cross section, have a distinct rib below the leaf petiole, and are *c.* 1 mm wide. The *leaves* are appressed against both sides of the stem, are simple, alternate, stalkless, narrowly obovate, narrowly obtriangular or linear, 14–40mm long and 1–4 mm wide, and with an acute apex. The margin is entire or has minute well spaced teeth. *Bract* and *bracteoles* are present. The *flowers* are dark blue, situated in the upper axils of the leaves, and either solitary or in a few-flowered raceme to 3 cm long. The *calyx* is fused to the hairy, cylindrical ovary, and has 5 minute, triangular lobes to 0.5 mm long at the apex. The *corolla* tube is deeply split into 5 lobes, with broad, prominently veined dark blue wings that are *c.* 3 mm wide. The 2 upper lobes are deeply separated, unequally winged, erect, *c.* 8 mm long, and with 2 concave auricles (ear-shaped appendages) enclosing the indusium (the cup surrounding the stigma at the apex of the style). The 3 lower lobes are *c.* 11 mm long, fused for 1/2 their length, and yellow on the fused inner surface. They are broadly but equally winged and the outer surface has dense, appressed, grey hairs. The five *anthers* are inserted near the base of the corolla tube and cohere in a tube around the style. The *indusium* is brown, 1 mm long and 0.3–0.5 mm wide. The *fruit* (immature) is an indehiscent, \pm cylindrical nut, with 1 locule and 1 seed, becoming hairless and deeply veined.

Distinctive features. This taxon appears closest to *Dampiera sericantha* Benth. but differs being an apparently taller shrub with larger flowers, a usually darker covering of hairs, and longer narrower leaves with or without entire margins. It appears confined to rocky habitats in the Ravensthorpe Range, whereas *D. sericantha* occurs in sandy habitats to the south and east.

Species name. Undescribed.

Distribution. Only known from the Ravensthorpe Range.

Habitat Requirements:

Soils: Often found around rock outcrops or in rocky soil.

Landforms: Ridge tops and steep slopes. Sometimes found around disturbed areas next to tracks.

Vegetation: Open mallee with mid-dense shrubs, and *Eucalyptus gardneri* subsp. *ravensthorpensis* low forest.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Mt McMahon	UCL	10/05/2007	1
	Ravensthorpe	UCL	19/06/2007	2
	Mt Benson	UCL	08/05/2007	20
	Mt Benson	UCL	27/10/2006	20
	Ravensthorpe	MRD Rd Verge	12/11/1973	
	Mt Benson	UCL	19/07/2007	1
	Ravensthorpe		14/07/2007	15
Total:				59



References.

Note: Description compiled by Carol Wilkins. Mike Hislop has suggested character differences for this species and reviewed this description (2009).

Darwinia sp. Ravensthorpe (G.J. Keighery 8030)

Family: MYRTACEAE

Other names: None.

Conservation status: Undescribed, no formal conservation status.

Flowering time: February to December.

Information date: 15/1/2010



Photo: D. Rathbone

Taxonomy:

Description. A small, openly branched, single-stemmed *shrub* 10–40 cm high. The hairless, overlapping, opposite *leaves* are without stalks and crowded on the stem. They are oblong-elliptic to oblong-obovate, 1.5–4 mm long, 0.75–1.5 mm wide and dotted with oil glands. The upper surface is flattened, the margin is translucent and minutely papillate, and the apex is obtuse. The nodding *inflorescences* are a distinguishing feature. They are terminal, ovoid to hemispherical heads, surrounded by 9–12 yellow-green to red-brown *involucral bracts* that are in 2 or 3 rows. These bracts are almost the same length as the flowers, and are obovate to narrowly-ovate, with translucent margins that are minutely denticulate and have a subacute apex. The *bracteoles* are pale brown, concave, 3–7.9 mm long with an obtuse or acute apex, and fall off early. Each flower head has 3–5 white *flowers* each with a floral tube that is strongly 5-ribbed, cylindrical and slightly top-shaped. The 5 *calyx* lobes are minute, hemispherical, and *c.* 2 mm long with lacerate margins. The 5 *petals* are ovate, white, and 2–3 mm long. There are 10, subulate infertile *staminodes* that are 0.5–0.75 mm long, and alternate with 10 fertile red *anthers*. A long *style* protrudes from the floral tube that is pink in the upper half and white below. It is 7.5–11.2 mm long and has red papillae-like glands for 2.5 mm below the stigma. *Fruit* not seen.

Distinctive features. *Darwinia* sp. Ravensthorpe (GJ Keighery 8030) could be confused with *Darwinia vestita* (Endl.) Benth. and *Darwinia* sp. Lake Cobham (K. Newbey 3262), but differs in having nodding rather than erect inflorescences and distinctive red papillae-like glandular hairs on the apical section of the style beneath the stigma.

Species name. Undescribed.

Distribution. Occurs in scattered populations across the south coast from near Jerramungup to Munglinup with an outlying record northwest of Esperance.

Habitat Requirements:

Soils: Typically in sandy soils.

Landforms: Known from hilltops to exposed flats.

Vegetation: Grows in mallee shrublands or low scrub. *Darwinia* sp. Ravensthorpe (G.J. Keighery 8030) has been recorded from recently burnt sites.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Starvation Bay	Other Reserve	15/08/1965	
	Ravensthorpe	Unknown	13/03/1966	
	Jerdacuttup	Unknown	9/03/1969	
	Fitzgerald River NP	National Park	26/04/1969	
	Unknown	Unknown	17/05/1969	
	Fitzgerald	Road Reserve	20/03/1970	'dominant'
	Fitzgerald River NP	National Park	13/07/1970	
	Fitzgerald River NP	National Park	22/09/1970	
	Gairdner River	Other Reserve	6/08/1971	
	Fitzgerald River NP	National Park	7/09/1971	
	Fitzgerald	Unknown	22/08/1973	
	Munglinup	Road Reserve	22/08/1973	
	Esperance	Road Reserve	22/08/1973	
	Ravensthorpe	Private Property	14/04/1974	
	Ravensthorpe	Private Property	11/10/1974	
	Munglinup	Road Reserve	9/09/1976	
	Wirrup Hill	Private Property	20/09/1977	
	Hopetoun	Unknown	14/04/1979	
	Gairdner River	Other Reserve	10/08/1981	
	Fitzgerald River NP	National Park	28/04/1983	
	Fitzgerald River NP	National Park	25/05/1983	'common'
	Fitzgerald River NP	National Park	25/05/1983	'common'
	Kundip	Other Reserve	20/02/1985	
	Fitzgerald River NP	National Park	20/04/1986	'common'
	Needilup	Road Reserve	21/06/1986	
	Munglinup	Road Reserve	8/02/1987	
	Fitzgerald	Private Property	28/10/1988	
	Fitzgerald River NP	National Park	7/07/1992	'frequent'
	Fitzgerald River NP	National Park	8/08/1994	'occasional'
	Hopetoun	Private Property	14/05/1996	'occasional'
	Fitzgerald River NP	National Park	10/10/1996	'common'
	Kundip	Other Reserve	3/06/1998	
	Jerdacuttup	Private Property	12/06/1998	'frequent'
	Bandalup Hill	Mining Lease	18/07/2002	
	Fitzgerald River NP	National Park	18/03/2003	'rare'
	Hopetoun	Road Reserve	3/12/2004	
	Fitzgerald River NP	National Park	27/12/2006	'infrequent'
	Ravensthorpe Range	UCL	5/09/2007	'isolated plants'
	Munglinup	UCL	11/10/2007	'uncommon'
			Total:	



References:

Note: This description was generated by Carol Wilkins from the PERTH collections. Taxonomic advice was provided by Mike Hislop (2009).

Daviesia megacalyx Crisp

Family: FABACEAE

Other names: Large Sepalled Daviesia.

Conservation status: Listed as Declared Rare Flora under the Western Australian Wildlife Conservation Act 1950.

IUCN criteria: Endangered B1+2e.

Flowering time: August to September.

Information date: 20/06/2008



Photo S. Barrett

Taxonomy:

Description. Hairless *shrub* to 1.6 m high with erect, angular branchlets. The *phyllodes* are erect, leathery, green, narrowly-obovate or elliptic, 40–80 mm long, 5–12 mm wide and tapered to a jointed base. The midrib is faint, the venation barely visible and the apex has a short, abrupt flexible point, or rarely is blunt and shortly notched. The *inflorescence* is a raceme to 4 mm long with 1 (rarely 2) *flowers* on stalks to 6 mm long, that are much longer than the stalk-like receptacle. The *calyx* is 3.5–5 mm long (including the receptacle) in open flowers, while in fruit it enlarges 2-fold and thickens, is persistent, black and conspicuous after the fruit has fallen. It is bell-shaped and contracted at the base to a stalk-like receptacle. The 5 calyx lobes are nearly uniform in shape, taper gradually to a protracted point and are equal in length to the tube. The *standard petal* is very broadly ovate, 12–14 mm broad, is apricot-coloured towards the margins, maroon towards the centre, with an intensely yellow central marking. The 2 *wing petals* are broadly spoon-shaped, strongly incurved at the apex but scarcely overlapping, and deep pink. The *keel petals* are inflated and taper gradually to a protracted point, and are deep pink. The 10 *stamens* are of 2 different forms; there are 5 flattened, shorter filaments, and 5 that are round in cross section,

longer and with larger anthers. The hairless *ovary* has an incurved style with a minute terminal stigma and 2 ovules. The compressed *pod* is obliquely narrow-triangular in outline, to 23 mm long and 11 mm broad, with a leathery fruit wall. The *seeds* have an aril.

Distinctive features. The peculiar calyx sets it apart from all other species in the genus except for *Daviesia obovata* Turcz. In both these species the calyx increases to twice the size in fruit, hardens and turns black-brown. After the pods have fallen, these old black calyces remain on the plant for a considerable time. *Daviesia obovata* differs from *D. megacalyx* in having larger, broader leaves (to 65 mm wide) which are broad-obovate, broad spoon-shaped or circular in outline, grey foliage rather than bright green, and larger 2 or 3-flowered racemes.

Species name. Derived from the Greek words *megas* (large) and *calyx* (calyx) which alludes to the enlarged and persistent fruiting calyx.

Distribution. Known only from the Ravensthorpe Range.

Habitat Requirements:

- Soils:** In heavy, red, gravelly clay over laterite.
- Landforms:** On slopes and ridge lines within the Ravensthorpe Range. It also occurs in gravel pits and along tracks in disturbed areas.
- Vegetation:** Tree mallee over heath.

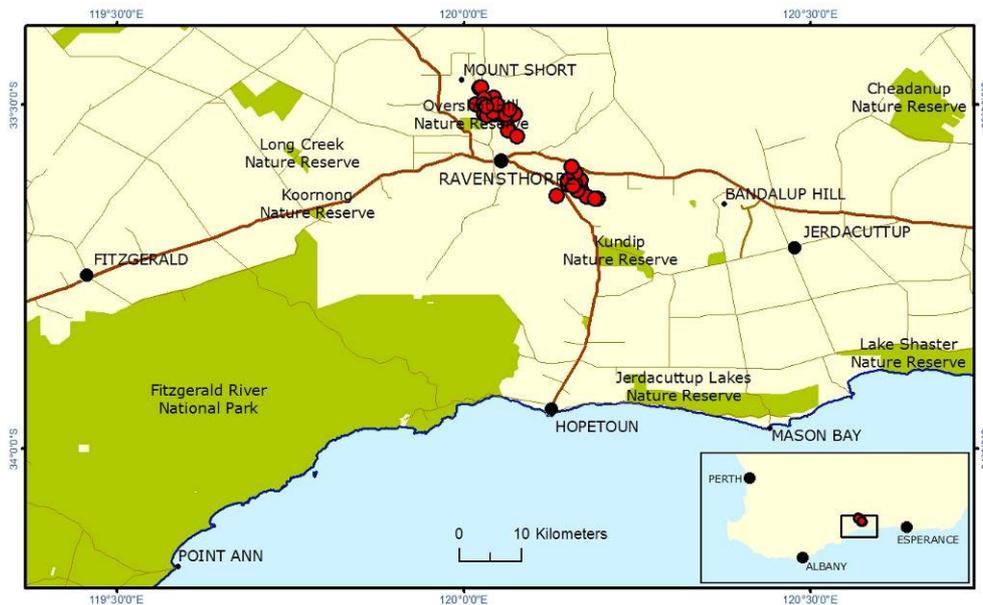
Biology:

- Disease:** The community in which *Daviesia megacalyx* occurs is considered to be susceptible to the *Phytophthora*. While *D. megacalyx* has not been tested to date, other members of this genus are known to be susceptible.
- Dispersal:** *Daviesia* species set seed approximately three months after flowering, but can take longer if the season is hot and dry. Seeds have elaiosomes with high starch and oil contents. Dispersal is facilitated by vertebrates and ants.
- Disturbance:** Germination appears to be favoured by soil disturbance. The species established prolifically along historical drill lines where laterite is close to the surface. However, inter-disturbance recruitment of this species has also been observed.
- Drought:** The species grows on shallow soils on north-facing slopes and is therefore vulnerable to drought.
- Fire:** *Daviesia megacalyx* is thought to be killed by fire and then to regenerate from seed.
- Life cycle:** The juvenile phase is approximately four years. Research suggests that some *Daviesia* species die after eight to ten years, with crown death starting after six.
- Pollination:** *Daviesia* flowers, with yellow and red colouring, are thought to be specialised for bee-pollination.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
01a	Elverdton Rd	Shire Rd Verge	17/11/2004	100
01b	Mt Desmond	Other Reserve	17/11/2004	
01c	Mt Desmond	Other Reserve	17/11/2004	10
01d	Mt Desmond	Other Reserve	11/09/1995	
01e	Elverdton Rd	Shire Rd Verge	17/11/2004	
01f	Mt Desmond	Other Reserve	21/09/2005	2000
01g	Mt Desmond	Other Reserve	21/09/2005	20
02a	Floater Rd	Shire Rd Verge	16/11/2004	15
02b	Ravensthorpe	Water Reserve	16/11/2004	300
03a	Ravensthorpe	UCL	16/11/2004	2000
03b	Ravensthorpe	UCL	16/11/2004	1

03e	Ravensthorpe	UCL	23/01/2001	6
04	Mt Desmond	Other Reserve	15/11/2004	
05	Ravensthorpe	UCL	30/03/1995	1
06	Ravensthorpe	UCL	25/10/1987	14
07a	Mt Desmond	Other Reserve	15/11/2004	10
07b	Mt Desmond	Other Reserve	26/07/2005	300
08a	Ravensthorpe	UCL	27/05/2001	
08b	Ravensthorpe	UCL	27/04/2001	
09	Mt Desmond	Other Reserve	26/07/2005	
	Mt Desmond	Other Reserve	15/02/2007	
	Ravensthorpe	UCL	22/03/2007	'isolated plants'
	Ravensthorpe	UCL	22/03/2007	'<10% cover'
	Ravensthorpe	UCL	06/09/2007	'<10% cover'
	Ravensthorpe	UCL	12/09/2007	'isolated plants'
	Mt Desmond	Other Reserve	04/10/2007	'isolated plants'
	Ravensthorpe	UCL	11/10/2007	'very sparse'
			Total:	4777



References:

Crisp, M.D. (1991). Contributions towards a revision of *Daviesia* Smith (Fabaceae: Mirbelieae). II. The *Daviesia latifolia* Group. *Australian Systematic Botany* 4: 229-98.

Hartley, E.R. & Barrett, S. (2004). *Daviesia megacalyx*: Interim Recovery Plan 2005-2010. CALM, WA.

Note: Mike Crisp has reviewed this description (2009).

Daviesia newbeyi Crisp

Family: FABACEAE

Other names: None

Conservation status: Priority Two under DEC Conservation Codes for Western Australian Flora.

Flowering time: August to early October.

Information date: 24/06/2008



Photo: G. Craig

Taxonomy:

Description. Bushy, multi-stemmed, broom-like *shrub* to 1.5 m tall, reproducing by suckers; appearing hairless, but rough to touch from minute papillae, sometimes grey with a whitish bloom. The *branchlets* are erect and angular with prominent ridges. The *phylloides* are alternate and spirally arranged, erect, narrowly oblong or narrowly obovate to linear, obtuse, with the apex scarcely recurved and with a hard but non-spiny point. The phyllodes are flat or twisted spirally up to one turn and contracted to a jointed base, to 40 mm long and 3.5 mm wide, rigid, dull yellow-green or sometimes grey with a whitish bloom and with obscure venation. The margins are thickened and often a reddish colour with the surface rough to touch from minute papillae. The apex is usually slightly recurved. Minute *stipules* are present. The pea *flowers* are solitary in the leaf axils. The uppermost *bracts* subtending the flowers are narrowly oblong and to 1.4 mm long. The *flower stalk* is to 4.8 mm long. The green *calyx* is to 5.6 mm long including the receptacle to which it is attached. It is obscurely 5-ribbed, and more or less tinged purple on the ribs, apices and lobe divisions. The upper 2 lobes are united in a truncate emarginate lip to 1.4 mm long, the lower 3 lobes are broadly triangular, to 1.1 mm long, and the apex is acute. The *standard petal* is broadly ovate, to 8.1 mm long (including the long claw), 8.2 mm wide and orange with dark red markings surrounding a yellow, narrowly triangular central strip from base to notch of the apex. The 2 *wing petals* are obovate-oblong, rounded to 5.9 mm long including the claw, and are orange-red with dark red markings towards the claw. The *keel petals* are to 5.2 mm long including the claw, and dark red. There are 10

stamens that alternate angular filaments and larger anthers, with flattened filaments and smaller anthers. The *pod* is broadly triangular, compressed, acute, to 11 mm long and 7 mm wide, and when dehiscent is curved like the letter S along the upper suture. *Seed* not seen.

Distinctive features. *Daviesia newbeyi* is related to *Daviesia grahamii*, Ewart & Jean White a species that does not occur in the Ravensthorpe area. Both species share single flowers, calyx lobes tapering to a fine point and rough to touch leaves. The two species can be differentiated using features of calyx morphology: *D. newbeyi* has a calyx to 5.6 mm long (including the receptacle) with the upper two lobes united in a truncate lip, whereas *D. grahamii* has a smaller calyx to 3.5 mm long with the upper two lobes not or scarcely more united than the lower three. *Daviesia newbeyi* may be confused with *Daviesia pauciflora* Crisp but this species has longer, narrower phyllodes.

Species name. This species was named in honour of its discoverer, the late Ken Newbey of Ongerup, Western Australia.

Distribution. Known from scattered populations occurring from the Fitzgerald River National Park north to Mt Holland and the Bremer Range. Two outlier populations have been recorded to the north of Cape Arid National Park.

Habitat Requirements:

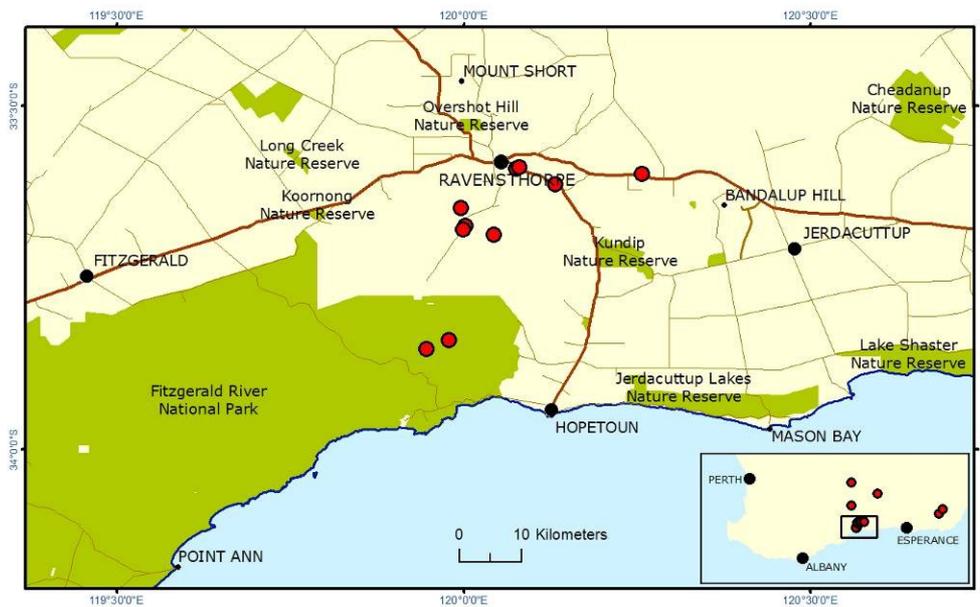
Soils: Sandy loams and sandy clays, usually over granitic parent material. Occasionally found with gravels or with limestone.

Landforms: Frequently found on slopes and crests in hilly terrain. Occasionally recorded from upland flats and undulating plains.

Vegetation: Usually found in heath or tall shrublands. Occasionally recorded from mallee heath.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
01-	Moir Rd	Shire Rd Verge	24/11/1994	50
02-	Fitzgerald River NP	National Park	11/01/1979	
	Ravensthorpe	UCL	18/09/1978	
	Fitzgerald River NP	National Park	30/05/1970	
	Ravensthorpe	UCL	08/09/1995	
	Parmango Rd.	Shire Rd Verge	10/08/1991	1
	Hopetoun-Ravensthorpe Rd	Shire Rd Verge	15/02/2005	
	Bremer Range	UCL	16/03/2005	2
	West River	Shire Rd Verge	16/10/1999	
	Hopetoun-Ravensthorpe Rd	Shire Rd Verge	02/06/2005	1
	Maydon	UCL	03/06/2010	100+
Total:				154



References:

Crisp, M.D. (1991). Contributions towards a revision of *Daviesia* Smith (Fabaceae: Mirbelieae). II. The *Daviesia latifolia* Group. *Australian Systematic Botany* 4: 229-98.

Crisp, M.D. (1995). Contributions towards a revision of *Daviesia* Smith (Fabaceae: Mirbelieae). III. A synopsis of the genus. *Australian Systematic Botany* 8: 1155-1249.

Note: Mike Crisp has reviewed this description (2009).

Drosera grieviei Lowrie & N.G.Marchant

Family: DROSERACEAE

Other names: None

Conservation status: Priority One under DEC Conservation Codes for Western Australian Flora.

Flowering time: September and October.

Information date: 23/06/2008



Photo: J. Allen

Taxonomy:

Description. A fibrous rooted *herb* with a compact, convex rosette to 1.2 cm in diameter. The *stems* are to 2 cm long and covered with the withered remains of the previous seasons growth. There are 20–30 red to greenish red, orbicular *leaves* that are 0.7 mm in diameter. The leaf stalk is flattened, to 3.6 mm long and wider towards the base. The upper leaf surface is concave with numerous short, red glands. The margin is covered with longer glandular hairs to 1.5 mm long, all of which secrete mucilage and trap insects. The *stipule bud* is ovoid, 3 mm long, and with bristles. The *stipules* are 3-lobed and to 5 mm long, with the lobes further divided into a fringe of segments that narrow to become bristles. The *inflorescence* is a terminal raceme of 5–13 flowers that are 1–3 cm long and covered with minute, short, broad glands. The 5 *calyx* lobes are reddish to yellow-green, very broadly obovate, united at the base to 2.5 mm long, with an irregularly toothed apex, and sparse glands on the outer surface. The 5 *petals* are white, hairless, oblong, and to 4.5 mm long. There are 5 pale yellow *anthers* with free slender filaments to 2 mm long. The *ovary* is top-shaped (turbinate) and to 0.7 mm long. There are 4 styles that spread horizontally to 0.5 mm long, with

long, minutely papillose *stigmas* that are strongly incurved and to 1.2 mm long. The *fruit* capsule is within a persistent calyx, has 4 locules, is 1 mm long and 1.5 mm wide. It contains *c.* 8 small, round, black *seeds* that are to 0.4 mm diameter.

Distinctive features. *Drosera grieviei* resembles *Drosera paleacea* DC. in having a rosetted habit and prominent stipules, but differs in having 5–10 rather than 30 or more flowers per scape, broadly obovate sepals to 2.5 mm wide rather than obovate to 0.7 mm wide, and oblong rather than obovate petals.

Species name. Named in honour of Emeritus Professor Brian Grieve who produced the ‘How to Know Western Australian Wildflowers’ books.

Distribution. A restricted distribution from Newdegate to east of Lake King and south to the Ravensthorpe Range.

Habitat Requirements:

- Soils:** Brown coloured sandy loams and clays, with lateritic fragments at the surface.
- Landforms:** Usually situated on the mid or lower slope of lateritic hills.
- Vegetation:** Usually recorded in open mallee shrubland with a proteaceous understorey.
- Associated species:** Frequently recorded with *Eucalyptus pleurocarpa* and *Banksia* spp.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
01-	Lake King	Shire Rd Verge	17/09/1994	
02-	Lake King	Other Reserve	17/09/1994	
03-	Lake King	MRD Rd Verge	19/10/1995	
	Ravensthorpe Range	UCL	11/10/2007	'<10% cover'
	Ravensthorpe Range	UCL	22/03/2007	'isolated plants'
	Ravensthorpe Range	UCL	12/09/2007	'<10% cover'
	Ravensthorpe Range	UCL	12/09/2007	'<10% cover'
	Mt Short	Water Reserve	26/09/2007	'isolated plants'
	Ravensthorpe Range	UCL	02/10/2007	'<10% cover'
	Ravensthorpe Range	UCL	18/11/2008	'isolated plants'
	Ravensthorpe Range	UCL	19/11/2008	'isolated plants'
	Ravensthorpe Range		08/12/2008	'isolated plants'
	Mt Short	UCL	22/01/2009	'isolated plants'
	Ravensthorpe Range		24/01/2009	'isolated plants'
			Total:	



References:

Lowrie, A. & Marchant, N. (1992). Four new *Drosera* taxa from south western Australia. *Nuytsia* 8(3): 323-332.

Eucalyptus desmondensis Maiden & Blakely

Family: MYRTACEAE

Other names: Desmond mallee.

Conservation status: Priority Four under DEC Conservation Codes for Western Australian Flora.

Flowering time: May to November.

Information date: 22/01/2009



Photo: S. Kern

Taxonomy:

Description. A *mallee* to 7 m high, with slender stems supporting a drooping crown of few leaves. The bark is rough and flaky at the base, or the stem is smooth all over. The *branchlets* are shiny and red beneath an overlay of white wax. The pith of the branchlets is without glands. The *juvenile leaves* remain opposite for 3 or 4 pairs of leaves, then become alternate, and are ovate to cordate, to 8 cm long and 6 cm wide, blue-green (glaucous) to whitish-grey, and hairless. The *adult leaves* are dull, blue-grey, lanceolate to broadly lanceolate, to 10 cm long and 3.5 cm wide, with an acute or acuminate apex. All *inflorescence* structures have a white wax overlay. The *inflorescence stalk* is stout, strongly flattened, to 2 cm long, and holds up to 15 yellow flowers. The *buds* are shortly stalked, short and thick, spindle-shaped (narrower at both ends than at the centre), to 1.1 cm long and 0.6 cm wide. The *operculum* is conical, and more or less equal to the hypanthium in size. The yellow *filaments* are all inflexed. There are numerous *stamens*. The *fruit* is stalkless to almost stalkless, cupular to cylindrical, to 1.1 cm long and 0.9 cm wide. The *seeds* are light grey-brown, and more or less spherical.

Distinctive features. Distinctive for its peculiar, slender and straggly habit, somewhat reminiscent of the unrelated *Eucalyptus sepulcralis* F.Muell. and *Eucalyptus lansdowneana* J.E.Brown. The peduncles are stout, the buds are fat, relatively short,

and all staminal filaments are inflexed. All inflorescence structures are glaucous, with flowers that are yellow. This character combination makes it clearly divergent from series *Levispermae*, several species of which grow in close proximity, viz. *Eucalyptus redunca* Schauer, *Eucalyptus phaenophylla* subsp. *interjacens* Brooker & Hopper, *Eucalyptus clivicola* Brooker & Hopper, *Eucalyptus gardneri* subsp. *ravensthorpensis* Brooker & Hopper and *Eucalyptus densa* Brooker & Hopper.

Species name. Refers to the type locality of Mount Desmond in the Ravensthorpe Range where this species was first collected.

Distribution. Has a restricted distribution centred on the Ravensthorpe Range.

Habitat Requirements:

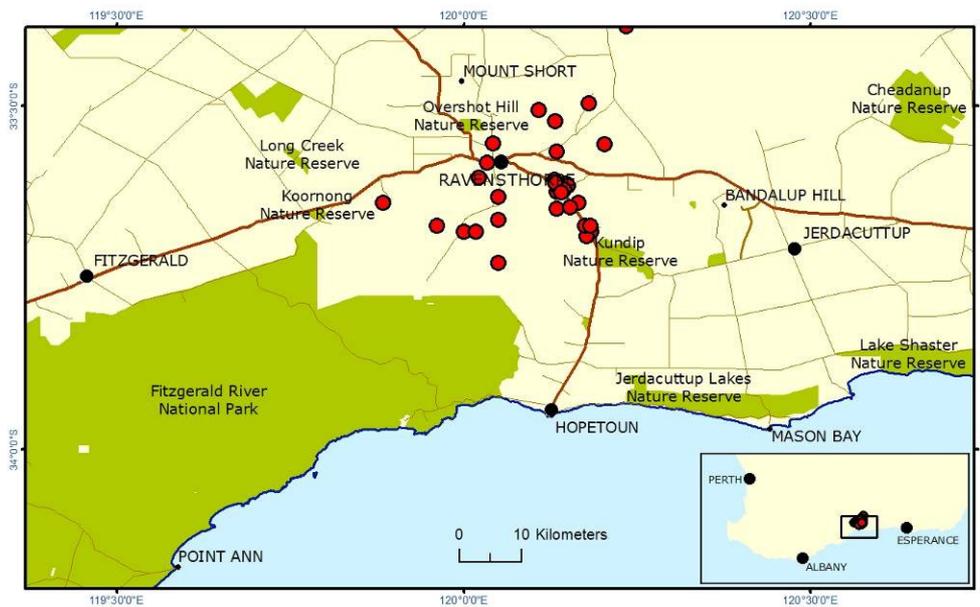
Soils: On stony granitic soils, coarse sand, sandy brown loam, or low lying clay loam.

Landforms: Hillslopes and gently undulating slopes.

Vegetation: Mostly found in mallee heaths, occasionally in eucalypt woodlands.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Mt Desmond	Other Reserve	18/04/2007	'<10% cover'
	Hopetoun-Ravensthorpe Rd	Shire Rd Verge	26/04/2007	'<10% cover'
	Ravensthorpe	Other Reserve	08/09/2007	'10-30% cover'
	Ravensthorpe		21/10/1977	'scattered'
	Kundip		25/05/1983	'common'
	Udarrup Spring		11/09/1987	
	Hopetoun-Ravensthorpe Rd	Shire Rd Verge	20/09/1978	
	Ravensthorpe		01/04/1993	'frequent'
	Mt Desmond	Other Reserve	16/09/1983	
	Mt Desmond	Other Reserve	16/09/1983	
	Sleepy Hollow		08/11/1997	'frequent'
	Hopetoun-Ravensthorpe Rd	Shire Rd Verge	13/01/2002	100+
	Ravensthorpe		05/11/2001	50+
	Elverdton Rd		17/01/2005	
	Kundip		16/04/2000	1000
	Mt Desmond	Other Reserve	09/05/1989	'rare'
Total:				1150+



References:

Brooker, M.I.H. & Hopper, S.D. (1991). A taxonomic revision of *Eucalyptus wandoo*, *E. redunca* and allied species (*Eucalyptus* series *Levispermae* Maiden: Myrtaceae) in Western Australia. *Nuytsia* 8(1): 1-189.

Maiden, J.H. & Blakely, W.F. (1925). Description of sixteen new species of *Eucalyptus*. *Journal and Proceedings of the Royal Society of New South Wales* 59: 156-199.

Eucalyptus gardneri Maiden subsp. *ravensthorpensis* Brooker & Hopper

Family: MYRTACEAE

Other names: Blue mallet.

Conservation status: Removed from DEC priority list in 2010

Flowering time: June and September to December.

Information date: 3/07/2009



Photo: A. Markey

Taxonomy:

Description. A mallet (small single-stemmed *tree* with a steep branching habit and a dense crown), 5–10 m high, and with a blue-green crown. The bark is mainly smooth, grey, and with decorticating flakes. The *juvenile leaves* are firstly opposite, then becoming alternate, deltoid to ovate, to 10 cm long and 6 cm wide, slightly glossy blue-green or purplish, and hairless. The *adult leaves* are the same dull bluish to blue-grey on both sides, lanceolate, and to 9 cm long and 23 mm wide. The *inflorescences* are in the axils of leaves, and have flowers in clusters of up to 11 on flattened *inflorescence stalks* that are to 2.1 cm long. The *buds* are spindle-shaped, to 2.6 mm long and 0.5 cm wide, with a tapering base. The *operculum* is less than 15 mm long and recurved at the tip. The inferior *ovary* has 3 fused locules, with a single style 10 mm long, and many ovules. The numerous *stamens* are all fertile. The filaments are pale yellow, *c.* 7 mm long, and are either reduced to a single whorl or are in 2 whorls, the outer whorl erect and the inner whorl partly or completely inflexed. The *fruit* is a stalked, barrel-shaped, woody capsule, to 1.1 cm long and 0.7 cm wide, that has 3 triangular valves which are surrounded by a rim. The numerous *seeds* are light brown, ellipsoid to more or less spherical, and *c.* 1.3 mm long.

Distinctive features. Differs from *E. gardneri* Maiden subsp. *gardneri* in having more robust (broader) buds, a smaller mature operculum (less than 15 mm long, rather

than more than 15 mm long), and smaller juvenile leaves. Similar to *Eucalyptus densa* Brooker & Hopper in being a mallee with blue green foliage but this species differs in having narrower adult leaves that are less than 12 mm wide. Also similar to the *Eucalyptus pluricaulis* Brooker & Hopper which differs in being a multi-stemmed mallee rather than single-stemmed tree.

Subspecies name. Refers to its restricted distribution in the Ravensthorpe area.

Distribution. Confined to the Ravensthorpe Range. Locally abundant in scattered populations.

Habitat Requirements:

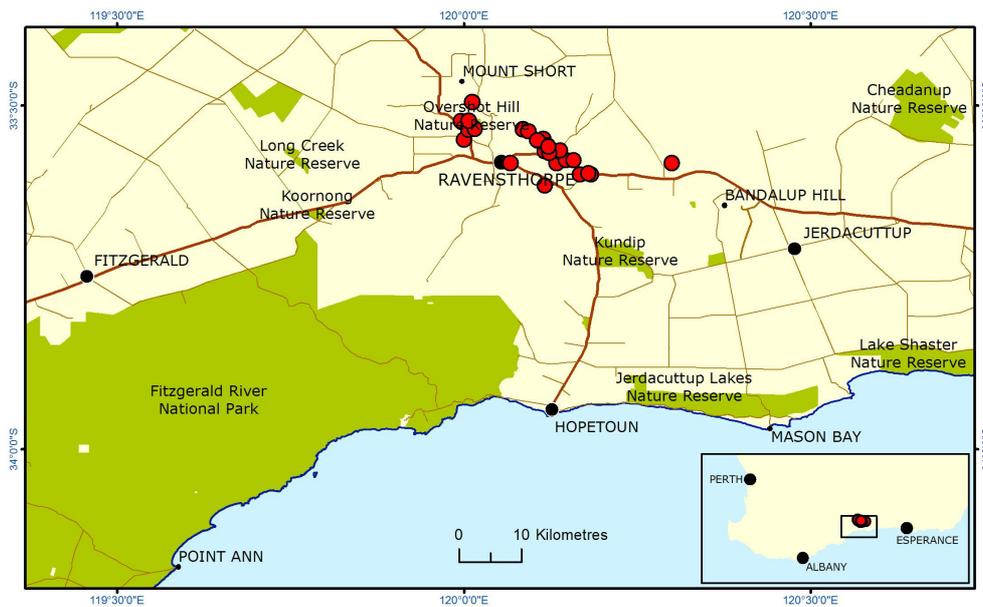
Soils: Red, lateritic loams and clay loams, sometimes with fragments at the surface.

Landforms: Found mostly on hillslopes but occasionally on breakaways or in valleys.

Vegetation: Eucalypt woodlands and mid-high open forest.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Mt McMahon	UCL	02/10/2007	'<10% cover'
	Kundip	UCL	26/05/2007	'30-70% cover'
	Elverdton Rd	Other Reserve	23/04/2007	'30-70% cover'
	Ravensthorpe Range	UCL	23/03/2007	'30-70% cover'
	Ravensthorpe Range	UCL	21/03/2007	'isolated plants'
	Ravensthorpe Range	UCL	20/03/2007	'30-70% cover'
	Mt Benson	UCL	16/03/2007	'30-70% cover'
	Mt Desmond	Other Reserve	15/02/2007	'isolated plants'
	Ravensthorpe		5/11/2003	'few'
	Ravensthorpe	UCL	17/09/2000	'common'
	Ravensthorpe		12/09/1997	
	Mt McMahon	UCL	7/04/1995	
	Ravensthorpe		9/04/1991	'common'
	Elverdton Rd	Shire Rd Verge	11/11/1986	'locally frequent'
	Ravensthorpe	Shire Rd Verge	7/06/1983	
	Overshot Hill	Nature Reserve	1/11/2008	'<10% cover'
	Overshot Hill	Nature Reserve	2/11/2008	'<10% cover'
	Overshot Hill	Nature Reserve	16/11/2008	'30-70% cover'
	Overshot Hill	Nature Reserve	7/11/2008	'10-30% cover'
	Overshot Hill	Nature Reserve	16/11/2008	'10-30% cover'
	Ravensthorpe Range	UCL	5/12/2008	'30-70% cover'
	Mt McMahon	UCL	6/12/2008	'isolated plants'
	Ravensthorpe Range	UCL	10/12/2008	'30-70% cover'
	Ravensthorpe Range	UCL	10/12/2008	'30-70% cover'
	Ravensthorpe Range	UCL	11/12/2008	'30-70% cover'
Total:				



References:

Brooker, M.I.H. & Hopper, S.D. (1991). A taxonomic revision of *Eucalyptus wandoo*, *E. redunca* and allied species (*Eucalyptus* series *Levispermae* Maiden: Myrtaceae) in Western Australia. *Nuytsia* 8(1): 1-189.

Note: Additional populations have subsequently been located in Mt McMahon – Overshoot Hill area.

Eucalyptus oleosa Miq. subsp. *corvina* L.A.S.Johnson & K.D.Hill

Family: MYRTACEAE

Other names: None.

Conservation status: Removed from DEC priority list in 2010.

Flowering time: October to March and May.

Information date: 28/01/2011



Photo: A. Markey

Taxonomy:

Description. A *mallee* or small *tree* to 10 m high, and with a crown *c.* 15 m wide. The bark is persistent on the lower trunk, finely flaking above bark ring, then smooth and silvery grey to coppery above. The *juvenile leaves* are linear, sessile, spirally arranged, crowded, and hairless. The highly glossy, green, *adult leaves* are narrowly ovate to lanceolate, 5–9 cm long and 0.9–1.5 cm wide, with an acute or acuminate apex, and stalks *c.* 1.5 cm long. The leaf surface has a fine reticulate pattern and numerous small to medium oil glands. The *inflorescences* are with clusters of up to 7 pale yellow or cream flowers, and are *c.* 2.5 cm long, with stalks that are thick and short, scarcely flattened, and 4–7 mm long. The *flower stalks* are thick, round in cross section and 2–4 mm long. The mature *buds* are ovoid or elongate-ovoid, 6–10 mm long and 4–5 mm wide. The *operculum* is conical, convex, obtuse to acute, finely warty, and is 1–2 times longer than hypanthium, and as wide as the hypanthium at the join. The inferior *ovary* has fused carpels with 1 style as long as the filaments, and numerous ovules. The numerous *stamens* are all fertile. The filaments are cream or pale yellow and to 5 mm long, with the outer filaments erect in bud and the inner

filaments regularly inflexed. The connective gland is large. The ovoid *fruits* have stalks to *c.* 3 mm long, and the capsule is apically constricted, 3 or 4 locular, and 5–6 mm long and wide. The operculum scar is raised, *c.* 0.5 mm wide, and the disc is slightly to strongly depressed. The valves are deeply enclosed basally, with acuminate tips that are vertically well exerted, with remnants of the persistent style forming the tips of the valves. *Seeds* are semi-glossy, dark grey-brown, rounded, and to 2 mm long, while the chaff (thin, dry, unfertilised ovules) is smaller and glossy pale brown.

Distinctive features. Differs from *Eucalyptus oleosa* subsp. *cylindroidea* L.A.S.Johnson & K.D.Hill in having ovoid fruits to 8 mm long rather than cylindrical fruits to 11 mm long, and shorter pedicels and peduncles. Differs from *Eucalyptus longicornis* (F.Muell.) F.Muell. in having a calyptra up to twice the size of the hypanthium rather than twice the size or more of the hypanthium.

Subspecies name. Derived from the Latin word *corvus* (a raven), in reference to the restricted distribution of this subspecies in the Ravensthorpe region.

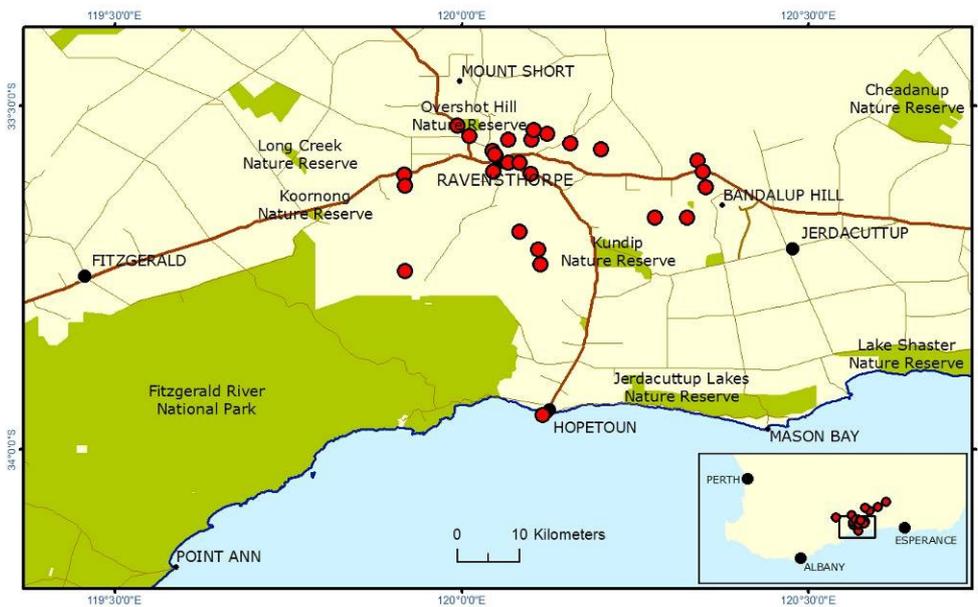
Distribution. Known from Newdegate to Peak Charles with the majority of populations occurring in the Ravensthorpe area.

Habitat Requirements:

- Soils:** Shallow calcareous soils, limestone.
- Landforms:** Often found on gentle to moderate slopes, high in the landscape. Occasionally found on plains.
- Vegetation:** Open mallee shrubland, woodland with other *Eucalyptus* spp. and a sparse understorey.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Kybulup Creek		07/12/1990	
	Hopetoun-Ravensthorpe Rd	Shire Rd Verge	30/10/1998	'common'
	Ravensthorpe	Private Property	03/12/1999	'fairly common'
	Bandalup		15/05/1999	'frequent'
	Cocanarup	Timber Reserve?	10/11/1999	'frequent'
	Ravensthorpe Range		10/11/1999	
	Bandalup	Mining lease?	25/10/1999	
	Mt McMahon		27/11/1999	'fairly common'
	Moir Rd		28/05/2002	'abundant'
	Ravensthorpe		01/12/2003	'fairly common'
	Ravensthorpe		09/02/2003	'frequent'
	Lake King	Shire Rd Verge	02/02/2006	'good stand'
	Ravensthorpe	UCL	20/03/2007	'10-30% cover'
	Ravensthorpe	UCL	21/03/2007	'10-30% cover'
	Kundip	UCL	04/09/2007	'10-30% cover'
	Kundip	UCL	20/04/2007	'10-30% cover'
	Ravensthorpe	UCL	22/04/2007	'10-30% cover'
	Ravensthorpe	UCL	23/04/2007	'10-30% cover'
	Ravensthorpe	UCL	23/04/2007	'10-30% cover'
	Kundip	UCL	26/05/2007	'10-30% cover'
	Kundip	UCL	11/09/2007	'<10% cover'
	Overshot Hill	Nature Reserve	1/11/2008	'10-30% cover'
	Overshot Hill	Nature Reserve	17/11/2008	'10-30% cover'
Total:				



References:

Johnson, L.A.S. & Hill, K.D. (1999). Systematic studies in the eucalypts. 9. A review of series *Sociales* (*Eucalyptus* subgenus *Symphymyrtus*, Section *Bisectaria*, Myrtaceae). *Telopea* 8: 178-179.

Eucalyptus purpurata Nicolle

Family: MYRTACEAE

Other names: None.

Conservation status: Listed as Declared Rare Flora under the Western Australian Wildlife Conservation Act 1950.

IUCN criteria: Vulnerable D2.

Flowering time: Recorded as flowering in November

Information date: 15/1/2010



Photo: A. Cochrane

Taxonomy:

Description. A *tree* to 10 m tall, without a lignotuber (mallet; obligate seeder), and with conspicuously red-purple new growth (leaves, branchlets and buds). The *bark* is smooth throughout, fully lost in short longitudinal strips, dull, light grey over cream. The *juvenile leaves* are initially opposite, shortly stalked, linear, becoming distinctly stalked, elliptical, slightly discoloured, dull, slightly blue-green, and to 28 mm long and 10 mm wide. *Adult leaves* are alternate and well separated, lanceolate, glossy, maturing dark olive green on both surfaces with a moderately dense reticulation pattern and sparse oil glands. The leaf stalk is 13–17 mm long and the lamina is 45–95 mm long and 6–15 mm wide. The *flower buds* are pendulous, 11–13 mm long and 4–4.5 mm wide, with the hypanthium (floral cup) slightly ribbed. The *sepals* and *petals* form the conical/horn-shaped and smooth *operculum*. The *inflorescence* stalks are round in cross section to slightly angular and 7–15 mm long. The inflorescences are single in the leaf axils and unbranched, with 7–11 *flowers*. The flower stalks are round in cross section and 3–6 mm long. The *flowers* are cream from numerous inflexed cream stamens with the anthers opening by lateral slits. The *fruit* is pendulous, truncate-globose to flattened-hemispherical, 5–6 mm long and 6–7 mm wide with 3 valves. *Seeds* are numerous, ovoid, 2–2.4 mm long, slightly glossy and grey brown.

Distinctive features. This species belongs to the silver mallet group of *Eucalyptus*. It resembles *Eucalyptus argyphaea* L.A.S.Johnson & K.D.Hill, but is readily distinguished in the field by its intensely purple-red new foliage, branchlets and buds (yellow green to pale red-green in *E. argyphaea*). Herbarium specimens can be distinguished by their smaller buds (< 14 mm long rather than > 15 mm long in *E.*

argyphaea) and smaller fruit (5–6 mm long rather than 6–8 mm long in *E. argyphaea*). Molecular data also supports the description of *E. purpurata* as a distinct species. Using AFLP, S. Krauss (unpublished data) found *E. purpurata* is significantly genetically distinct from *E. argyphaea*.

Species name. From the Latin word *purpuratus* (purple) referring to the distinctive and diagnostic red-purple new growth.

Distribution. Known from a single population on Bandalup Hill, east of Ravensthorpe.

Habitat Requirements:

Soils: Light brown silty loam to light clay with magnesite fragments at the surface.
Landforms: Mid to upper hillslopes with an eastern aspect.
Vegetation: *Eucalyptus purpurata* mid-high open forest over *Melaleuca pauperiflora* subsp. *pauperiflora*, *Beyeria villosa* tall open shrubland over *Boronia inornata* subsp. *inornata*, *Pultenaea calycina* subsp. *proxima* low open shrubland. A large proportion of the vegetation associated with *Eucalyptus purpurata* was burnt in a 1982 bushfire.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
1	Bandalup Hill	Mining lease	29/5/2007	182345
Total:				182345



References:

Nicolle, D. (2002). Two new species of silver mallet (*Eucalyptus* – Myrtaceae) of very restricted distribution in south-western Western Australia. *Nuytsia* 15(1): 77-83.

Eucalyptus stoatei C.A.Gardner

Family: MYRTACEAE

Other names: Scarlet Pear Gum.

Conservation status: Priority Four under DEC Conservation Codes for Western Australian Flora.

Flowering time: December to March.

Information date: 15/1/2010



Photo: S. Kern

Taxonomy:

Description. An erect *tree* that is 5–10 m high, with smooth bark that is grey over light grey, and with dense branches. The stalked *juvenile leaves* are petiolate, alternate, ovate, to 10 cm long and 6 cm wide and a dull blue-green. The stalked, dark green *adult leaves* are alternate, oblong or elliptical to ovate with a distinct midrib, 5.5–8 cm long and 1.7–3.6 cm wide, thickly leathery and rigid, with an obtuse apex. The solitary flowered *inflorescence* is in the leaf axil, with the stalk recurved, angular and broadened towards the apex. The stalk is 2–3 cm long in flower, and 4–5 cm long in fruit. The *buds* are pendulous, red, and tapering to the base, ovoid to cylindrical, 2.5–3.5 cm long and 1.3–1.9 cm wide and deeply and irregularly ribbed, with 4 ribs being more prominent than the others. The *sepals* and *petals* are fused to form a hemispherical *operculum* that is ribbed and 1 cm long. The *filaments* are strongly inflexed in bud and not spreading much in the flowers. They are bright yellow in colour with *anthers* opening in broad longitudinal slits, and have a dorsal gland. The *style* is very short and thick. The *fruit* is stalked, pendulous, red, pear-shaped (pyriform), to cylindrical, 2.3–4.5 cm long and 2–3 cm wide, deeply and irregularly ribbed, usually with about 12 ribs, and smooth between the ribs. The *disc* is descending, with 3 deep valves that are narrow and taper gradually to a fine point. The black *seeds* are numerous, angled and shallowly pyramidal, with an irregular wing.

Distinctive features. *Eucalyptus stoatei* is a Marlock or small mallee that resembles *Eucalyptus forrestiana* Diels as both species have single flowers with yellow stamens and crimson pendulous buds and fruit. *Eucalyptus stoatei* differs in its irregular calyx

and fruit ribs which are indefinite in number, and the disc is descending rather than level. It differs from *Eucalyptus angulosa* Schauer by having pear-shaped fruit, a solitary flower on a long pendant stalk, and a shorter operculum.

Species name. Named in honour of T.N. Stoate, who at that time was Senior Assistant Conservator of Forests in Western Australia.

Distribution. Occurring from east of Ravensthorpe to south of Pyramid Lake.

Habitat Requirements:

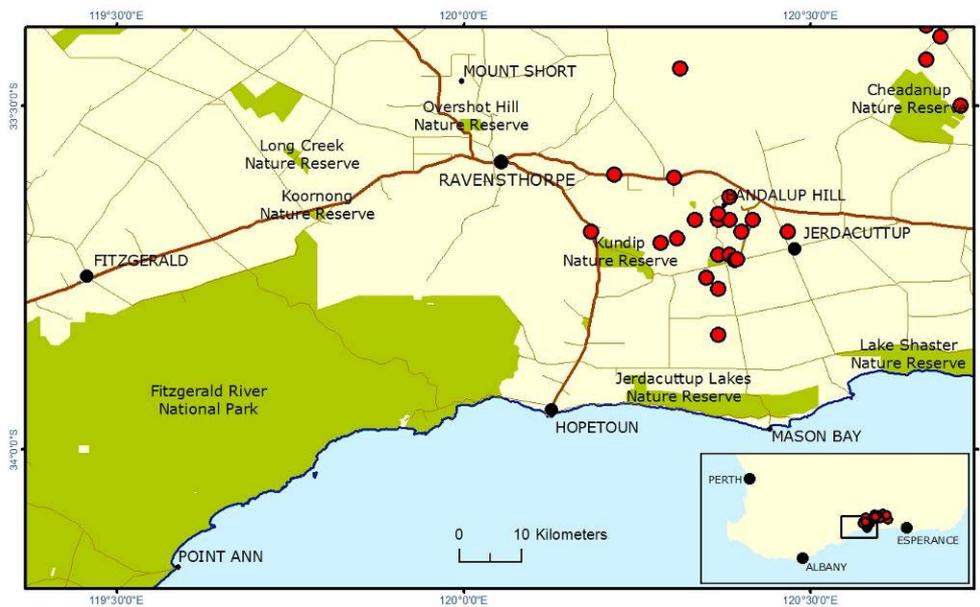
Soils: Usually occurs in sandy soil, often containing gravel.

Landforms: Typically recorded from flat areas.

Vegetation: Commonly amongst mallee woodland over a shrub-dominated understorey.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Jerdacuttup River	Private Property	17/12/1940	
	Jerdacuttup	Private Property	17/12/1940	
	Jerdacuttup River	Private Property	25/10/1961	
	Jerdacuttup River	Private Property	15/08/1965	
	Jerdacuttup	Other Reserve	16/03/1967	'infrequent'
	Kundip	Private Property	11/10/1969	
	Bandalup Creek	UCL	21/02/1970	
	Jerdacuttup	Private Property	14/02/1978	'locally abundant'
	Jerdacuttup	Other Reserve	14/09/1978	
	Jerdacuttup	Private Property	20/09/1978	'dense'
	Ravensthorpe	Other Reserve	22/09/1979	'locally common'
	Bandalup Hill	UCL	20/01/1981	
	Jerdacuttup	UCL	20/01/1981	
	Munglinup	Private Property	20/01/1981	
	Jerdacuttup	Private Property	20/01/1981	
	Munglinup	UCL	20/01/1981	
	Bandalup Hill	UCL	20/01/1981	100
	Young River	UCL	12/11/1981	
	West Point Road	Private Property	26/03/1983	
	Pyramid Lake	UCL	17/01/1985	
	Jerdacuttup	Private Property	11/04/1985	
	Young River	Other Reserve	15/12/1988	
	Young River	UCL	26/02/1993	
	Cascades Road	Private Property	15/11/1997	
	Jerdacuttup	Road Reserve	2/03/1999	'very common'
	Bandalup Hill	UCL	18/03/2001	4
	Jerdacuttup	Other Reserve	14/01/2002	500
	Munglinup	Private Property	9/12/2003	
	Jerdacuttup	Road Reserve	25/05/2004	1000
	Melaleuca Road	Road Reserve	13/01/2005	
	Hatfield Track	Other Reserve	11/03/2005	6000+
	Ravensthorpe Range	UCL	20/04/2007	'<10% cover'
	Kundip	UCL	/07/1935	
	Kundip	Other Reserve	/12/1944	
	Kundip	UCL	unknown	
Total:				7604



References:

Gardner, C.A. (1936). Contributions Florae Australiae Occidentalis No. IX., *J. Roy. Soc. of Western Australia* 22: 119-127.

Brooker, M.I.H. & Kleinig, D.A. (2001). *Field Guide to Eucalypts, South-western and Southern Australia*, Volume 2, 2nd edition (Blooming Books: Melbourne).

Eucalyptus x erythrandra Blakely & H.Steedman

Family: MYRTACEAE

Other names: None.

Conservation status: Removed from DEC priority list in 2010.

Flowering time: October to November.

Information date: 15/1/2010



Photo: S. Kern

Taxonomy:

Description. A small *mallee tree*, 3–7 m high, with smooth, grey bark. The glossy and olive green *adult leaves* are alternate, petiolate, narrow to broadly lanceolate, thick, 8–13 cm long and 2–5 cm wide, with distinct venation and numerous lateral veins. The apex is has a short abrupt terminal point. The 3–5-flowered *inflorescence* is in the axil of the leaf, has a stalk that is broadly strap-like, becoming broader at the top, erect or recurved and 15–20 mm long. The *buds* are stalkless and sub-cylindroid, or obpyramidal, red, 25–30 mm long and 15 mm wide, 4-angled, with the angles sometimes narrowly expanded into wings. There are minute wrinkles between the wings. The *sepals* and *petals* are fused to form an *operculum* that is conical, with one or two faint ribs, 10–15 mm long and with a short, stout beak. The *filaments* are very numerous, pale pink, apricot or red, and minutely glandular with oblong *anthers* that open in longitudinal slits. The *fruit* is cylindrical to bell-shaped, 25 mm long and 18–20 mm wide, sometimes unequally 4-angled or 4-winged, with the tips of the wings terminating in 4 small teeth on the rim. The *disc* is partly extended over the 4–6 celled capsule, with the tips of the strong valves sometimes flush with the somewhat wide orifice. *Seed* not observed.

Distinctive features. The hybrid parental species are *Eucalyptus incrassata* Labill. and *Eucalyptus tetraptera* Turcz. This hybrid more closely resembles *E. incrassata* in bud with its beaked operculum and cupular to cylindrical fruit shape, and its multiple rather than single flowers. *Eucalyptus x erythrandra* has intermediate coloured apricot to pale pink flowers, rather than red or pink as in *E. tetraptera*, or cream to pale

yellow as in *E. incrassata*. *Eucalyptus x erythrandra* is also intermediate between parent species in leaf thickness, leaf size and in the size of the buds.

Species name. Derived from the Greek words *erythro-* (red) and *-andrus* (male), referring to the red anthers of this species.

Distribution. Scattered across the south coast from just east of the Stirling Range National Park to Cape Arid National Park with a northernmost record near Salmon Gums.

Habitat Requirements:

Soils: In sand to loam soils, often with high gravel/rock content.

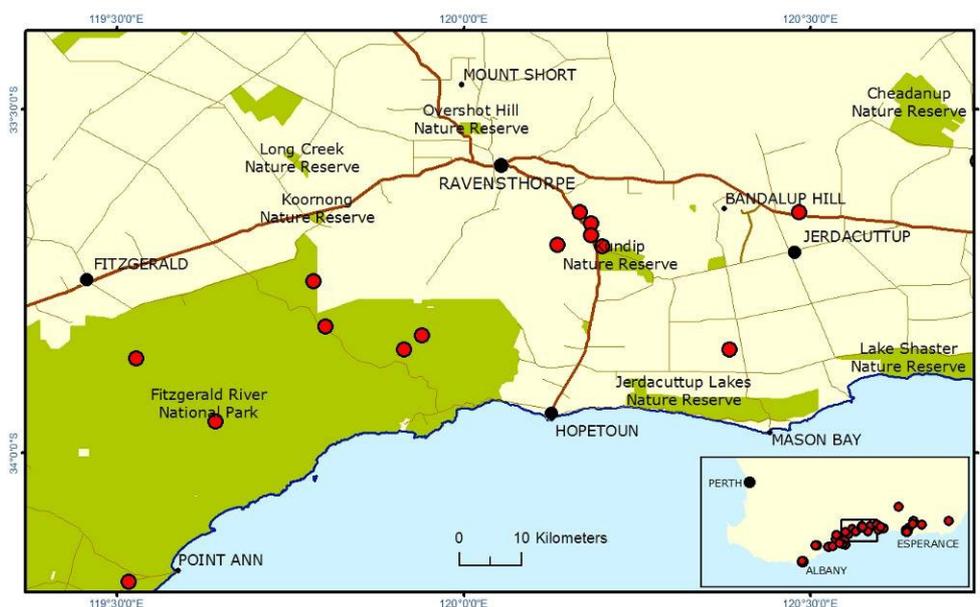
Landforms: Most frequently recorded on flat terrain, occasionally from hillslopes.

Vegetation: It grows amongst mallee over shrubs, usually co-occurring with *Eucalyptus incrassata* and *E. tetraptera*.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Esperance	UCL	Unknown	
	Kundip	Other reserve	1/10/1930	
	Ravensthorpe	Other reserve	14/03/1957	1
		Other reserve	8/10/1959	
	Kundip	Other reserve	19/12/1960	
		Private Property	18/05/1961	
	Oldfield River	Other reserve	1/09/1961	
	?Albany	Private Property	22/09/1961	
		Private Property	1/10/1964	
	Oldfield River	Other reserve	15/08/1965	
	Kundip	Other reserve	18/08/1965	
	Munglinup	Private Property	15/03/1967	rare
		Unknown	14/01/1971	occasional
	Wittenoom Hills	Other reserve	7/10/1973	
	Gnowellen Road	Private Property	25/06/1976	
	Mount Burdett	Other reserve	10/08/1980	
	Mount Burdett	Other reserve	26/11/1980	
	Gnowellen	Private Property	10/05/1982	
	Beaufort Inlet	Other reserve	13/05/1982	rare
	Kau Rock road	Other reserve	12/08/1982	
	Cape Arid NP	National Park	8/09/1982	
	Beaufort Inlet Rd	Other reserve	3/06/1983	
	Kau Rock road	Private Property	16/01/1985	
	Jerdacuttup	Private Property	11/04/1985	
	Esperance	Private Property	17/09/1985	
	Fitzgerald River NP	National Park	24/10/1985	
		Other reserve	19/02/1986	
	Kundip	Other reserve	9/09/1987	1
	Fitzgerald River NP	National Park	10/09/1987	1
	Fitzgerald River NP	National Park	12/09/1987	3
	Fitzgerald River NP	National Park	25/11/1987	
	Bremer Bay	Private Property	9/03/1988	
	Pullitup	Other reserve	9/03/1988	
	Jerramungup	Other reserve	26/10/1988	
	Fitzgerald River NP	National Park	19/01/1989	
	Fitzgerald River NP	National Park	20/01/1989	2
	Fitzgerald River NP	National Park	3/01/1994	
	Box Hill	Private Property	8/10/1996	

	Gibson	Private Property	18/03/1998	
	Munglinup	Private Property	5/09/1999	
	Bremer Bay	Other reserve	19/09/1999	
	Esperance	UCL	31/07/2000	2
	Kundip	UCL	31/07/2003	2
	Total:			12



References:

Blakely, W.F., McKie, E.N. & Steedman, H. (1938). Descriptions of four new species and two varieties of *Eucalypts*. *Proc. Of Linn. Soc. of New South Wales*, 63(1-2): 66-67.

Brooker, M.I.H. & Kleinig, D.A. (2001). *Field Guide to Eucalypts, South-western and Southern Australia*, Volume 2', 2nd edition, (Bloomings Books: Melbourne).

Eucalyptus x stoataptera E.M.Bennett

Family: MYRTACEAE

Other names: None.

Conservation status: Removed from DEC priority list in 2010.

Flowering time: August to September.

Information date: 15/1/2010



Photo: D. Rathbone

Taxonomy:

Description. An erect small *mallee tree* to 4 m tall with a dense canopy. It has smooth bark that is dark grey and light grey. The young *stems* are angular and the mature stems are round in cross section. The stalked *adult leaves* are alternate, oblong, 9–11 cm long and 3–3.5 cm wide, glossy, thick, with a dense reticulation pattern, broken with scattered, obscure oil glands. The leaf apex has a short, abrupt and flexible point. The solitary *flowers* have a stalk (peduncle) that is 30–35 mm long, downcurved, and angular at the base, becoming flattened beneath the calyx. The *buds* are very shortly stalked, pendulous, red, and square in cross section with the corners extended into wings. The buds are coarsely 2–4 ribbed between the wings and 4.2–4.8 cm long and 2.4–2.8 cm wide. The *sepals* and *petals* are fused together to form a dehiscent cap (operculum) which is conical. The *stamens* are apricot and strongly inflexed in bud, \pm inflexed in flower, and are 4–8 mm long with ovoid *anthers* that are 1.5 mm long and open by longitudinal slits. The *fruit* has a short stalk, is pendulous, red becoming brown with age, square in cross section and 3.6–5.8 cm long and 2.5–3.2 cm wide. There are 4 wings, each 5–9 mm wide and with 1–5 ribs in between. The rim is 5.7 mm thick with the disc descending and with 3 or 4 valves.

Distinctive features. A hybrid between *Eucalyptus tetraptera* Turcz. and *Eucalyptus stoatei* C.A.Gardner, with features of both parents. It has the upright habit of *E. stoatei* but the large glossy leaves of *E. tetraptera*. The stamen colour is apricot, between the yellow of *E. stoatei* and pink/red of *E. tetraptera*, and it has the bright red

calyx of both parents. The bark is smooth dark and light grey.

Species name. A combination of the two parent species' names.

Distribution. Occurrences known from near Hopetoun to Jerdacuttup.

Habitat Requirements:

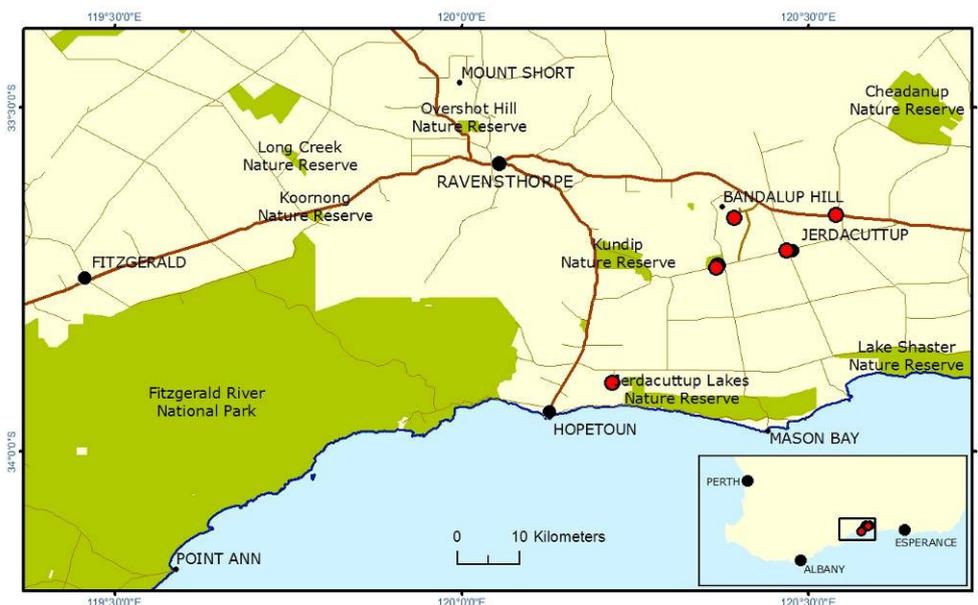
Soils: Associated with sandy soil.

Landforms: Limited data available.

Vegetation: In low to medium mallee shrubland where *Eucalyptus tetraptera* and *E. stoatei* co-occur.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Bandalup Hill	Mining Lease	7/07/2005	cleared
	Hopetoun- Ravensthorpe Rd	Rd Verge Shire	25/05/2007	2
	Mills Rd	Rd Verge Shire	30/03/2007	1
	Ravensthorpe	Rd Verge Shire	5/09/2007	1
	Fence Road	Rd Verge Shire	30/03/2007	3
	Hopetoun	Unknown	6/09/2007	
	Jerdacuttup Nth Rd	Rd Verge Shire	4/09/2007	8
	Munglinup	Other Reserve	4/09/2007	10
	South Coast Hwy	Rd Verge MRD	23/05/2007	2
	South Coast Hwy	Rd Verge MRD	25/09/2007	5
	Ravensthorpe	Rd Verge Shire	19/09/2007	1
Total:				33



References:

Bennett, E.M. (1995). Hybrid between *Eucalyptus tetraptera* and *Eucalyptus stoatei* from Jerdacuttup, Western Australia. *Nuytsia* 10(1): 1-5.

Gastrolobium rigidum (C.A.Gardner) Crisp

Family: FABACEAE

Other names: Previously named *Oxylobium rigidum*.

Conservation Status: Removed from DEC priority list in 2008.

Flowering time: September to October.

Information date: 16/03/2009



Photo: S. Kern

Taxonomy:

Description. Slender, upright *shrub* to 40 cm (rarely 1m high), with erect branches and yellowish-cream, hairless stems. The *stipules* are narrowly triangular, black and *c.* 3 mm long. The shortly-stalked *leaves* are opposite each other, narrowly ovate to oblong-lanceolate, or elliptic. They are hairless, grey-green with a yellow-cream rib, and have indistinct but finely networked venation. They are flat and rigid, have a prominent midrib below, and an acute or rounded apex with a sharp point to 0.8 mm long. *Bracts* are present but fall early. There are 2–5 orange-red pea *flowers* at the apex of the branchlets, arranged in racemes. The flower *stalks* are *c.* 3 mm long, and have scattered, appressed, white hairs. The glaucous green *calyx* is *c.* 9 mm long, bell-shaped, and hairless outside except for minute marginal hairs, and inside there are minute hairs towards the apex of the lobes. The calyx tube is 2/3 the length of calyx; the 3 lower lobes are *c.* 4 mm long and ovate with a sub-acute apex, and the 2 upper lobes are fused for *c.* 1/2 their length, *c.* 2 mm long and are elliptic with a more rounded apex. The *standard petal* is *c.* 12 mm long and wide, has a yellow-orange upper surface with a red margin around a basal yellow eye, and a red-brown lower surface. The two *wing petals* are *c.* 11 mm long, obovate, yellow-orange at the apex and darker orange-red towards the base. The *keel petals* are the same length as the wings, prominently rounded to 5 mm wide towards the apex, and are dark red. The long stalked, hairy *ovary* has 1 carpel, with 4 or 5 ovules, and a fine curved style. The

fruit is stalked, ellipsoid, slightly inflated, c. 9 mm long and 6 mm wide, with medium density long white hairs outside. The *seed* is scarcely kidney-shaped, dark brown with a cream aril, and c. 3 mm long.

Distinctive features. *Gastrolobium rigidum* is similar to *Gastrolobium racemosum* (Turcz.) Crisp but differs in having usually acute leaves, shorter pedicels, shortly fringed upper calyx lobes, a silky hairy ovary and more rigid, glaucous foliage with scarcely evident rather than obvious venation. *Gastrolobium racemosum* is a taller shrub to 2.5 m high, with grey or brown stems (rather than yellowish), longer flowering stems, and more numerous flowers that are more pink than orange red.

Species name. Possibly named for the rigid foliage.

Distribution. Occurs in the Ravensthorpe and Tarin Rock to Lake King areas, including Frank Hann and Fitzgerald River National Parks.

Habitat Requirements:

Soils: Usually found in sandy soils with gravel.

Landforms: Recorded from both undulating sand plain and from hilly terrain.

Vegetation: In mallee heath or heath communities, frequently with *Verticordia* species making up part of the understorey. Commonly recorded from disturbed sites.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
01a	Jackson NR	Nature Reserve	22/09/1989	10
01b	Jackson NR	Shire Rd Verge	22/09/1989	
02a	Floater Rd	Shire Rd Verge	08/11/1989	500
02b	Hayes Road	Private Property	08/11/1989	
03a	Hayes Road	Shire Rd Verge	08/11/1989	200
03b	Hayes Road	Private Property	08/11/1989	
03c	Hayes Road	Shire Rd Verge	14/11/1998	
04	Frank Hahn NP	National Park	10/10/1989	100
05a	Tarin Rock North Rd	MRD Rd Verge	08/10/1989	15
05b	Tarin Rock North Rd	Private Property	08/10/1989	
06	Floater Rd	Shire Rd Verge	26/04/2001	1000
07	Tarin Rock Rd	Shire Rd Verge	01/01/1998	
08	Mt Gibbs		28/10/1992	1000
09	Newdegate-Ravensthorpe Rd	MRD Rd Verge	26/10/1992	20
10	Fence Rd	Shire Rd Verge	26/10/1992	100
11	Fitzgerald River NP	National Park	06/10/1970	
12	Ravensthorpe	UCL	24/10/1998	
	Moolyal Rd	Shire Rd Verge	07/11/1996	
	Mt Gibbs	Water Reserve	29/11/1964	
	Fence Road	Shire Rd Verge	19/10/1964	
	Ravensthorpe	Shire Rd Verge	12/10/2003	
	Lake King Norseman Rd	Shire Rd Verge	05/11/1998	
	Mount Short Rd	Shire Rd Verge	28/10/1998	
	Newdegate-Ravensthorpe Rd	MRD Rd Verge	28/10/1998	
Total:				2945



References:

Aplin, T.E.H. (1973). Poison plants of Western Australia. The toxic species of the genera *Gastrolobium* and *Oxylobium*. Bulletin 3772. Western Australian Department of Agriculture, South Perth, W.A.

Crisp, M.D. & Weston, P.H. (1987). Cladistics and legume systematics, with an analysis of the Bossiaeeae, Brongniartieae and Mirbelieae. Pp. 65-130, in C.H. Stirton (ed.) *Advances in Legume Systematics Part 3* (Royal Botanic Gardens: Kew).

Craig, G. & Coates, D. (2001). Threatened, Rare and Priority Flora of the Esperance District. Western Australian Wildlife Management Program No. 21. CALM, WA.

Gardner, C.A. (1964). Contributions Florae Australiae occidentalis. XIII. *J. & Proc. Roy. Soc. Western Australia* 47: 54-64.

Note: Mike Crisp has reviewed this description (2009).

Goodenia trichophylla Benth.

Family: GOODENIACEAE

Other names: None.

Conservation status: Removed from DEC priority list in 2010.

Flowering time: August to December.

Information date: 28/01/2011



Photo: S. Kern

Taxonomy:

Description. An erect to ascending *herb* that is 10–54 cm high, with basal leaves, that have the distinguishing feature of being viscid or varnished. The varnish conceals the appressed hairs that are peltate (with a stalk attached to the lower surface) especially on the calyx. The basal *leaves* are alternate, linear, entire, concave, thick, with the lamina 2–4 cm long and *c.* 2 mm wide. The *flowers* are in terminal racemes, on flowering stems to 20 cm long that arise from the axils of the basal leaves. The *bracts* are leaf-like, but smaller. The *flowering stalk* is 5–9 mm long, the *bracteoles* are linear and 1–1.2 mm long. The five *sepals* have the tube adnate to the ovary with the free lobes lanceolate and 1–1.5 mm long. The *corolla* is blue and indistinctly auriculate (with ear-shaped appendages), usually 2-lipped, 8–12 mm long, almost glabrous inside and with epidermal outgrowths (enations). The 3 lower (abaxial) lobes are 4–5 mm long and shorter than the upper 2. The lobe wings are *c.* 1 mm wide. The 5 *stamens* are free, with filaments *c.* 4.5 mm long. The *ovary* is inferior, and usually incompletely 2-locular with the style hairy towards apex and with an apical *indusium* that is cup-shaped, oblong and *c.* 1.5 mm long. The indusium upper lip is hairy and the lower lip glabrous. There are 20 *ovules*. The *fruit* is a dry dehiscent capsule that is ovoid-oblong, 5–6 mm long, with entire valves. *Seeds* are brown, flattened, orbicular *c.* 3 mm wide, with a dry, cream, hyaline wing that is more than 0.1 mm wide.

Distinctive features. The blue flowers are similar to *Goodenia caerulea* R.Br. and

Goodenia glareicola Carolin, but *G. trichophylla* differs in having peltate hairs which are completely hidden by a secretion of viscid varnish covering the younger leaves and the outside of the flowers.

Species name. Derived from the Greek words *tricho-* (hairy) and *-phylla* (leaf).

Distribution. A widespread but poorly known taxon recorded from around Eneabba, Lake Grace, Cascades, Yellowdine and Jitarning.

Habitat Requirements:

Soils: Typically associated with sandy soils, commonly with gravel derived from laterite or granite.

Landforms: Most records from sandplains, flats and gentle slopes.

Vegetation: Known from a variety of vegetation types, most frequently in mallee over heath or low scrub. Commonly recorded from disturbed sites including tracks and gravel pits.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
01	Lake King	Shire Road Reserve	22/11/1986	
02	Biljahnje	UCL	3/12/1997	'occasional'
03	Hayes Road	UCL	14/11/1998	'frequent'
04	Ravensthorpe	Shire Road Reserve	3/12/1997	'rare'
05	Yalgoo	Pastoral Lease	5/10/1999	
06	Beaufort Bridge NR	Nature Reserve	18/11/1999	'occasional'
07	Toodyay	Private Property	6/11/2002	1
08	Nindibillup Road	UCL	12/01/2004	20
09	Mason Bay Road	Shire Road Reserve	18/08/2005	5
10	Dragon Rocks	Shire Road Reserve	15/04/2006	1
11	Mason Bay Road	Shire Road Reserve	3/05/2006	10
12	Shire of Kondinin	Shire Road Reserve	1/11/2006	
13	Pinjarra	Private Property	8/11/2006	1
14	South Enneaba NR	Nature Reserve	15/03/2007	
15	Mt Adams Road	UCL	25/10/2007	
	Tarin Rock		30/11/1972	
	Tathra NP	National Park	11/11/1978	
	Coujinup Hill	UCL	11/12/1983	
	Ravensthorpe Range	UCL	10/12/1997	
	New Norcia	Private Property	21/10/2004	'common'
	Ravensthorpe Range	UCL	8/12/2008	'isolated plants'
	Ravensthorpe Range	UCL	11/12/2008	'isolated plants'
	Ravensthorpe Range	UCL	24/01/2009	'isolated plants'
Total:				38



References:

Bentham, G. (1868). *Flora Australiensis*, Volume 4 (Reeve & Co.: London).

Carolin, R.C. (1992). *Goodenia*, Flora of Australia. Volume 35: 187. AGPS, Canberra.

Grevillea fastigiata P.M.Olde & N.R.Marriot

Family: PROTEACEAE

Other names: None.

Conservation status: Priority Four under DEC Conservation Codes for Western Australian Flora.

Flowering time: Spring to autumn with some flowers all year.

Information date: 15/1/2010



Photo: G. Craig

Taxonomy:

Description. An erect *shrub* sometimes pine-like, dense, and 2–2.5 m high. *Branchlets* are clustered (fastigate) and silky hairy with prominent, glabrous ridges. The *leaves* are erect, alternate, to 4.3 cm long, unbranched or mostly bi- or tri-partite, with 3–5 (rarely 7) lobes that are mostly < 1 cm long. The rigid lobes are hairless, 4-angled (tetragonous), narrowly linear, to 2 cm long with the undersurface enclosed by the margins, and the apex spiny. The compound *inflorescence* has bracts that are conspicuous and overlapping on the bud, but fall before the flower opens. *Flowers* face towards the apex of the shrub. The hairs on the *floral axis* and *flower stalks* are rust coloured. The *torus* (axis at the base of the flower) is < 1 mm wide with the tongue-like nectary scarcely exceeding the torus rim. The *perianth* (calyx and corolla) is zygomorphic (symmetrical on one plane only), ovoid to S-shaped, and up to 6.5 mm long. It comprises 4 tepals (perianth lobes), is hairy outside and hairless within, and is a rusty brown colour. A persistent rose colour remains evident on the dried flowers, especially near the perianth curve. The *ovary* is softly hairy and stalkless, and the sparsely hairy style is orange-red, with an apical pollen presenter that is straight, orbicular and flat, and with a prominent stigma. A *stamen* is inserted within a concavity near the end of each of the perianth segments. The *fruit* is ovoid-ellipsoidal, erect on a strongly incurved stalk, 10 mm long and 5.5-6 mm wide, and with predominantly glandular hairs. *Seeds* are *c.* 7 mm long and 3 mm wide, narrowly obovoid, with a raised waxy exudate drawn at both ends into a short wing *c.* 1 mm long.

Distinctive features. Similar to *Grevillea rigida* Olde & Marriott which differs in its larger flowers, non rusty rachis, larger leaf lobes and sparsely glandular fruit.

Grevillea fastigiata has a unique, long persistent rose colouration of the inner tepal surface that is evident even on dried specimens.

Species name. Derived from the Latin word *fastigiatus* (clustered), in reference to the branchlets.

Distribution. Mostly confined to the Ravensthorpe Range and nearby surrounds.

Habitat Requirements:

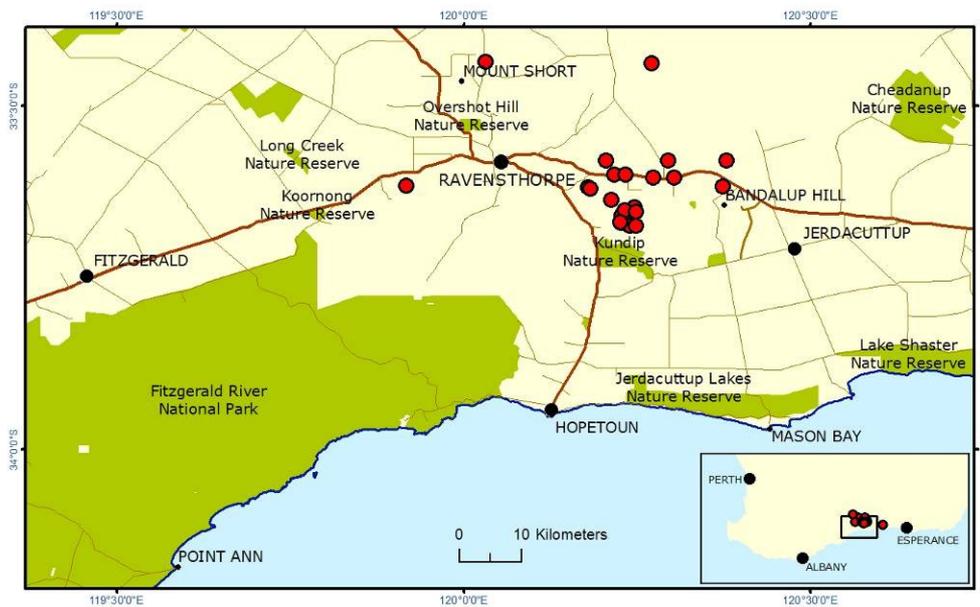
Soils: Most frequently recorded from red-brown clay or loam.

Landforms: Typically occurring on gently inclined hillslopes.

Vegetation: Grows in mallee shrubland or tall heath.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
01-	Ravensthorpe	Public Roads	21/08/1999	'quite common'
02-	Ravensthorpe	Other Reserve	22/09/2005	'locally abundant'
03-	Ravensthorpe	Public Roads	12/02/2006	500
04-	Ravensthorpe	Public Roads	10/05/2006	'occasional, scattered'
05-	Ravensthorpe Range	Other Reserve	24/04/2007	'<10% cover'
06-	Ravensthorpe Range	UCL	26/05/2007	'<10% cover'
07-	Ravensthorpe Range	UCL	26/05/2007	'isolated plants'
08-	Ravensthorpe Range	UCL	27/05/2007	'isolated plants'
09-	Ravensthorpe Range	UCL	27/05/2007	'10-30% cover'
10-	Ravensthorpe Range	UCL	4/09/2007	'isolated plants'
11-	Ravensthorpe Range	UCL	27/09/2007	'isolated plants'
12-	Ravensthorpe Range	UCL	29/09/2007	'isolated plants'
	Jerdacuttup River	Other Reserve	25/10/1961	
	Phillips River	Unknown	22/09/1962	
	Bandalup Hill	UCL	21/08/1964	
	Bandalup Creek	UCL	17/10/1964	
	South Coast Hwy	Private Property	14/10/1965	
	Ravensthorpe	Other Reserve	11/09/1966	
	Maydon	Private Property	12/01/1972	
	Phillips River	Other Reserve	28/06/1976	'frequent'
	Ravensthorpe	Public Roads	18/09/1990	
	Maydon	Private Property	12/10/1991	
	Maydon	UCL	13/01/1999	'occasional'
	Ravensthorpe Range	Other Reserve	24/04/2007	'<10% cover'
	Ravensthorpe Range	UCL	23/05/2007	'10-30% cover'
	Ravensthorpe Range	UCL	2/12/2008	1000
	Ravensthorpe Range	UCL	2/12/2008	5000
	Ravensthorpe Range	UCL	4/12/2008	1000
Total:				7500



References:

Olde, P.M., Marriott, N.R. (1995). *The Grevillea book Volume 2. Species A-L* (Kangaroo Press: Kenthurst, N.S.W.).

Grevillea fulgens C.A.Gardner

Family: PROTEACEAE

Other names: None.

Conservation status: Priority Three under DEC Conservation Codes for Western Australian Flora.

Flowering time: March to December.

Information date: 22/01/2009



Photo: A. Markey

Taxonomy:

Description. A spreading, straggly *shrub* to 3 m high, with long, lax branches to 4 m across. The shortly stalked *leaves* are grouped on one side of the branchlet, needle-like, almost round in cross section, leathery, 3–11 cm long and 1–7 mm wide, and the apex is acute to obtuse with a short abrupt point (mucron). They have a pale grey-green appearance and are initially hairy, soon becoming hairless. The leaf margins are mainly unisected, or few-toothed (juveniles occasionally lobed), strongly rolled down and can enclose the lower surface forming 1 groove or with a groove each side of the prominent mid vein. The *inflorescence* is a 1–3(-5) flowered raceme in the axil of the leaves or terminal on a branchlet. There are large, rusty coloured, overlapping, obovate *bracts* that are 3–9 mm long, and fall before the flower opens. The *flowers* are red or pink and very irregular (symmetrical on one longitudinal plane only). The

inflorescence stalk and flower axis have dense rusty brown hairs. The flower stalk is 5–7 mm long, with rusty brown hairs. The *perianth* (calyx and corolla) is 15–20 mm long, with a conspicuous, white, tufted beard on the outside of the limb (the uppermost, free, spreading section of the 4 tepals). The tepals fall off soon after the flower opens. There is a nectary at the base of the perianth. There are 4 *stamens*, each inserted in a concavity towards the end of the tepal. There is 1 free carpel (*pistil*), 22–25 mm long, with an ovary stalk to 1.5 mm long, 2 ovules, and dense, long, white hairs that contrast with the rusty brown hairs on the red or pink *style*. The pollen presenter (a swelling below the stigma that retains pollen shed in the bud) is towards the apex of the style and is elliptic, convex and lateral. The fruit is a *follicle* with a stalk to 8 mm long. It is ovoid, tapering gradually towards the apex, 12–15 mm long, soon hairless, and has a persistent style to 19 mm long. The *seeds* are 6.5–7 mm long.

Distinctive features. Distinctive in having needle-like, entire leaves, 1–3 (rarely 5) flowers, that are waxy and shiny outside, and a densely hairy ovary. Similar to *Grevillea involocrata* A.S.George in having 1–3 red flowers, but that species differs in having pinnate leaves and persistent bracts.

Species name. From the Latin word *fulgens* (shining, illustrious), referring to the waxy, glossy flowers.

Distribution. Restricted to the Ravensthorpe Range, with one unconfirmed record from the Parker Range.

Habitat Requirements:

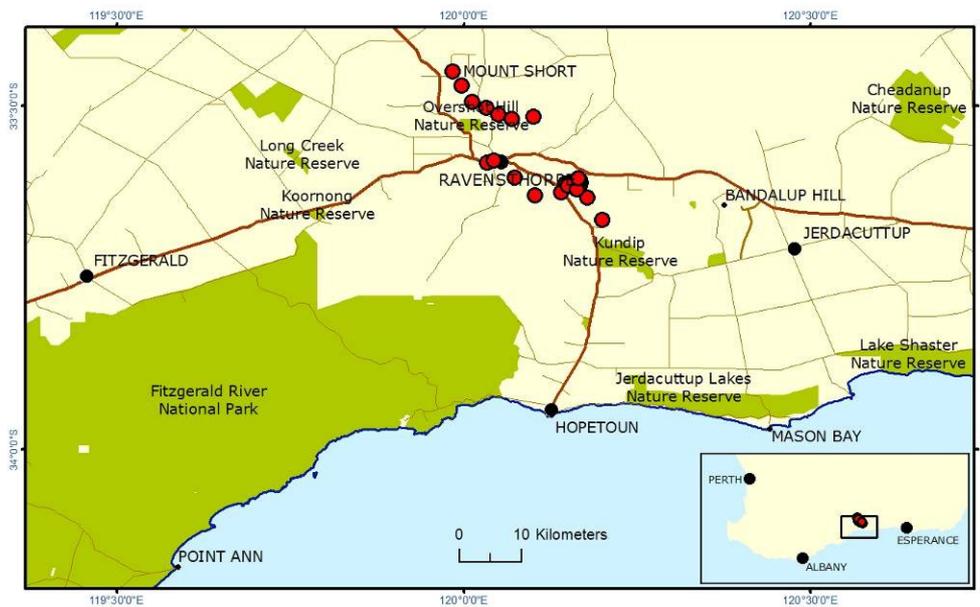
Soils: Gravel over laterite.

Landforms: Ridges, hills and slopes of the Ravensthorpe Range.

Vegetation: Open mallee over heath and scrub. Many collections have been made in old regenerating gravel pits. Reported to be most abundant in recently burnt areas.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
01a	Mt Desmond	Other Reserve	30/09/1999	'occasional'
01b	Mt Desmond	Other Reserve	04/10/2007	2000
02	Ravensthorpe	UCL	29/08/2001	'frequent'
03	Mt Desmond	Other Reserve	15/11/2004	1000
04	Ravensthorpe	UCL	16/11/2004	10000
05	Ravensthorpe	UCL	26/07/2005	
06	Mt Short	UCL	06/09/2007	'isolated plants'
	Mt Desmond	Other Reserve	02/08/1998	'common'
	Mt Short	Gravel Reserve MRD	28/06/1976	'frequent'
	Mt Short	UCL	30/08/1963	
Total:				13000



References:

Gardner, C.A. (1964). Contributions Florae Australiae occidentalis. XIII *J. & Proc. Roy. Soc. Western Australia* 47: 54-64.

Makinson, D. (2000). *Grevillea*. In *Flora of Australia*, Volume 17A (ABRS/CSIRO: Canberra).

Olde, P.M., Marriott, N.R. (1995). *The Grevillea book Volume 2. Species A-L*. (Kangaroo Press: Kenthurst, N.S.W.).

Grevillea patentiloba subsp. *platypoda* (F.Muell.) Olde & Marriott

Family: PROTEACEAE

Other names: None.

Conservation status: Removed from DEC priority list in 2010.

Flowering time: January to December.

Information date: 22/01/2009



Photo: A. Markey

Taxonomy:

Description. A spreading, straggly shrub to 3 m high, with sparsely hairy stems. The *leaves* are shortly stalked, broadly ovate to ovate, 30–55 mm long, and strongly dissected into 3–7 primary lobes that spread at right angles and can be further twice divided. The primary lobes are linear to triangular, 2–9 mm wide, flat with the margins angularly recurved but with the underside clearly visible beside the midvein. The upper surface is pale green and hairless, while the lower surface is silky brown beside the midvein and prominent lateral veins. The floral *bracts* are *c.* 0.5 mm long, ovate to boat-shaped, densely hairy, and fall off before the flower opens. The *inflorescence* is a terminal raceme on a downwardly curved, flattened, zigzag stalk with 2–10 *flowers*. The *flower stalk* is 4–6 mm long and densely hairy. The *perianth* (calyx and corolla) is very irregular (symmetrical on one plane only), and has 4 free tepals (lobes) that are pink or red except for the strongly down-rolled, yellow limb (apical section of the tepals), and detach soon after the flower opens. The perianth is 5–11 mm long, oblong, silky to sparsely hairy outside with intermixed glandular hairs, and hairy inside on the lower half. The conspicuous *nectary* at the base of the perianth is tongue-like to oblong with a wavy or toothed margin. There are 4 *stamens*,

each in a concavity towards the apex of each tepal. The *pistil* (one free carpel) is 12–15 mm long and hairless or with a few hairs on the triangular ovary. The ovary is 1.5 mm long, with a stalk 1–2 mm long, and the long style is red or pink. The *pollen presenter* (a swelling below the stigma that retains pollen shed in the bud) is orbicular. The *fruit* follicle is ellipsoidal, 10–14 mm long and to 8.5 mm wide, hairless, and has wart-like outgrowths on the outer surface. The *seeds* are to 7.5 mm long and oblong-ellipsoid.

Distinctive features. Differs from *Grevillea patentiloba* F.Muell. subsp. *patentiloba*, which also occurs in the Ravensthorpe Range, in having broader leaf lobes (2–9 mm wide) with the undersurface at least partially exposed, rather than leaf lobes 1–2 mm wide with the undersurface enclosed by the margins. *Grevillea nudiflora* Meisn. differs in having once divided, narrowly linear leaves and *Grevillea newbeyi* McGill. differs in its longer pistil (39–48 mm long) and conspicuously ridged fruits.

Subspecies name. From the Greek words *platy-* (broad) and *podo-* (foot) probably in reference to the broad leaves which resemble a foot.

Distribution. Known only from the Ravensthorpe Range.

Habitat Requirements:

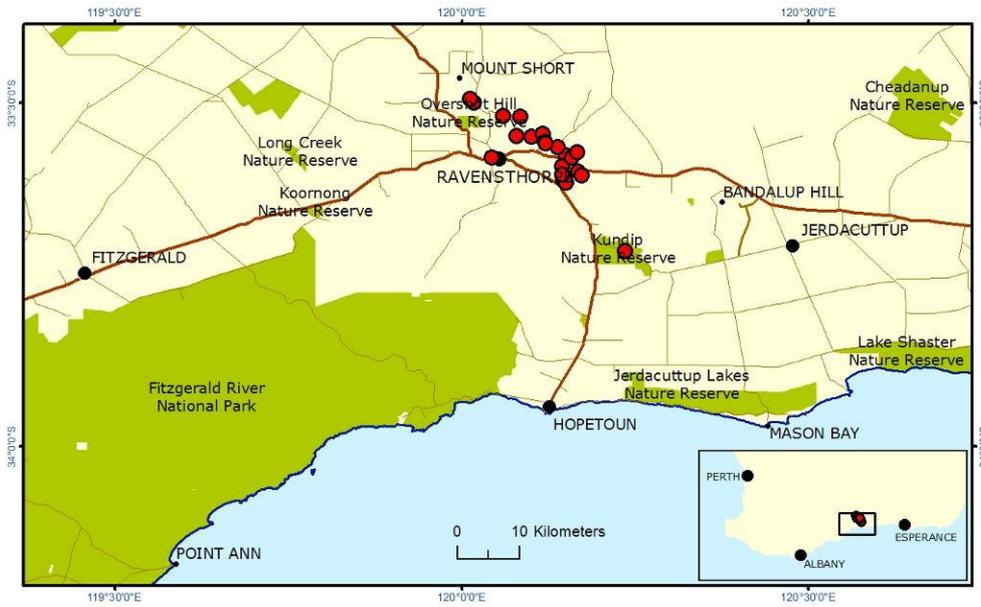
Soils: Gravelly soils and laterite.

Landforms: Hillsides and hilltops.

Vegetation: Amongst mallee woodland and tall sclerophyll shrubland.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Ravensthorpe	UCL	18/10/2005	'rare'
	Mt Desmond	Other Reserve	13/09/1998	'scattered'
	Ravensthorpe		23/05/1998	'common'
	Kundip	UCL	09/05/1996	'occasional'
	Mt Desmond	Other Reserve	09/01/1979	'common'
	Ravensthorpe Range		28/06/1976	'frequent'
	Mt Desmond	Other Reserve	02/11/1962	
	Ravensthorpe Range	UCL	23/03/2007	'isolated plants'
	Ravensthorpe Range	UCL	23/03/2007	'isolated plants'
	Mt Desmond	Other Reserve	18/04/2007	'isolated plants'
	Mt Desmond	Other Reserve	18/04/2007	'<10% cover'
	Mt McMahon	UCL	02/10/2007	'isolated plants'
	Ravensthorpe Range	Other Reserve	04/10/2007	'isolated plants'
	Ravensthorpe Range	UCL	04/12/2008	'isolated plants'
	Ravensthorpe Range	UCL	05/12/2008	'isolated plants'
	Ravensthorpe Range	UCL	10/12/2008	'isolated plants'
	Ravensthorpe Range	UCL	11/12/2008	'isolated plants'
Total:				



References:

Olde, P.M. & Marriott, N.R. (1995). *The Grevillea book Volume 3. Species M-Z*. (Kangaroo Press: Kenthurst, N.S.W.).

Grevillea punctata Olde & Marriott

Family: PROTEACEAE

Other names: None.

Conservation status: Priority Three under DEC Conservation Codes for Western Australian Flora.

Flowering time: April to November, fruiting from September.

Information date: 22/01/2009



Photo: S. Kern

Taxonomy:

Description. A single-stemmed *shrub* that grows to 2 m high. The *branchlets* are brown, silky hairy, with a hairless rib below the leaf stalk. The leathery *leaves* are stalkless or with a stalk to 1 mm long, entire, narrowly oblong to linear, 5–18 mm long and 1.5–3 mm wide, with a prominently raised midvein, and an obtuse apex with a short abrupt point (mucron). The upper surface is rounded, hairless, smooth or wrinkled, and dotted with minute hollows. The margins are strongly rolled downwards, obscuring the lower surface (one groove visible), or with the midrib and a groove each side visible or rarely flat rather than rounded and with slightly recurved margins. There are faintly raised, longitudinal, lateral veins which cause the roll down to be somewhat angled. The lower surface if exposed has white, silky hairs, sometimes with intermixed rusty hairs. The stalked, 2–4-flowered, terminal *raceme* is on short branchlets or sometimes in the upper leaf axil. The inflorescence stalk is densely hairy, while the flower stalk is hairless and to 9 mm long. The scarlet red *perianth* (calyx and corolla) is 12 mm long and has a prominent *nectary* at its base, that is lobed at each end and rises to 0.8 mm above the toral (receptacle) rim. The perianth has 4 ovoid tepals that are very irregular along the horizontal plane, and hairless outside, while inside they are lightly bearded halfway, then sparsely silky hairy above the beard. The limb (the uppermost, free, spreading section of the 4 tepals) is 2–3 mm wide and apiculate, with 4 *stamens*, each in a concavity at the apex. The hairless, single carpel (*pistil*) has a stalk to 1.5 mm long, and a downcurved *ovary* that is compressed ellipsoid to subtriangular and to 1.5 mm long. The *style* is scarlet red, hairless, to 12 mm long and with the large pollen presenter (a swelling below the stigma that retains pollen shed in the bud) that is laterally to obliquely positioned. The *fruit* is a hairless, ovoid, follicle *c.* 13 mm long and 5.5 mm wide, with a long

persistent style and a long, laterally connected stalk. The follicle is covered with small rounded elevations. The *seeds* are to 10 mm long, ellipsoid and winged.

Distinctive features. Distinctive in being a single-stemmed shrub with leaves that are entire with the upper surface dotted, the margins strongly and angularly recurved along lateral veins, and the midvein prominently raised, and in having inflorescences with 2–4 scarlet flowers, each with a prominent, toothed nectary, a hairless outer perianth and hairless ovary and style. Morphologically allied to *Grevillea acuaria* Benth. and *Grevillea sulcata* Olde & Marriott. *Grevillea acuaria* differs in having a smooth to shiny rather than dotted upper leaf surface, smoothly rolled down leaf margins rather than angularly rolled down, a less conspicuous nectary, smaller perianth limbs and smaller fruit. *Grevillea sulcata* has longer, linear leaves, with a flat rather than convex and angularly recurved upper surface.

Species name. Derived from the Latin word *punctatus* (marked with small dots) in reference to the pitted upper leaf surface.

Distribution. A restricted distribution from Ravensthorpe to Bandalup Hill.

Habitat Requirements:

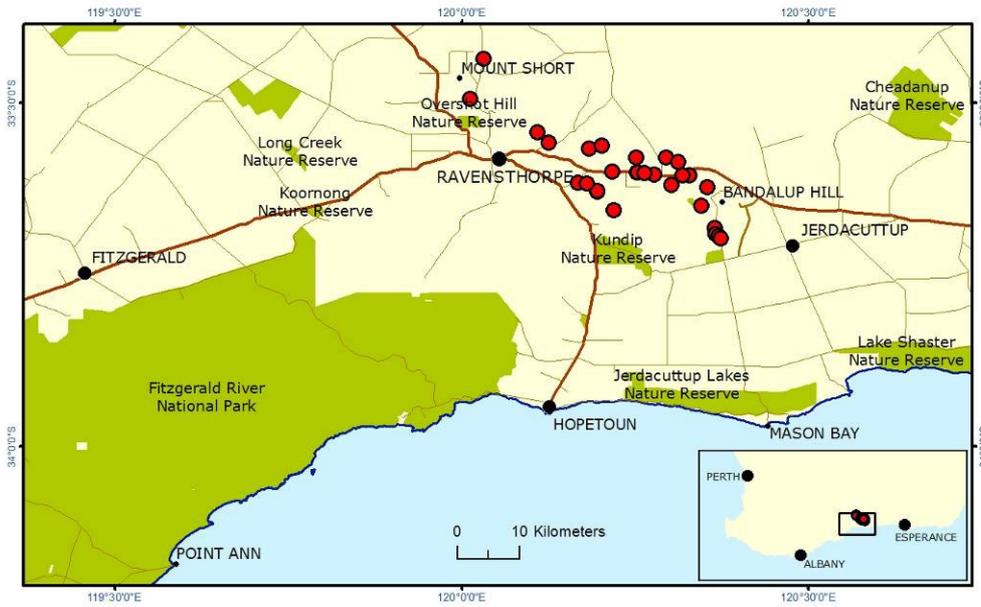
Soils: Stony red loam, red clay.

Landforms: Hills and gullies.

Vegetation: Usually mallee scrub and mallee woodlands.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Kundip	Other Reserve	28/09/2007	'isolated plants'
	Jerdacuttup		25/05/2007	'isolated plants'
	Mt McMahon	Private Property	11/05/2007	'occasional'
	Mt McMahon	UCL	10/05/2007	'rare'
	Elverdton Rd		13/09/2000	1
	Jerdacuttup		15/04/2000	'rare'
	Bandalup		15/05/1999	'occasional, scattered'
	Ravensthorpe	UCL	23/04/1999	'occasional'
	Ravensthorpe		25/04/1998	'uncommon'
	Ravensthorpe	Shire Rd Verge	12/10/1991	'occasional'
Total:				1



References:

Olde, P.M. & Marriott, N.R. (1995) *The Grevillea book Volume 3. Species M-Z*. (Kangaroo Press: Kenthurst, N.S.W.).

Guichenotia anota C.F.Wilkins

Family: MALVACEAE

Other names: None.

Conservation status: Priority One under DEC Conservation Codes for Western Australian Flora.

Flowering time: September to April.

Information date: 16/03/2009



Photo: A. Markey

Taxonomy:

Description. An erect, compact, grey-green, *shrub* to 40 cm high (rarely to 1 m). The *young stems* are densely stellate (multi-armed, star-like) hairy, becoming hairless. *Stipules* are absent. The shortly stalked *leaves* are alternate, oblong to narrowly obovate, to 7 mm long and 2 mm wide. The lower surface has a prominent rib with rust coloured stellate hairs, and the remainder has white, stellate hairs. The upper surface initially has white stellate hairs, becoming hairless with prominent, yellow, reticulate venation. The margin is entire and strongly recurved, and the apex is obtuse and mainly recurved or straight. The 3 or 4 (rarely 8)-flowered *inflorescence* is opposite a leaf and 15–20 mm long. The stalked *flowers* are pendulous. The *flower stalk* is 1.5–4 mm long with white, stellate hairs intermixed with abundant, long-stalked, red, clavate glands to 0.5 mm long. There are 1 or 2 linear-oblong *bracts* at the base of each pedicel and 3 free *epicalyx bracts* directly below the calyx. The pale pink *calyx* becomes medium pink, is petal-like in texture, 5–8 mm long, with the tube *c.* 3/4 of the total calyx length. The 5 lobes are broadly-ovate and to 2.5 mm long and 3.5 mm wide, with a rounded apex. The calyx outer surface has medium to dense, white, stellate hairs throughout while the inner surface is hairless at the base, and the lobes have fine, minute, white hairs. *Petals*, *staminal tube* and *staminodes* are absent. The 5 *stamens* have red *filaments* and the *anthers* are pink becoming dark red. They touch laterally to form a tube, and dehisce inwards from pores below a truncate apex. The stalkless *ovary* has 3 locules with 2 *ovules* per locule, and is covered by white, stellate hairs. The *style* has a few hairs, only at the base. The *fruit capsule* is

chartaceous and dehisces from the inner sides of the locules. It is oblong to ellipsoid, 3.5–4 mm long and 2.5–2.8 mm wide, and the outer surface has scattered, stellate hairs. The dark brown, smooth *seed* is ellipsoid, *c.* 2 mm long and 1 mm wide, with medium density, white, stellate hairs and a cap-like aril with short lobes.

Distinctive features. *Guichenotia anota* is closest to *Guichenotia apetala* A.S.George, differing in having leaves that are oblong with a recurved apex, rather than ovate and sub-auriculate with a straight apex, and by having longer leaf stalks, longer inflorescence stalks and more glandular mature flower stalks.

Species name. The specific epithet is derived from the Latin words *an* (without) and *ota* (ears), referring to the oblong leaves of this species which lack the sub-auriculate lobes present on the leaf base of its closest ally *G. apetala*.

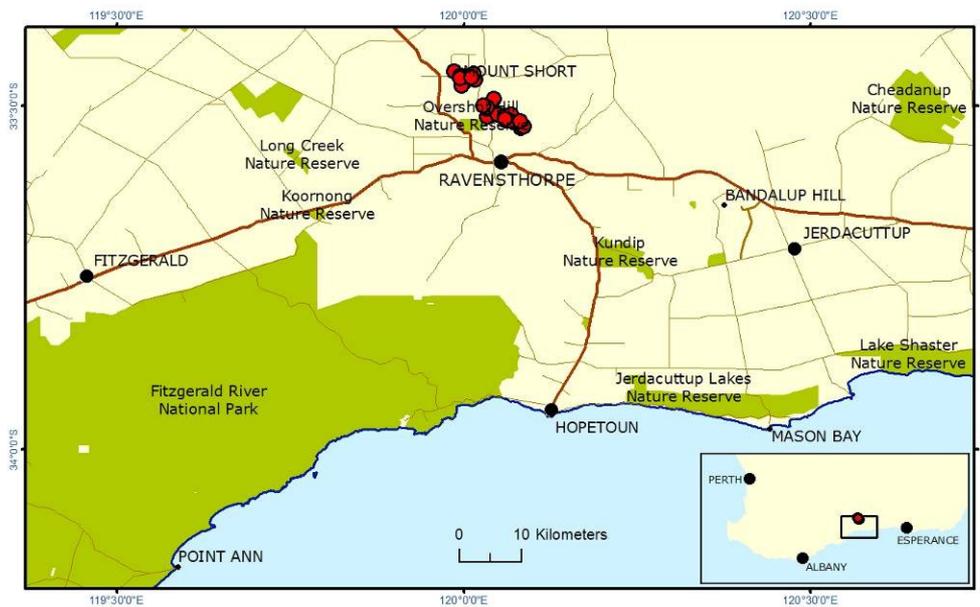
Distribution. This species is restricted to the northwestern end of the Ravensthorpe Range.

Habitat Requirements:

Soils: Generally brown sandy loam with lateritic fragments at the surface.
Landforms: Gently inclined mid-slopes to hillcrests, usually with a western aspect.
Vegetation: Usually in tall open mallee shrubland with *Eucalyptus falcata* subsp. *falcata* and often *E. incrassata* over tall shrubland strata.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
01a	Mt Short	Shire Rd Verge	25/09/1997	
01b	Mt Short	Water Reserve	06/04/2006	100
01c	Mt Short	Shire Rd Verge	25/09/1997	
01d	Mt Short	UCL	01/08/2007	
02	Mt Short	Water Reserve	13/01/2002	
03	Mt Short	Private Property	10/09/1994	
04	Ravensthorpe	UCL	08/05/2007	
05	Ravensthorpe	UCL	26/04/2001	10
06	Ravensthorpe	UCL	24/10/2003	
07	Ravensthorpe	UCL	16/11/2004	'occasional'
08	Ravensthorpe	UCL	08/05/2007	
09	Mt Short	Water Reserve	16/12/1992	12
	Mt Short	Water Reserve	14/03/2007	'isolated plants'
	Ravensthorpe Range	UCL	17/03/2007	'<10% cover'
	Ravensthorpe Range	UCL	06/09/2007	'<10% cover'
	Ravensthorpe Range	UCL	12/09/2007	'<10% cover'
	Mt Benson	UCL	21/11/2008	'isolated plants'
	Mt Benson	UCL	4/12/2008	'isolated plants'
	Mt Short	UCL	22/1/2009	'<10% cover'
	Mt Benson	UCL	23/01/2009	'isolated plants'
Total:				122



References:

Wilkins, C.F. & Chappill, J.A. (2003). Taxonomic revision of *Guichenotia* (Malvaceae s.l. or Sterculiaceae). *Australian Systematic Botany* 16: 323–360.

Wilkins, C.F. & Whitlock, B.A. (2009). *Guichenotia anota* and *Guichenotia apetala* (Lasiopetaleae: Byttneriaceae or Malvaceae s.l.) a new and a revised species endemic to Ravensthorpe Range, south-west Western Australia. *Nuytsia* 19(1): 181–190.

Guichenotia apetala A.S.George.

Family: MALVACEAE

Other names: Ravensthorpe Range Guichenotia.

Conservation status: Priority One under DEC Conservation Codes for Western Australian Flora.

Flowering time: September to December.

Information date: 30/03/2009



Photo: S. Kern

Taxonomy:

Description. An erect, multi-stemmed, compact, grey-green *shrub*, which is 10–50 cm high. The *young stems* are dark brown, with a dense covering of stellate (multi-armed, star-like) hairs, then becoming hairless. *Stipules* are absent. The shortly stalked *leaves* are alternate, triangular with a deep notch at the base and basal lateral lobes, and mainly 3.5–4.5 mm long and 3.5–4.5 mm wide. The lower surface has a prominent rib with dense, rust coloured, stellate hairs and the remainder with dense white, stellate hairs. The upper surface initially has medium-density, stellate hairs, becoming hairless with prominent, yellow, reticulate venation. The margin is entire and strongly recurved and the apex is obtuse and straight or scarcely upturned. The 1 or 2 (rarely 3)-flowered *inflorescence* is opposite a leaf and 10–40 mm long. The *flowers* are stalked and pendulous. There are 1 or 2 linear-oblong *bracts* at the base of each flower stalk and 3 free *epicalyx bracts* directly below the calyx. The pinkish-white *calyx* has a petal-like texture, is 5–7 mm long, with the tube being *c.* 3/4 of the total calyx length. The lobes are broadly ovate and to 2 mm long and 3 mm wide. The outer surface is ribbed and has dense, white, stellate hairs throughout, while the inside of the tube is hairless and the lobes have minute, simple or few-armed stellate hairs. The lobe apex is rounded. *Petals*, *staminal tube* and *staminodes* are absent. The *stamens* have very short red *filaments* and *anthers* that are pink becoming dark red, and touch laterally to form a tube. They are dehiscent by pores below a truncate apex. The stalkless *ovary* has 3 locules with 2 *ovules* per locule, and is covered with white, stellate hairs. The *style* has a few hairs, only present at the base. The *fruit capsule* is chartaceous and dehisces along the inner lines of the locules. It is oblong to ellipsoid, 3.5–4 mm long and 2.5–3 mm wide, and the outer surface has scattered, stellate hairs. The dark brown, smooth *seeds* are ellipsoid, *c.* 2 mm long and 1 mm wide, and the outer surface has medium density, stellate hairs and an aril.

Distinctive features. *Guichenotia apetala* is most closely related to *Guichenotia anota* but differs in having leaves with lateral basal lobes, shorter leaf stalks, and a fewer-flowered inflorescence. Note that some larger, basal leaves of *G. apetala* rarely have five lobes and palmate venation. This is presumed to be a juvenile leaf characteristic, but juvenile plants have not been observed.

Species name. Named *apetala* for its lack of petals, a feature unique in the genus at the time of its description. However, *G. anota* also has no petals.

Distribution. This species is restricted to the Mt Desmond area of the Ravensthorpe Range.

Habitat Requirements:

- Soils:** Habitually brown sandy loam or loamy sand with fragments at the surface.
- Landforms:** Usually moderately inclined slopes with an eastern aspect.
- Vegetation:** Normally tall open Eucalyptus mallee shrubland over high proteaceous shrubland, above sedgeland.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
01	Mt Desmond	Other Reserve	28/09/2007	'frequent'
02	Mt Desmond	Other Reserve	08/09/1993	
03	Mt Desmond	Other Reserve	24/10/2003	
04	Mt Desmond	Other Reserve	17/11/2004	
05a	Mt Desmond	Other Reserve	08/07/1998	
05b	Mt Desmond	Other Reserve	21/09/2005	
	Mt Desmond	Other Reserve	30/09/1999	
	Mt Desmond	Other Reserve	15/02/2007	'isolated plants'
	Mt Desmond	Other Reserve	23/04/2007	'<10% cover'
	Mt Desmond	Other Reserve	26/04/2007	'isolated plants'
	Mt Desmond	Other Reserve	07/09/2007	'<10% cover'
	Mt Desmond	Other Reserve	18/09/1990	'scattered'
Total:				



References:

George, A.S. (1967). Additions to the flora of Western Australia: ten miscellaneous new species. *Journal of the Royal Society of Western Australia* 50: 99.

Robinson, C.J. & Coates, D.J. (1995). Declared Rare and Poorly Known Flora in the Albany District. Western Australian Wildlife Management Program No 20. CALM, WA.

Wilkins, C.F. & Chappill, J.A. (2003). Taxonomic revision of *Guichenotia* (Malvaceae s.l. or Sterculiaceae). *Australian Systematic Botany* 16: 323–360.

Wilkins, C.F. & Whitlock, B.A. (2009). *Guichenotia anota* and *Guichenotia apetal*a (Lasiopetaleae: Byttneriaceae or Malvaceae s.l.) a new and a revised species endemic to Ravensthorpe Range, south-west Western Australia. *Nuytsia* 19(1): 181–190.

Gyrostemon sessilis A.S.George

Family: GYROSTEMONACEAE

Other names: None.

Conservation status: Removed from DEC priority list in 2010.

Flowering time: August to October.

Information date: 18/03/2009

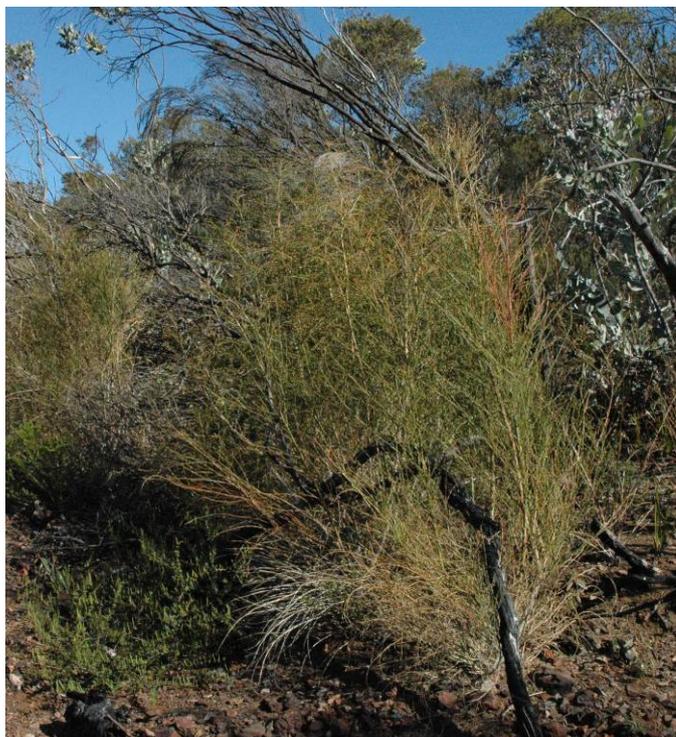


Photo: S. Barrett

Taxonomy:

Description. A slender, short-lived, hairless *shrub* to 2 m tall. The *stems* are somewhat angular and the old leaf bases are often prominent. The *stipules* are narrow and acute, *c.* 0.2 mm long, and gold or dark brown and glossy. The *leaves* are alternate, well-spaced, erect or spreading, narrowly-linear, thick, mainly 3–12 mm long (however, lower leaves can be up to 65 mm long), and the apex is acute and has a terminal point. They are mainly persistent; however, old plants do shed their long leaves. *Flowers* are dioecious (male and female reproductive systems are on separate plants) and solitary in the axils of the leaves. *Male flowers* have stout pedicels that are 1–2 mm long and recurved. The calyx is 1–1.5 mm long, shallowly and irregularly lobed, and with a scarios margin. *Petals* are absent. There are 30–48 *stamens* in 2 or 3 rows covering the disc. They are short, quadrangular, and with 2locules that open widely by longitudinal slits. *Female flowers* are erect and stalkless or almost so. The calyx is *c.* 1 mm long, lobed to halfway, with the lobes broad and scarios. *Petals* are absent. The *ovary* is obovate and with 2–8 carpels. The stigmas are pale pink, thick, petaloid, 1–1.5 mm long and united at the base. The *fruiting* carpels are erect to spreading, obovate, 2.5–4 mm long, each with 2 fine, narrow keels, and are sometimes succulent. *Seeds* are \pm oblong, 1.5 mm long, wrinkled and with a small, narrow aril that scarcely covers the base of the seed.

Distinctive features. *Gyrostemon sessilis* is related to *Gyrostemon subnudus* (Nees) Baill. but is distinguished by its small leaves, sessile or almost sessile female flowers and fewer carpels.

Taxonomic notes. Alex George and Carol Wilkins have difficulty separating *G. sessilis* from the Priority One listed taxon *Gyrostemon* sp. Ravensthorpe (*G. Cockerton & N. Eveleigh 9467*) using dried specimens and photographic evidence. Further collections of male and female plants are recommended from the Ravensthorpe area so that the taxonomic and conservation status of *Gyrostemon* sp. Ravensthorpe (*G. Cockerton & N. Eveleigh 9467*) can be formally assessed.

Species name. In reference to the typically sessile flowers and fruit.

Distribution. Occurs from just west of Fitzgerald River National Park to Bandalup Hill, east of Ravensthorpe.

Habitat Requirements:

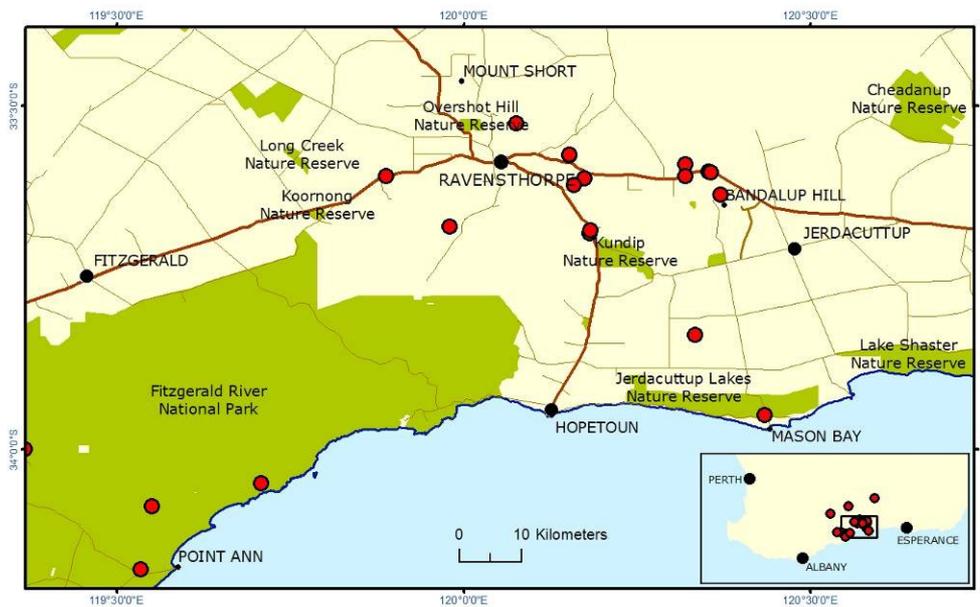
Soils: Usually found in lateritic soils. Occasionally also recorded from granitic soils.
Landforms: Recorded from both undulating sandplain and from slopes and crests in hilly terrain.
Vegetation: Usually recorded from regenerating mallee-shrubland and heath.

Biology:

Age Structure: Very likely that populations are single aged.
Disturbance: Taxon highly likely to be a disturbance opportunist, both fire and mechanical.
Fire: Species recruits prolifically after fire.
Life cycle: A short-lived species, rarely surviving longer than five years. Reproductive in their first year.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Fitzgerald River NP	National Park	14/07/1970	
	Fitzgerald River NP	National Park	20/10/1970	
	Fitzgerald River NP	National Park	27/06/1974	
	Jerramungup	Private Property	16/11/1999	'occasional'
	Bandalup Hill	Mining Lease	16/07/2002	
	Elverdton Rd	Shire Rd Verge	16/06/2003	'common'
	Bandalup Hill	Mining Lease	10/09/2004	10000
	Shoemaker Levy	Mining Lease	15/09/2004	'isolated individuals'
	Bandalup Hill	Mining Lease	03/11/2004	20
	Elverdton Rd	Shire Rd Verge	04/11/2004	10
	Mason Bay Rd	Shire Rd Verge	05/11/2004	20
	Ravensthorpe Range	UCL	14/02/2007	'<10% cover'
	South Coast Hwy	MRD Rd Verge	27/11/2007	100
	Cocanarup	UCL	10/12/06	1000
	Ravensthorpe	UCL	18/10/06	50
	Bandalup Hill	Mining Lease	12/02/06	50
Total:				11250



References:

George, A.S.(1982). *Gyrostemon*. In *Flora of Australia*, Volume 8 (AGPS: Canberra).

Note: Alex George has reviewed this description and advised on the taxonomic stability of this species in relation to *Gyrostemon* sp Ravensthorpe (2009).

Hibbertia abyssa Wege & K.R.Thiele

Family: DILLENIACEAE

Other names: Previously listed under the phrase name *Hibbertia* sp. Bandalup Hill (G.F. Craig 3479).

Conservation status: Listed as Declared Rare Flora under the Western Australian Wildlife Conservation Act 1950.

IUCN criteria: Critically Endangered B1ab(iii) + B2ab(iii).

Flowering time: Recorded in October, November and February.

Information date: 15/1/2010



Photo: D. Rathbone

Taxonomy:

Description. This upright, single or multi-stemmed *shrub* reaches 1.2 m high and has sprawling lower stems. The young branchlets are prominently ribbed below the base of each leaf stalk, and there are dense hairs between the ribs. The mid-green, crowded *leaves* are spirally arranged, ascending when young and then distinctively spreading to slightly more than 90 degrees to the stem; the blade is linear or narrow and tapering to a fine point, 6–14 mm long and 0.9–1.6 mm wide, with the margin tightly recurved onto a prominent, thickened midrib which is the same colour as the upper surface; the upper surface has sparse, small, wart-like outgrowths, occasionally with very sparse, simple and/or stellate hairs (multiple star-like arms per hair); the apex is a straight, sharp point. *Flowers* are solitary in the axils, with the flower stalk straight or curved, distinctively long (6–14 mm) and either hairless or with sparse, uncinuate hairs (terminating in a hooked point towards the apex). The 5 elliptic to narrowly ovate *sepals* are green with dark red markings and 3.5–5 mm long; the three outer sepals have the outer surface with moderately dense, uncinuate hairs and sparse, minute stellate hairs, and the apex has a short, hardened point; the two inner sepals have the outer surface with sparse hairs, the margins are membranous and the apex is obtuse.

The 5 *petals* are yellow, obovate, 6–8.5 mm long and have a broad, shallow notch at the apex. The 5 fertile *stamens* are all on one side of the ovary; the anthers are yellow, narrowly ovate to oblong and 2–2.2 mm long; sterile stamens are absent. The ovary is densely hairy. *Fruit* not seen.

Distinctive features. The long, slender and more or less hairless flower stalks of *Hibbertia abyssa* Wege & K.R.Thiele differentiate it from allied taxa. The combination of hooked and star-shaped hairs on its outer sepals suggests an affinity to *Hibbertia hamulosa* J.R.Wheeler, a species also known from rocky habitats, from Fitzgerald River National Park to south-east of Bandalup Hill. This species differs most obviously from *H. abyssa* in having densely hairy rather than hairless stem ribs, shorter (2–4 mm long) and more densely hairy flower stalks, and mature leaves which tend not to spread beyond 45 degrees to the stem rather than slightly > 90 degrees.

Hibbertia abyssa may also be confused with *Hibbertia atrichosepala* Wege & K.R.Thiele and *Hibbertia mucronata* (Turcz.)Benth. which are also known from the Ravensthorpe region, although neither species is recorded east of the Jerdacuttup River. *Hibbertia atrichosepala* can be readily differentiated from *H. abyssa* by its shorter flower stalks (3.5–7 mm long), and hairless sepals. It also tends to have larger petals and more prominently pointed outer sepals. Both species occur in rocky habitats, however, *H. abyssa* is restricted to skeletal soils over siltstone, whereas *H. atrichosepala* occurs on deeper loam soils over lateritic gravels. *Hibbertia mucronata* differs from *H. abyssa* in possessing stems, flower stalks and young leaves with simple, soft hairs, shorter flower stalks (to 2 mm long), and sepals with star-shaped hairs and no hooked hairs. *Hibbertia mucronata* is recorded in sand or loam over a variety of substrates including quartzite, spongolite, limestone and granite.

Species name. From the Latin word *abyssus* (an abyss, a bottomless pit) and the adjectival suffix *-a* (indicating place of growth), in reference to its position at the edge of a mine pit.

Distribution. Known only from Bandalup Hill, east of Ravensthorpe.

Habitat Requirements:

Soils: In sandy loams associated with laterite.

Landforms: It is recorded from lower to upper hillslopes.

Vegetation: Occurs under *Eucalyptus* – *Banksia* – *Melaleuca* open mallee shrublands.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
1	Bandalup Hill	Mining lease	16/02/1998	
2	Bandalup Hill	Mining lease	9/10/2007	
3a	Bandalup Hill	Mining lease	6/11/2008	'locally common'
3b	Bandalup Hill	Mining lease	6/11/2008	'locally common'
	Bandalup Hill	Mining lease	18/08/2009	100 (+20 seedlings)
	Bandalup Hill	UCL	18/11/2009	6000 (+7500 seedlings)
	Bandalup Hill	Mining lease	28/04/2010	0 (+1000 seedlings)
	Bandalup Hill	Mining lease	28/04/2010	0 (+1000 seedlings)
Total:				6100 (+9520 seedlings)



References:

Wege, J.A. & Thiele, K.R. (2009). Two new species of *Hibbertia* (Dilleniaceae) from near Ravensthorpe in Western Australia. *Nuytsia* 19(2): 303-310.

Hibbertia atrichosepala Wege & K.R.Thiele

Family: DILLENiaceae

Other names: Previously listed under the phrase name *Hibbertia* sp. Ravensthorpe Range (E. Tink 335).

Conservation status: Priority One under DEC Conservation Codes for Western Australian Flora.

Flowering time: September to November and April.

Information date: 17/03/2009



Photo: A. Markey

Taxonomy:

Description. An upright, apparently single-stemmed *shrub* to 1.2 m high with sprawling lower stems. The young *branchlets* are distinctly ribbed from the base of each petiole, with dense, stellate (multi-armed, star-like) hairs between the ribs. The shortly stalked *leaves* are spirally arranged, crowded and ascending when young, then spreading up to 90 degrees to the stem. They are linear, mainly 7–13 mm long and 0.8–1.4 mm wide, and almost rounded in cross section, with the margin tightly recurved onto a prominent, thickened midrib. The upper surface has small protuberances and can also have sparse, simple hairs, while the apex is a strong, straight, pungent point. The *flowers* are solitary in the axils of the leaves; with straight, ascending, flower stalks that are 3.5–7 mm long, and hairless aside from minute stellate hairs at the very base. The 5 distinctively hairless *sepals* are elliptic to ovate and 4.5–6 mm long. The outer sepals are strongly acuminate and pungent; while the inner sepals are rounded and have a membranous margin. The 5 yellow *petals* are obovate with a broad notch at the apex and are 8–10 mm long. The 5 *stamens* are all arranged on one side of the carpels and there are no staminodes (sterile stamens). The

2 carpels are ellipsoid to ovoid and densely hairy with 2 ovules per carpel. The fruiting carpels are dry, subglobular, and c. 3 mm long and 2.5 mm wide.

Distinctive features. *Hibbertia atrichosepala* Wege & K.R.Thiele is likely to be confused with *Hibbertia mucronata* (Turcz.)Benth., *Hibbertia hamulosa* J.R.Wheeler and *Hibbertia abyssa* Wege & K.R.Thiele which are all known from the Ravensthorpe region. It differs most obviously from these taxa in having hairless sepals. These taxa differ further from *H. atrichosepala* in the following features: *H. mucronata* has shorter flowering stalks (to 2 mm long) with simple hairs, and young stems with densely pilose rather than stellate hairs; *H. hamulosa* has densely stellate-hairy rather than hairless stem ribs shorter (2–4 mm long) and more densely stellate-hairy flower stalks, and mature leaves which tend not to spread beyond 45 degrees to the stem; and *H. abyssa* has longer flower stalks (6–14 mm long), outer sepals which are less prominently pungent, and smaller petals (6–8.5 mm long). *Hibbertia carinata* J.R.Wheeler, a poorly known species recorded between Hatters Hill and Esperance, has more or less glabrous sepals but can be readily differentiated from *H. atrichosepala* by its sessile flowers with 9–12 stamens.

Species name. From the Greek word *atrichos* (without hair) in reference to the distinctive, glabrous sepals of this species.

Distribution. Known only from rocky hillslopes in the Ravensthorpe Range.

Habitat Requirements:

Soils: Loam over laterite.

Landforms: Moderate slopes.

Vegetation: Recorded in open mallee woodland over dense shrubland and tall open shrubland.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Ravensthorpe	UCL	10/09/2008	'locally frequent'
	Mt McMahon	UCL	02/10/2007	'common'
	Ravensthorpe	UCL	24/10/1998	'frequent'
	Mt Desmond		18/04/2007	'<10% cover'
	Mt Benson	UCL	21/11/2008	'<10% cover'
	Mt Benson	UCL	04/12/2008	'locally frequent'
	Ravensthorpe Range		05/12/2008	'locally frequent'
Total:				



References:

Wege, J.A. & Thiele, K.R. (2009). Two new species of *Hibbertia* (Dilleniaceae) from near Ravensthorpe in Western Australia. *Nuytsia* 19(2): 303-310.

Hydrocotyle decipiens H.Eichler ms

Family: ARALIACEAE

Other names: None.

Conservation status: Priority Two under DEC Conservation Codes for Western Australian Flora.

Flowering time: Flowering in September, fruiting in October.

Information date: 12/06/2009



Photo: G. Craig

Taxonomy:

Description. A small, erect annual *herb*, to 3 cm high. The *branchlets* are red and hairless. Either side of the leaf stalk there are 2 dry and membranous, cream *stipules* to 1 mm long, with fringed margins. The green leaves and flowering stems arise from the basal, slightly swollen rootstock. The *leaves* are alternate, 1.5–3.5 mm long and 1.8–4 mm wide, and have stalks 2.5–4.5 mm long. The leaf blade has 3–5 lobes with entire or toothed margins, and a cordate (deeply notched) base. The *inflorescences* are 4–10 mm long, with 1–3 apical branchlets, each terminated by a spherical cluster of 6–12 *flowers* on equal length stalks to 2 mm long that all arise from the top of the inflorescence stalk (umbel). *Sepals* are absent. There are 5 *petals* with entire margins and an acute apex. The five *anthers* are circular in outline, dehiscing via longitudinal slits and withering before the styles are fertile. A fertile *gynoecium* is present with 2 carpels that expand at maturity, and are surmounted by 2 free styles. Ovules are 1 per locule. The *fruits* consist of 2 hairless, laterally compressed fruitlets (mericarps) that are centrally fused, red, elliptical, c. 1 mm long and 1 mm wide, and with 3 prominent ribs excluding the central connecting surface. The fruitlet becomes angular and 4-sided at maturity and splits into two at the time of dispersal to reveal a fine projection (carphophore) attached to the apex of the flower stalks. On the flattened surfaces between the ribs there are c. 10–15 rounded and irregularly arranged tubercles (wart-like outgrowths).

Distinctive features. *Hydrocotyle decipiens* ms has in the past been confused with *Hydrocotyle hispidula* Bunge and *Hydrocotyle medicaginoides* Turcz. The distinction between these species is that *H. medicaginoides* has somewhat elongated fruiting umbels whereas *H. decipiens* and *H. hispidula* are spherical. The leaves of *H. hispidula* and *H. medicaginoides* have a few hairs, whereas those of *H. decipiens* are more or less hairless. The lateral surfaces of the mericarps of *H. medicaginoides* are wrinkled or pitted between the ribs whereas those of *H. decipiens* are tuberculate. The fruit of *H. hispidula* are also tuberculate, but the ribs are not as prominent as in *H. decipiens*, nor are the tubercles as robust. The leaf lobes of *H. hispidula* appear to be more toothed than those of *H. decipiens*.

Species name. Undescribed, the manuscript name is Latin for deceiving.

Distribution. Known a limited number of disjunct localities between Fitzgerald River National Park and Mt Ridley.

Habitat Requirements:

- Soils:** In organic, fine sandy or sandy loam soils.
- Landforms:** In drainage lines.
- Vegetation:** Recorded from riparian mallee and shrubland communities.
- Associated species:** Frequently recorded with mosses and other *Hydrocotyle* species.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
01-	Kundip	Other Reserve	31/10/2005	110
02-	Scaddan	UCL	13/10/2005	
	Mt Ridley	Water Reserve	01/11/1975	'common'
	Fitzgerald River NP	National Park	06/10/1970	
Total:				110



References:

Note: Murray Henwood and Andrew Perkins have reviewed this description and supplied information (2009).

Kunzea acicularis Toelken & G.F.Craig

Family: MYRTACEAE

Other names: None.

Conservation status: Listed as Declared Rare Flora under the Western Australian Wildlife Conservation Act 1950.

IUCN Criteria: Vulnerable.

Flowering time: October and November.

Information date: 23/06/2008



Photo: M. Fitzgerald

Taxonomy:

Description. *Shrubs* up to 2 m tall. *Stems* few, erect and sparsely and irregularly branched, with grey bark. Young branches densely covered with fine, long and short, spreading hairs. The shortly stalked *leaves* are oblanceolate to obovate, mainly to 6 mm long and 2.2 mm wide, with the apex obtuse to rounded, rarely acute when young. They are concave above, with the lateral margins more or less incurved or rarely flat, and slightly convex to ridged below, with dense, long, fine hairs on both surfaces. The *inflorescence* is a raceme with 3–5 (rarely 1 or 6) flowers, that are terminal on short (rarely long) shoots; *perules* (protective covering on the buds) are usually few and sometimes fall early. The *bracts* are narrowly triangular and to 3.3 mm long; the *bracteoles* are in pairs, linear-triangular to linear, to 3.6 mm long, and densely hairy outside. The *hypanthium* is to 3.8 mm long when flowering and densely covered with spreading hairs outside. The 5 *calyx* lobes are triangular to triangular-lanceolate, to 1.8 mm long, with margins slightly incurved, and densely covered outside with long hairs, rarely becoming hairless towards the apex. The 5 pink to mauve, hairless *petals* are orbicular, to 4 mm long, with the claw almost absent. The *c.* 26 *stamens* are in more than one whorl, and usually longer than the corolla lobes

with *filaments* to 6.8 mm long and *anthers* with a large subterminal gland. The *ovary* has 5 locules, with 9–12 *ovules* per locule. The *style* is to 6.6 mm long and has a capitate stigma. It is scarcely broadened towards the base which is partly sunk into the upper surface of the ovary. The *fruit* is an urn-shaped capsule, usually with 5 vertical ridges partly hidden in the hair covering, with the calyx lobes spreading. *Seed* unknown.

Distinctive features. Similar to the southern form of *Kunzea preissiana* Schauer, which produces similar straggly shrubs covered with long spreading hairs which are usually longer than 1 mm. Both have bracts longer than half the hypanthium. *Kunzea acicularis* differs from *K. preissiana* by being a mostly taller shrub, with broader leaves, lanceolate-triangular long-pointed perules and bracts, and longer, acute, triangular calyx lobes.

Species name. From the Latin word *acicularis* (needle-like), in reference to the long, tapering and pointed apex of the perules and bracts.

Distribution. Has a very restricted distribution northeast of Ravensthorpe.

Habitat Requirements:

- Soils:** Growing on pale orange clay-loam, with laterite or quartzite small stones and chips on the surface. A roadside cutting at the hillcrest indicates this soil shallowly overlies a mottled zone clay horizon with a pale cream-grey colour and green mottling.
- Landforms:** On upper slope or low rise in undulating plain. Restricted in its distribution by a dyke on its western flank and by a fault line on its northern boundary.
- Vegetation:** In open mallee and heath.
- Associated species:** It is often associated with *Eucalyptus pleurocarpa*, *E. tetraptera*, *Andersonia parvifolia*, *Melaleuca societatis* and *M. uncinata*.

Biology:

- Disease:** Believed to be susceptible to Phytophthora Dieback Disease.
- Disturbance:** Appears to recruit vigorously following mechanical disturbance.
- Fire:** Appears to recruit moderately following fire.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
01a	Nindibillup Rd	Shire Rd Verge	24/09/2007	2000
01b	Bandalup	UCL	17/04/2008	2000 (+250 seedlings)
01c	Ravensthorpe	UCL	02/10/2007	2000
Total:				6200 (+250 seedlings)



References:

Toelken, H.R. & Craig, G.F. (2007). *Kunzea acicularis*, *K. strigosa* and *K. similis* subsp. *mediterranea* (Myrtaceae) – new taxa from near Ravensthorpe, Western, Australia. *Nuytsia* 17: 385–396.

Kunzea cincinnata Toelken

Family: MYRTACEAE

Other names: None.

Conservation status: Removed from DEC priority list in 2010.

Flowering time: September to October.

Information date: 7/07/2009



Photo: A. Markey

Taxonomy:

Description. *Shrub* to 1.5 m high, with a few erect *stems* and many short lateral branches. The young branches have dense, curly hairs. The bark peels in long narrow strips. The stalked *leaves* are erect or rarely spreading at right angles, linear or linear-elliptic, *c.* 4.5 mm long and 0.9 mm wide and have rough surfaces. The apex is bluntly acute. The upper surface is concave to flat, and the lower surface usually strongly convex. Both surfaces are sparsely covered with curled hairs. The *inflorescence* is a loose cluster of 1–5 flowers that are terminal on mainly short shoots, or clustered towards the apex of branches with vegetative growth continuing from the terminal or lateral buds. The *bracts* are ovate or sometimes elliptic, acuminate and to 2 mm long; the *bracteoles* are in pairs, linear-lanceolate, to 3.2 x 0.6 mm, with marginal and outer surface hairs. The *hypanthium* is to 3.5 mm long when flowering and usually hairy outside. The 5 *calyx* lobes are ovate, to 1.2 mm long, with the margins slightly incurved, and are densely hairy outside, rarely becoming hairless. The 5 *petals* are pink to deep magenta, almost stalkless, hairless, orbicular and to 3.2 mm long, with glands on the outer surface. The 26–34 *stamens* are in more than one whorl, and usually scarcely longer than the petals. The filaments are to 3.4 mm long and the anthers have a small terminal gland. The *ovary* has 3–5 locules with 8–10 ovules per locule. The broad style is *c.* 5 mm long with the base somewhat sunk into the hairless upper surface of the ovary, and the stigma is discoid. The *fruit* is an urn-shaped capsule, usually without vertical ridges and with spreading calyx lobes. *Seed* not viewed.

Distinctive features. *Kunzea cincinnata* appears to be a hairy form of *Kunzea affinis* S.Moore but is further distinguished by its coiled hairs, larger bracts and bracteoles

which are more than half the length of the hypanthium, and club-shaped leaves. The hairy flowers and leaves resemble *Kunzea eriocalyx* F.Muell. which is distinguished by having fewer stamens and an ovary with two locules, each with two ovules. *Kunzea cincinnata* could also be confused with *Kunzea preissiana* Schauer but is distinguished by its coiled hairs and broader perules and bracts.

Species name. The name *cincinnata* means 'has curled hairs' in Latin, which is a distinguishing feature of this species.

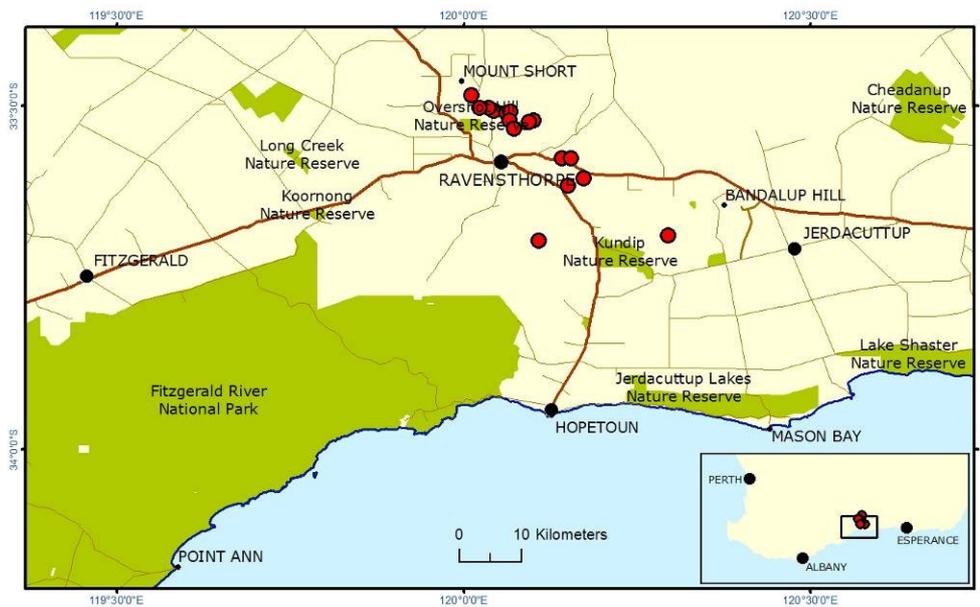
Distribution. Known only from the Ravensthorpe Range area where it is locally common.

Habitat Requirements:

- Soils:** Laterite and gravelly loam.
- Landforms:** Recorded on hillsides, slopes and ridges.
- Vegetation:** Shrublands.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Mt Desmond	Other Reserve	16/10/1995	'rare at site'
	Ravensthorpe Range	Other Reserve	13/09/1998	'scattered'
	Ravensthorpe Range	UCL	14/10/1998	'common'
	Ravensthorpe Range	UCL	17/03/2007	'<10% cover'
	Ravensthorpe Range	UCL	17/03/2007	'<10% cover'
	Ravensthorpe Range	UCL	17/03/2007	'<10% cover'
	Ravensthorpe Range	UCL	23/04/2007	'10-30% cover'
	Ravensthorpe Range	UCL	24/04/2007	'<10% cover'
	Ravensthorpe Range	UCL	06/09/2007	'<10% cover'
	Kundip	Other Reserve	06/10/2007	'<10% cover'
	Ravensthorpe Range	UCL	07/09/2007	'<10% cover'
	Kundip	UCL	29/09/2007	'isolated plants'
	Ravensthorpe Range	Other Reserve	30/09/2007	'<10% cover'
	Ravensthorpe Range	UCL	10/09/2007	'10-30% cover'
	Ravensthorpe Range	UCL	12/09/2007	'<10% cover'
	Ravensthorpe Range	UCL	12/09/2007	'<10% cover'
	Mt BensonRavensthorpe	UCL	05/12/2008	'<10% cover'
	Ravensthorpe Range	UCL	06/12/2008	'10-30% cover'
	RavensthorpeMt Short	UCL	08/12/2008	'isolated plants'
	RavensthorpeMt Benson	UCL	09/12/2008	'30-70% cover'
	Ravensthorpe Range	UCL	11/12/2008	'30-70% cover'
	Ravensthorpe Range	UCL	18/11/2008	'isolated plants'
	Ravensthorpe Range	UCL	19/11/2008	'30-70% cover'
	Ravensthorpe Range	UCL	19/11/2008	'<10% cover'
	Mt Benson	UCL	21/11/2008	'isolated plants'
	Mt Benson	UCL	23/01/2009	'>10: cover'
Total:				



References:

Toelken, J. (1996). A revision of the genus *Kunzea* (Myrtaceae). 1. The Western Australian section *Zeanuk Journal of the Adelaide Botanic Gardens* 17: 29-106.

Kunzea similis Toelken subsp. *mediterranea* Toelken & G.F. Craig

Family: MYRTACEAE

Other names: None.

Conservation status: Listed as Declared Rare Flora under the Western Australian Wildlife Conservation Act 1950.

IUCN criteria: Endangered D2.

Flowering time: September to November.

Information date: 15/1/2010



Photo: M. Fitzgerald

Taxonomy:

Description. A tall *shrub* to 3 m tall, with several erect main stems. The young *stems* have dense, very long, silky hairs (up to 1.3 mm) below the inflorescences. The *leaves* are shortly stalked, erect, oblanceolate to linear-oblanceolate, to 5 mm long and 3 mm wide, with silky hairs below becoming hairless, and with scattered fine hairs above or hairless. The apex is bluntly acute becoming rounded. The *inflorescence* is a globular, or rarely hemispherical, terminal head with 3–12 mature flowers, with terminal vegetative growth after flowering. There are leaf bud scales (*perules*) covered with long silky hairs outside, that are ovate to broadly ovate, with a long or short beak and numerous, indistinct veins. The *bracts* are ovate to lanceolate at the apex of the inflorescence, to 4.3 mm long, with dense silky hairs. The *bracteoles* are in pairs, densely covered in long silky hairs, with the distinguishing feature of being > 3.8 mm long with the apex usually exposed rather than hidden between the flowers. The *hypanthium* is 4.5–6 mm long (free tube 3–3.5 mm) and densely hairy when flowering. The *calyx lobes* are densely silky hairy outside, are triangular, 1–1.3 mm long, and ridged at least towards the acute apex. The *corolla* is clawed and pink, with

obovate-spathulate lobes that are 3–3.5 mm long. There are 32–44 free *stamens* in more than one whorl, that are longer than the petals, with filaments to 6.4 mm long. The anthers have a small, almost terminal gland. The *ovary* has 3 locules with 8 (rarely 10) ovules per locule. The style is slightly sunk into the upper surface, 4–4.7 mm long, and is slightly broadened towards the base. The stigma is an enlarged disc with a central depression. The *fruit* is an elongate, urn-shaped capsule, very slightly constricted below the erect calyx lobes.

Distinctive features. Differs from *Kunzea similis* Toelken subsp. *similis* in being a shrub to 3 m tall rather than to 1.5 m and having bracteoles that are > 3.8 mm long, with the apex usually exposed and often longer than the hypanthium, rather than < 3.7 mm long, hidden between the flowers and usually shorter than the hypanthium. DNA fingerprinting (AFLP) markers of plants also demonstrated significant differences between the two subspecies (Krauss *in* Toelken and Craig 2007).

Subspecies name. Derived from the Latin word *mediterranea* (inland), alluding to this subspecies' locality well away from the coast.

Distribution. This taxon is restricted to Bandalup Hill, east of Ravensthorpe.

Habitat Requirements:

Soils: In fine sand with silcrete and laterite pebbles; pH 5–5.5.

Landforms: Occurs on hillcrests and upper slopes.

Vegetation: Open shrub mallee and dense proteaceous/ myrtaceous heath thicket (1–2 metres). Associated species include: *Banksia quercifolia*, *B. lemanniana*, *B. media*, *Eucalyptus falcata*, *E. pleurocarpa*, *Isopogon trilobus*, *Jacksonia elongata*, *Leptospermum spinescens* and *Taxandria spathulata*.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
1	Bandalup Hill	Mining Lease	4/10/2007	347000
Total:				347000



References:

Toelken, H.R. & Craig, G.F. (2007). *Kunzea acicularis*, *K. strigosa* and *K. similis* subsp. *mediterranea* (Myrtaceae) - new taxa from near Ravensthorpe, Western Australia. *Nuytsia* 17: 385-396.

Toelken, H.R. (1996). A revision of the genus *Kunzea* (Myrtaceae) 1. The Western Australian Section Zeanuk. *Journal of the Adelaide Botanic Gardens* 17: 86-88.

Lasiopetalum sp. Desmond (N. McQuoid 653)

Family: MALVACEAE

Other names: None.

Conservation status: Priority One under DEC Conservation Codes for Western Australian Flora.

Flowering time: November and December.

Information date: 11/06/2009



Photo: N. McQuoid

Taxonomy:

Description. An erect, multi-stemmed, compact *shrub* to 60 cm high. The *young stems* are densely covered with rust coloured, stellate (multi-armed, star-like) hairs with dark brown centres and fading to grey, then becoming hairless. *Stipules* are absent. The shortly stalked *leaves* are alternate, oblong, to 20 mm long and 5 mm wide. The lower surface has a prominent rib and very dense, rust coloured, stellate hairs becoming grey. The upper surface initially has white, stellate hairs, and minute glands, then becoming hairless with prominent, yellow, reticulate (fine network) venation. The margin is entire and strongly recurved, and the apex is obtuse. The *inflorescence* is opposite a leaf, to 20 mm long, with 3–5 shortly stalked, pendulous *flowers* that are pink within. There are 0–2 linear-ovate *bracts* at the base of each flower stalk, and 3 free, linear-oblong *bracteoles* to 5 mm long directly below the calyx. The pink *calyx* is petal-like in texture, to 7.5 mm long, with the tube *c.* 1/4 of the total calyx length. The 5 lobes are narrowly ovate, to 6 mm long and 3.5 mm wide, with an acute apex. The calyx outer surface has medium density, white, stellate hairs to 0.4 mm long throughout, while the inner surface is hairless at the base, with scattered, minute, clavate glands and scattered, fine, simple, white hairs towards the apex of the lobes. The dark red, elliptic *petals* are cupped at the outer base of the anther, scale-like and to 0.6 mm long. *Staminal tube* and *staminodes* are absent. The 5 dark red *stamens* are *c.* 2 mm long, touch laterally to form a tube, and dehisce inwards from pores below an almost truncate apex. The stalkless *ovary* has 3 locules with 2 *ovules* per locule, and is covered by white, stellate hairs. The thread-like *style* has a

few hairs at the base but is otherwise hairless and to 2.5 mm long with an indistinct stigma. The *fruit capsule* and *seed* are unseen.

Distinctive features. Differs from in *Lasiopetalum indutum* Steud. and *Lasiopetalum compactum* Paust in having the outer surface of the calyx with medium density hairs with arms to 0.4 mm long rather than very dense, wooly calyx hairs with arms c. 1.0 mm long. It grows with *L. compactum* and is similar in having the lower surface of the leaf with very dense rusty hairs and an almost hairless style, but differs in having a less compact inflorescence due to having flower stalks rather than stalkless flowers, in having broader calyx lobes and much smaller, more oblong leaves (rather than narrowly ovate). It further differs from *L. indutum* in having a more compact inflorescence with c. 4 rather than c. 8 flowers, shorter leaves, and calyx lobes with scattered hairs towards the inside apex of the lobe rather than with medium density hairs throughout the inner surface.

Species name. Undescribed, the genus *Lasiopetalum* is currently under review.

Distribution. Restricted to the Ravensthorpe area.

Habitat Requirements:

This species is known only from four specimens and one detailed habitat description, which is not enough to reliably ascertain its typical habitat requirements.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Mt Desmond		05/11/2008	1
	Kundip	Nature Reserve	2008	1
	Ravensthorpe		30/08/1968	
Total:				2



References:

Note: Description compiled by Carol Wilkins (2009).

Lechenaultia acutiloba Benth.

Family: GOODENIACEAE

Other names: Wingless Lechenaultia

Conservation status: Priority Three under DEC Conservation Codes for Western Australian Flora.

Flowering time: May to December.

Information date: 15/1/2010



Photo: S. Kern

Taxonomy:

Description. A small *shrub* that is rounded, ascending, and much branched, 25–40 cm high, and recorded as often suckering. The *stems* are several to many, with rough bark except on the new growth that is usually smooth and hairless. *Leaves* are crowded, stalkless, narrow, 3–5.5 mm long, soft and fleshy, hairless, with entire margins, and the apex is obtuse. The *inflorescence* is a cyme that has leaf-like bracts and bracteoles that are rarely reduced in size. The *flowers* are solitary, terminal, and without stalks. The 5 *sepals* are green, fleshy, leaf-like and linear-lanceolate, 3–5 mm long and hairless. The *corolla* has is 2-lipped (bilabiate), 21–25 mm long, and is greenish-yellow with blue towards the tips of the lobes or rarely entirely blue. The corolla is hairless outside and inside it is densely hairy in a tuft at the base of the tube. The tube is cleft to the base and open on the upper side. The corolla lobes are equal, with the lower (abaxial) 3 lobes reflexed, and the upper (adaxial) 2 erect and curved behind the style. Wings are absent from the corolla lobes. The filaments are free with the *anthers* cohering in a tube around the style. The *ovary* is inferior, usually erect, and with 2 locules with numerous ovules. It is 5–6.5 mm long and hairless; with a sparsely hairy *style* to 21.5 mm long, that has 2-lipped apical indusium (hollow pollen cup surrounding the stigma) with hairs on the back. *Fruit* and *seed* not seen.

Distinctive features. *Lechenaultia acutiloba* is distinct from other *Lechenaultia* in the area in having usually yellow-green flowers rather than blue or red-orange, such as *Lechenaultia brevifolia* D.A.Morrison (dark blue petals), *Lechenaultia tubiflora* R.Br. and *Lechenaultia formosa* R.Br. (red petals), *Lechenaultia heteromera* Benth. (pale

blue petals), and *Lechenaultia papillata* D.A.Morrison (blue petals). A rare blue variant can be distinguished from the other blue flowered species in the area in lacking wings, or wings less than 0.3 mm wide (see photo).

Species name. From the Latin words *acutus* (pointed) and *lobus* (lobe).

Distribution. Between Ravensthorpe and Ongerup, including populations at the northern end of the Fitzgerald River National Park.

Habitat Requirements:

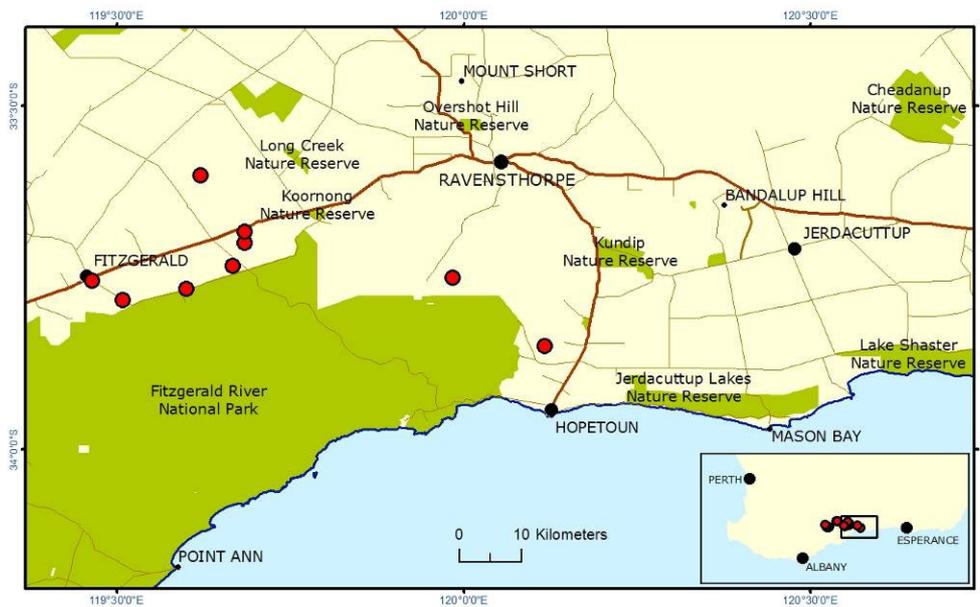
Soils: A variety of soil types including In deep sand, sandy gravel, brown loam over granite and sand over limestone.

Landforms: Flats and hillslopes, occasionally near drainage lines or swamps.

Vegetation: This species is known to occur in mallee woodland, open scrub, or heath.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
01a	Pingrup	Nature Reserve	26/06/2000	5
02	Newdegate	Nature Reserve	3/11/1999	598
03	Newdegate	UCL	13/11/2003	30
04	Newdegate	UCL	28/11/2001	200+
	West River	Private Property	12/11/1935	
	Hamersley River	Other Reserve	12/11/1935	
	West River	Private Property	25/10/1960	
	West River	Private Property	26/10/1961	
	West River	Private Property	13/12/1964	
	North of Jerramungup	Other Reserve	29/10/1965	
	West River	Private Property	20/11/1979	
	East of Jerramungup	Private Property	20/11/1982	
	West River	Private Property	14/12/1992	
	Susetta River	Public Roads	6/05/1996	
	Hopetoun	Private Property	5/11/1997	2
	Needilup NR	Nature Reserve	18/10/1999	
	Lake Magenta	UCL	18/11/1999	200+
	Carralarrup Creek	Private Property	1/11/1983	
Total:				1035+



References:

Bentham, G. (1868). *Flora Australiensis*, Volume 4: (Reeve & Co.: London).

Morrison, D.A. (1992). *Lechenaultia*. In *Flora of Australia*, Volume 35: pp31-32 (AGPS: Canberra).

Leptospermum sp. Bandalup Hill (G. Cockerton 11001)

Family: MYRTACEAE

Common name: None.

Conservation status: Removed from DEC priority list in 2008.

Flowering time: September and October, and occasionally in June.

Information date: 22/01/2009



Photo: A. Markey

Taxonomy:

Description. A *shrub* to 50 cm tall, gnarled to erect. The *stems* have heavily corrugated, grey, corky bark. The *branches* are thin with spreading lateral branchlets. The shortly stalked *leaves* are elliptic to oblong, to 8 (rarely 10) mm long and to 3 mm wide, drying a dark grey green. The lower surface is smooth or covered in minute waxy scales, while the upper surface is concave, smooth or has scales and scattered oil glands. The leaf margin has a sparse, inconspicuous fringe of hairs or hairless and the apex is obtuse to acute and straight or recurved. The *inflorescence* consists of stalkless, single, large flowers that are hidden and immersed in the corky bark on older stems near ground level, and occasionally among leaves on the lower portion of the branchlets. The *hypanthium* is to 10 mm long and covered in long, white to grey, silky hairs outside. The 5 *calyx* lobes are triangular, to 4 mm long with a rounded apex, covered in white to grey silky hairs, with a hairy and paler margin. The 5 *petals* are erect to spreading, pale yellow-green to cream, obovate, to 7 mm long with or without obvious venation, and with an obtuse apex. The *stamens* are erect and bending inwards. They are in 5 bundles of 10 filaments, which are wider at the base and to 5 mm long, and with ovate anthers *c.* 0.5 mm long that are subtended by a gland. The *style* base is not sunken into the ovary, and the remainder is erect and stout, to 8 mm long with a flat to slightly domed stigmatic disc. The *ovary* has 4 or 5 locules with many ovules. The stalkless *fruit* is a woody hemispherical capsule, to 23 mm wide, that is partially immersed in the corky bark of the stems, and slightly

domed to domed, with corky to smooth apical valves. The *seeds* are wedge-shaped, c. 3 mm long, and the outer surface is covered with loose long brown fibres.

Distinctive features. R. Cranfield and T. Macfarlane are proposing to describe a new variety *Leptospermum spinescens* var. *rotundum* that grows in association with and is closely allied to *Leptospermum* sp. Bandalup Hill (G. Cockerton 11001). The proposed *L. spinescens* var. *rotundum* and *L. spinescens* var. *spinescens* have exposed flowers along the stems that are well above the ground level, rather than the distinctive feature present in *L. sp.* Bandalup Hill that has flowers grouped at ground level. *Leptospermum spinescens* var. *spinescens* does not occur in the Ravensthorpe area.

Species name. Undescribed.

Distribution. Known from the Ravensthorpe Range to Masons Bay.

Habitat Requirements:

Soils: Brown sandy loams and sandy clays, usually with lateritic fragments at the surface.

Also recorded from a disturbed limestone quarry.

Landforms: Most frequently recorded from the mid and upper slopes of the Ravensthorpe Range.

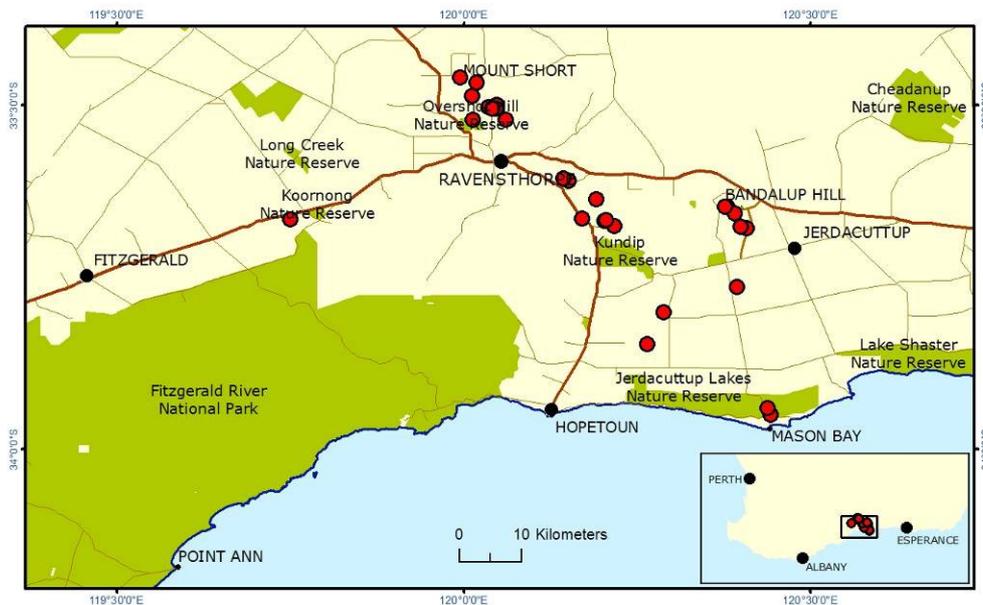
Occasionally recorded from disturbed sites (i.e. gravel pits, quarries) adjacent to the Range.

Vegetation: Known from several heath, thicket and mallee communities.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Bandalup Hill	Mining Lease	25/05/2005	
	Jerdacuttup	Private Property	03/06/2005	
	Jerdacuttup	Private Property	03/06/2005	
	Jerdacuttup	Private Property	03/06/2005	
	Jerdacuttup	Private Property	03/06/2005	
	Bandalup Hill	Mining Lease	05/06/2005	36
	Mason Bay Rd	Shire Rd Verge	05/07/2005	1
	Mason Bay Rd	Shire Rd Verge	06/06/2005	
	Jerdacuttup	Unmanaged Reserve	06/06/2005	
	Mason Bay Rd	Shire Rd Verge	22/07/2005	
	Ravensthorpe	Water Reserve	22/10/2005	16
	Ravensthorpe	UCL	22/10/2005	2
	Ravensthorpe	UCL	22/10/2005	8
	Ravensthorpe	UCL	22/10/2005	7
	Ravensthorpe	UCL	22/10/2005	22
	Ravensthorpe	UCL	22/10/2005	1
	Ravensthorpe	UCL	22/10/2005	5
	Ravensthorpe	UCL	22/10/2005	1
	Hopetoun-Ravensthorpe Rd	Shire Rd Verge	11/02/2005	2
	Middle Rd	Shire Rd Verge	12/06/2005	6
	Ravensthorpe	Shire Rd Verge	12/06/2005	117
	Kundip	Nature Reserve	12/06/2005	6
	Kundip	Other Reserve	01/05/2006	
	Nindibillup Rd	UCL	21/08/2006	20
	Ravensthorpe Range	UCL	02/10/2007	'<10% cover'
	Mt Desmond	Other Reserve	15/02/2007	'isolated plants'
	Mt Desmond	Other Reserve	03/10/2007	'isolated plants'
	Mt Short	Gravel Reserve	14/03/2007	'<10% cover'
	Mt Short	UCL	15/03/2007	'isolated plants'

	Ravensthorpe Range	UCL	17/03/2007	'isolated plants'
	Ravensthorpe Range	UCL	22/03/2007	'isolated plants'
	Ravensthorpe Range	UCL	22/03/2007	'isolated plants'
	Ravensthorpe Range	UCL	22/03/2007	'isolated plants'
	Mt Desmond	Other Reserve	04/10/2007	'isolated plants'
	Mt Desmond Range	Other Reserve	19/04/2007	'<10% cover'
	Ravensthorpe Range	UCL	20/04/2007	'<10% cover'
	Kundip	Other Reserve	05/09/2007	'isolated plants'
	Bandalup Hill	Mining Lease	24/05/2007	'isolated plants'
	Bandalup Hill	Mining Lease	25/05/2007	'<10% cover'
	Bandalup Hill	Mining Lease	29/05/2007	'isolated plants'
	Mt Short	UCL	06/09/2007	'isolated plants'
	Mt Short	UCL	06/09/2007	'isolated plants'
	Kundip	Other Reserve	25/09/2007	'<10% cover'
	Mt Short	Water Reserve	26/09/2007	'<10% cover'
	Mt Short	UCL	26/09/2007	'isolated plants'
	Mt Short	UCL	26/09/2007	'isolated plants'
	Ravensthorpe Range	UCL	11/10/2007	'<10% cover'
	Mt Short	UCL	12/09/2007	'isolated plants'
	Mt Short	UCL	12/09/2007	'isolated plants'
	Mt Short	UCL	12/09/2007	'isolated plants'
	Mt Short	UCL	18/11/2008	'<10% cover'
	Mt Short	UCL	18/11/2008	'isolated plants'
	Overshot Hill	Nature Reserve	17/11/2008	'isolated plants'
	Ravensthorpe Range	UCL	19/11/2008	'<10% cover'
	Mt Benson	UCL	21/11/2008	'isolated plants'
	Mt Benson	UCL	21/11/2008	'<10% cover'
	Mt Benson	UCL	5/12/2008	'isolated plants'
	Floater Rd, Ravensthorpe Rg	UCL	8/12/2008	'isolated plants'
	Floater Rd, Ravensthorpe Rg	?UCL	8/12/2008	'isolated plants'
	Mt Short	UCL	8/12/2008	'isolated plants'
	Floater Rd, Ravensthorpe Rg	UCL	11/12/2008	'isolated plants'
	Mt Short	UCL	22/01/2009	'<10% cover'
		Total:		250



References:

Kern, S., Jasper, R., & True, D. (2008). Floristic Survey of the Ravensthorpe Range 2007. Western Botanical Report WB483 for Department of Environment and Conservation, WA.

Note 1: Ray Cranfield provided a draft description for what he considers a new variety (2009).

Note 2: Recent survey has shown many more populations within range shown on map.

Lissanthe pleurandroides (F.Muell) Crayn & Hislop

Family: ERICACEAE

Other names: None.

Conservation status: Removed from DEC priority list in 2010.

Flowering time: Between March and June, may continue until September or October.

Information date: 15/1/2010



Photo: D. Rathbone

Taxonomy:

Description. An erect, moderately dense *shrub* usually less than 100 cm high and wide. *Stems* with white, slightly curved hairs, becoming hairless. *Branchlets* are medium brown. The shiny erect *leaves* are clustered towards the branchlet apices, on long leaf stalks (at least 1/3 of the lamina length); the lamina is oblong to narrowly elliptic, to 5.2mm long and 1.8 mm wide, and straight or slightly recurved. The upper leaf surface is convex and the lower surface longitudinally grooved on either side of a broad rib that conceals dense white hairs within the groove. Both surfaces have tubercle-based hairs and the apex is rounded. The *inflorescence* is terminal on short side branches, erect and solitary, *c.* 2 mm long, and with (1)2–5 flowers. The *flowers* are erect, white and shortly stalked or sessile. *Bracts* and *bracteoles* are present. The *sepals* are ovate and brown in the upper half and greenish below, to 2 mm long and 1 mm wide, with the apex obtuse, and the outer surface hairless or sparsely hairy. The *corolla* tube exceeds the sepals in length, is narrowly cylindrical, to 4.6 mm long, and is hairless outside and sparsely hairy inside in the upper portion. The corolla lobes are erect at the base, and then spreading or recurved above, to 2.5 mm long and 1 mm wide at the base, hairless outside, and with a moderately dense beard internally with the tips hairless. Corolla lobes are always shorter than the tube, and their apex is acute. The *anthers* partially protrude from the corolla tube, with their short filaments attached to the apex of the tube at the base of lobe division. The hairy *ovary* is ovoid to spherical, and with one locule. The style is 3–5 mm long, with the apex protruding from the corolla tube, and is sparsely hairy in the lower 3/4. The *fruit* is indehiscent, narrowly obovoid to narrowly ellipsoid, *c.* 3.5 mm long and 1 mm wide, and is thin walled and sparsely hairy.

Distinctive features. This species differs from other *Lissanthe* in the leaves being more broadly elliptic, obtuse and lacking a subulate / aristate tip, and in having a one-locular ovary. It is similar to *Lissanthe brevistyla* A.R.Bean, *Lissanthe powelliae* Crayn & E.A.Br., and *Lissanthe synandra* Crayn & Hislop in having pedicels that are poorly developed or absent.

Species name. A reference to its similarity with the genus *Pleurandra*.

Distribution. An infrequently collected species from coastal and subcoastal areas between the eastern Fitzgerald River National Park and Stokes National Park with an apparent outlier at Cape Arid National Park.

Habitat Requirements:

Soils: It grows on a variety of calcareous soils over limestone or magnesite.

Landforms: Typically recorded from hillslopes.

Vegetation: In open mallee woodland or heathland communities. It has been recorded as abundant in post fire regrowth.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Stokes NP	National Park	1/01/1900	
	Fitzgerald River NP	National Park	28/09/1986	
	Fence Road	Rd Verge Shire	4/10/1990	
	Cape Arid NP	National Park	22/04/1993	2000
	Starvation Boat Harbour	Shire Reserve	8/09/1993	150
	Fitzgerald River NP	National Park	30/08/2001	2
	Bandalup Hill	Mining Lease	6/06/2002	200
	Bandalup Hill	Mining Lease	11/07/2002	1000
	Fitzgerald River NP	National Park	10/11/2003	9
	Hopetoun	Rd Verge Shire	10/11/2003	
	Fitzgerald River NP	National Park	11/10/2003	200
	Bandalup Hill	Mining Lease	24/05/2007	'isolated plants'
Total:				3561



References:

Crayn, D.M., Brown, E.A. & Powell, J.M. (2003). A revision of *Lissanthe* (Styphelioideae: Ericaceae). *Australian Systematic Botany* 16(5): 595-619.

Crayn, D.M., Hislop, M. & Heslewood, M.M. (2005). Additions to *Lissanthe* (Styphelioideae: Ericaceae) in Western Australia: *L. synandra* sp. nov. and *L. pleurandroides* comb. nov. *Australian Systematic Botany* 18: 558-561.

Marianthus mollis (E.M.Benn.) L.Cayzer & Crisp

Family: PITTOSPORACEAE

Other names: Hairy-fruited Billardiera. Previously named *Billardiera mollis* E.M.Benn.

Conservation status: Listed as Declared Rare Flora under the Western Australian Wildlife Conservation Act 1950.

IUCN criteria: Vulnerable D1+2.

Flowering time: September to December, with a single record from February.

Information date: 20/06/2008



Photo: A. Markey

Taxonomy:

Description. A low, multi-stemmed, spreading shrub 0.2–0.6(–1) m high and 0.2–0.8 m wide. The *stems* have a dense covering of \pm glandular hairs to 0.3 mm long and silky (pilose) hairs 0.5–2 mm long, but become glabrous with age. The *leaves* are alternate, ovate to oblong, 6–25 mm long and 3–11 mm wide, with a L:W ratio of 0.9–2.8. The apex is acuminate (rarely acute), the margins entire, the base rounded, and the petioles 0.5–1.5 mm long. There are long silky hairs and shorter glandular hairs on both leaf surfaces and the margin, although these rub off with age leaving small papillose protuberances. The \pm nodding *flowers* are solitary in the leaf axils. The flower stalks are 8–30 mm long with a dense covering of short, \pm glandular hairs and longer, evenly scattered silky hairs. The *sepals* are 3–8 mm long, taper to a narrow point, and have both glandular and silky hairs. The 5 spathulate *petals* cohere as a tube in the throat then recurve, and are sparsely hairy on the inside. They are dark purple-blue with fine purple striations and the throat is white. The 5 stamens are 5.5–9.8 mm long, the filaments are flared towards the base, and the anthers are white. The *ovary* is 5.7–7.8 mm long including the \pm curved style and basal nectary, and has 2 locules and a dense covering of silky hairs obscuring shorter, \pm glandular hairs. The fruit is a dehiscent capsule which is ellipsoid to oblong (occasionally obovate), 6.5–10

mm long, 5–7 mm wide, with dense pilose and glandular hairs. The *seeds* are elliptic to reniform, dark red-brown, shiny, wrinkled and have an aril.

Distinctive features. Most similar to *Marianthus aquilonaris* N.Gibson & Wege which also has a shrubby habit, bluish flowers and an indumentum of long, silky hairs and shorter glandular hairs on the stems, flower stalks, calyces and fruit. *Marianthus aquilonaris* is endemic to the Bremer Range and differs most obviously in having a taller, more erect growth form, leaves which are glabrous on both surfaces, and paler flowers (ice blue to almost white). This species also tends to have leaves with a higher L:W ratio (2.1–4.1), tapered rather than rounded bases, and longer petioles (1–2.5 mm long), and fewer silky hairs on the stems, peduncles and fruit.

Species name. From the Latin word *mollis* (soft) in reference to the soft hairs covering this plant.

Distribution. Restricted to the Ravensthorpe Range and an area approximately 20 km northeast of Ravensthorpe.

Habitat Requirements:

- Soils:** Sands and gravelly sands over laterite or ironstone.
- Landforms:** Level to undulating plains, and slopes of hills.
- Vegetation:** Mallee heath, usually in open areas where the soil has been disturbed.
- Associated species:** *Acacia pusilla*, *Banksia lemanniana*, *Beaufortia schaueri*, *Dampiera angulata*, *Eucalyptus astringens* subsp. *redacta*, *E. incrassata*, *E. pleurocarpa*, *E. phaenophylla*, *Hakea marginata*, *Melaleuca hamata*, *M. rigidifolia*, *Siegfriedia darwinioides*.

Biology:

- Dispersal:** Lewis (1982) suggests that seed dispersal is limited, due to the compact nature of the populations.
- Disturbance:** Probably a disturbance opportunist as it occurs in areas of soil disturbance, such as on tracks and firebreaks.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
01a	Carlingup	UCL	16/11/2004	35000
01b	Carlingup	UCL	16/11/2004	50
01c	Carlingup	UCL	09/12/1988	1
01d	Carlingup	UCL	16/11/2004	2500
01e	Carlingup	UCL	26/09/1981	20
01f	Carlingup	UCL	26/11/1981	20
02	Mt Desmond	Other Reserve	01/01/1982	50
03a	Ravensthorpe	UCL	10/02/2004	300
03b	Kundip	Other Reserve	10/02/2004	700
04a	Mt Desmond	Other Reserve	13/02/2007	100
04b	Mt Desmond	Other Reserve	15/11/2004	15
04c	Mt Desmond	Other Reserve	06/02/2004	500
04d	Mt Desmond	Other Reserve	09/09/1999	30
04e	Mt Desmond	Other Reserve	26/07/2005	30
04f	Mt Desmond	Other Reserve	26/07/2005	2000
05a	Ravensthorpe	UCL	01/11/2007	
05b	Kundip	Other Reserve	01/11/2007	
06	Mt Desmond	Other Reserve	21/09/2005	2000
	Ravensthorpe Range	UCL	25/09/2007	'10-30% cover'
	Ravensthorpe	UCL	25/09/2007	'isolated plants'

	Ravensthorpe	UCL	27/09/2007	'isolated plants'
	Mt Benson	UCL	23/01/2009	'isolated plants'
	Total:			43316



References:

Cayzer, L.W. & Crisp M.D. (2004). Reinstatement and revision of the genus *Marianthus* (Pittosporaceae). *Australian Systematic Botany* 17:138.

Hartley, E.R. & Barrett, S. (2005). *Marianthus mollis*: Interim Recovery Plan 2005-2010. CALM, WA.

Lewis, J. (1982). *Leucopogon* sp. aff. *bossiaea*, *Billardiera* 'mollis' E.M.Bennett ms., *Boronia ternata* var. *elongata*. Rare and geographically restricted plants of Western Australia No. 11.

Melaleuca penicula (K.J.Cowley) Craven

Family: MYRTACEAE

Other names: Previously named *Melaleuca coccinea* subsp. *penicula*.

Conservation status: Priority Four under DEC Conservation Codes for Western Australian Flora.

Flowering time: Recorded in November, January and February.

Information date: 28/01/2011



Photo: S. Kern

Taxonomy:

Description. An openly branched *shrub* to 3 m high that is hairy on all parts, soon becoming hairless or sparsely hairy. The stalkless *leaves* are opposite, attached on the lower surface of the blade (peltate), narrowly ovate, and to 10.3 mm long and 3 mm wide (2.5–4 times as long as wide). The apex is acute and somewhat reflexed, the margins strongly incurved, and the venation obscure. The lower surface has scattered oil glands (mainly obvious towards the margins) that are covered with blister-like elevations. The *inflorescence* is a dense spike of 22–38 red flowers that are on an axis to 85 mm long, with the inflorescence stalk 2–5 mm long. The broadly ovate *floral bracts* subtend the buds, are deciduous when the flower opens, longitudinally finely ribbed, to 13.5 mm long and 4 mm wide, and with an acute apex. *Flowers* are stalkless, *c.* 3 cm long, with the *hypanthium* (calyx tube) barrel-shaped and to 2.3 mm long. The 5 *calyx* lobes are greenish, broadly ovate, to 2 mm long, finely ribbed, densely hairy, and persistent in fruit. The 5 *petals* are dry membranous, ovate and deciduous as the flower opens. The *c.* 50 red *stamens* are in 5 bundles of *c.* 10, and are to 26 mm long including the distinctively long claw (the fused base of the filament bundles) that is 15–17 mm long and *c.* 1.8 mm wide. The *ovary* has 3 locules with numerous ovules, and is densely hairy on top. The style is *c.* 24 mm long and just shorter than the stamens. The *fruits* are on a spike that is *c.* 9 cm long and 2 cm wide, and are compressed urn-shaped, smooth and *c.* 7 mm in diameter. The *seeds* are oblong and brown.

Distinctive features. *Melaleuca penicula* is a close relative of *Melaleuca elliptica* Labill. but differs in having sessile leaves, much larger floral bracts, longitudinally striped calyx lobes, deciduous petals and brighter red flowers. It is also similar to *Melaleuca coccinea* A.S.George and *Melaleuca eximia* (K.J.Cowley) Craven in having opposite, peltate leaves with the staminal filaments more than 12 mm long. *Melaleuca penicula* differs from *M. coccinea* in having narrowly ovate leaves 2.5–4 times as long as wide, rather than elliptic to ovate and 1.5–2.2 times as long as wide. *Melaleuca eximia* has linear-ovate, to subulate (narrow and tapering to a fine point) leaves that are 8–14 times as long as wide.

Species name. Derived from the Latin word *penicillum* (little tail, painters brush) and alludes to the appearance of the staminal claw and filaments.

Distribution. Occurs in the Fitzgerald River to Ravensthorpe district.

Habitat Requirements:

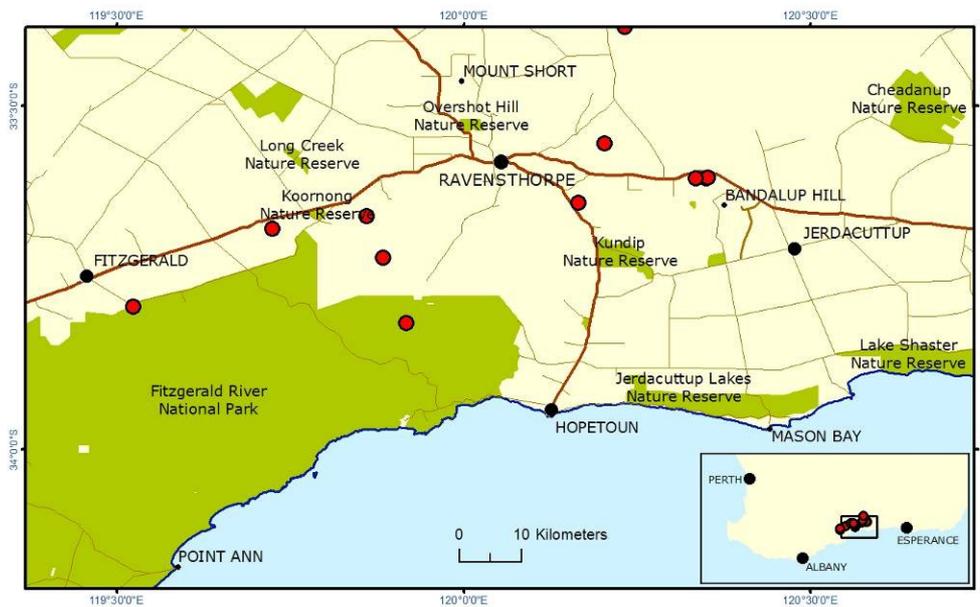
Soils: Found on grey or brown sands and sandy loams, frequently associated with granitic rock, and occasionally with magnesite or silcrete.

Landforms: Frequently recorded from the crest and north facing slopes of minor hills.

Vegetation: Usually recorded in open mallee shrubland or shrubland with *Acacia*, *Allocasuarina* and *Melaleuca* species.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
01	Ravensthorpe	UCL	04/04/2002	300
02	Fitzgerald River NP	National Park	10/02/1986	
03	Fitzgerald River NP	National Park	02/04/2002	20
04a	Bandalup Hill	Mining Lease	17/09/2002	50
04b	Bandalup	UCL	17/09/2002	250
	Mt Desmond	Other Reserve	16/11/2007	'<10% cover'
	Fitzgerald River NP	National Park	17/09/1979	
	Ravensthorpe	Private Property	03/02/2003	2
	Cocanarup	Other Reserve	19/10/2006	6
Total:				628



References:

Cowley, K.J., Quinn, F.C., Barlow, B.A. & Craven, L.A. (1990). Contributions to a revision of *Melaleuca* (Myrtaceae). *Australian Systematic Botany* 3: 165-202.

Craven, L.A. & Lepschi, B.J. (1999). Enumeration of the species and infraspecific taxa of *Melaleuca* (Myrtaceae) occurring in Australia and Tasmania. *Australian Systematic Botany* 12: 819-927.

Robinson, C.J. & Coates, D.J. (1995). Declared Rare and Poorly Known Flora in the Albany District. Western Australian Wildlife Management Program No 20. CALM, WA.

Note: This description has been reviewed by Lyn Craven (2009).

Melaleuca sophisma Lepschi

Family: MYRTACEAE

Other names: Previously listed under the phrase name *Melaleuca* sp. Kundip (G.F. Craig 6020).

Conservation status: Priority One under DEC Conservation Codes for Western Australian Flora.

Flowering time: Flowering collections have been in November and December.

Information date: 15/10/2010

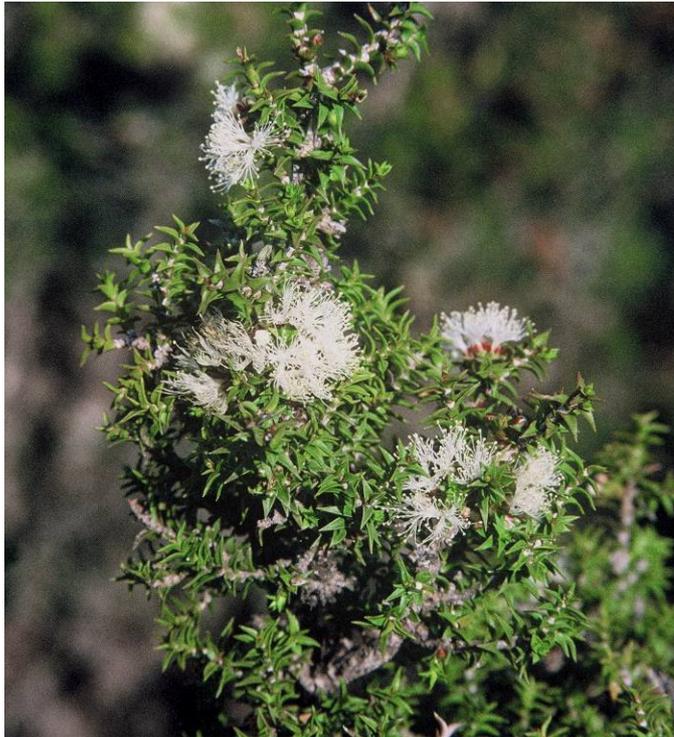


Photo: S. Barrett

Taxonomy:

Description. An erect, robust *shrub* 1–2 m high. The *bark* is rough, dark and deeply fissured towards the base of the stem. The stalkless, hairless, dark green *leaves* are spirally arranged on the stem, widely recurved and densely overlapping. They are ovate-lanceolate, to 8.5 mm long and 2 mm wide. The lower surface has 7 veins (a prominent mid rib and 3 obscure or moderately prominent veins each side), and the oil glands are small and numerous and in a scattered pattern. The margin is minutely denticulate and the apex is acute with a pungent white mucron. The stalkless *flowers* are in heads of *c.* 7 crowded monads (individual flowers) that are axillary on the main branchlet or on small lateral branchlets. The floral tube is an elongated cup-shaped, hairless, green *hypanthium* to 3 mm long, with a rounded base, and bears the floral parts above the ovary. The *flowers* are white and *c.* 13 mm long. The 5 ovate *sepals* are green with white, membranous margins, hairless and *c.* 1.5 mm long and 1.5 mm wide. The outer surface is faintly ridged and more membranous towards the entire margin. The 5 *petals* are shortly stalked, broadly ovate and pink with white margins. They have a few oil glands and are *c.* 2.5 mm long and 2 mm wide. The *stamens* are attached to the hypanthium, and have white filaments

joined at their base to form 5 long (c. 6 mm), stalked bundles, with 14–21 *anthers* on the free section of the filaments. The *ovary* has 3 locules and the summit is convex and densely hairy, with the style c. 6 mm long, with its base not in a central depression of the ovary. The *fruit* is a stalkless, woody capsule that is ellipsoid, smooth and to 7 mm in diameter, with the sepals becoming 3–5 triangular, thickened lobes on the rim surrounding the 3 dehiscent valves. The whitish *seed* has a leathery outer surface.

Distinctive features. *Melaleuca sophisma* is distinct in having a hairless outer hypanthium and calyx, and leaves with small numerous raised oil glands and 7 veins on the lower surface. It is most similar to *Melaleuca cliffortioides* Diels in being, a rigid, pungent, compact shrub, with recurved leaves and white flowers, but differs in having no hairs on the outer hypanthium, stem, and calyx lobes, and leaves with smaller, more numerous oil glands. *Melaleuca podiocarpa* Barlow differs in having a hairy outer calyx and hypanthium and leaves that are not recurved. *Melaleuca undulata* Benth. has a similar hairless hypanthium and calyx lobes to *M. sophisma*, but its leaf oil glands are larger and either level with or sunk into the surface and its leaves have 5 veins rather than 7. Notwithstanding its resemblance to the above species, *M. sophisma* may be a relative of a small group of species of which the coastal *Melaleuca thymoides* Labill. is the best known.

Species name. Derived from the Greek word *sophisma* (false conclusion, fallacy), in reference to the similarity of the species to *Melaleuca cliffortioides* with which the plant at first was associated.

Distribution. Restricted to the Ravensthorpe Range near Kundip.

Habitat Requirements:

Soils: Pale or grey sandy clay loam with schist pebbles or quartzite rubble.

Landforms: Usually situated on or near the crest of low ridges.

Vegetation: Frequently recorded from *Eucalyptus astringens* or *E. cernua* woodlands over heath or sparse shrublands containing *Melaleuca* species.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
01a	Kundip	Other Reserve	17/12/2003	
01b	Kundip	Other Reserve	05/11/2004	100
01c	Kundip	Other Reserve	10/11/2004	1000
02	Kundip	Other Reserve	21/09/2005	1000
	Kundip	UCL	04/11/2008	30000
	Kundip	Other Reserve	04/11/2008	8000
	Kundip	Other Reserve	19/02/2009	5000
	Kundip	Other Reserve	19/02/2009	500
	Kundip	UCL	04/11/2008	20
Total:				45620



References:

Craven, L.A., Lepschi, B.J. & Cowley, K.J. (2010). *Melaleuca* (Myrtaceae) of Western Australia: five new species, three new combinations, one new name and a new state record. *Nuytsia* 20: 27–36.

Melaleuca stramentosa Craven

Family: MYRTACEAE

Other names: None.

Conservation status: Removed from DEC priority list in 2010.

Flowering time: September to December.

Information date: 18/03/2009



Photo: S. Kern

Taxonomy:

Description. A compact, robust *shrub* to 1.8 m high. Young growth with sparse hairs, soon becoming hairless. The stalkless *leaves* are alternate, narrowly obovate, *c.* 3.5 mm long and 0.9 mm wide, with obscure venation and numerous slightly raised oil glands. The upper surface is scarcely concave or flat and the lower surface is convex. The leaf apex is rounded with a small rigid point *c.* 0.1 mm long. The *inflorescence* is a head-like cluster of 3–5 pink, stalkless flowers in the leaf axils. The floral *bracts* subtending the flowers are broadly obovate, to 2 mm long, brown, chartaceous, and with dense appressed hairs outside (mainly towards the margin). The *flowers* are hot pink, stalkless and *c.* 7 mm long. The *hypanthium* (calyx tube) is to 1.5 mm long and with scattered, or dense matted, appressed hairs. The 5 *calyx lobes* are greenish, ovate, to 0.7 mm long, and with dense appressed white hairs outside the lobes. The 5, scarcely clawed *petals* are tinged purplish pink, membranous, almost orbicular, hairless and persistent. The pink *stamens* are in 5 bundles of *c.* 5 per bundle, and are to 5.5 mm long including the shortly fused, flattened base of the filament bundles that is *c.* 1/4 of the bundle length. The *ovary* has 3 locules with numerous ovules, and is densely hairy on top. The pink *style* is *c.* 5 mm long and longer than the stamens. The 5 calyx lobes are persistent and thickened, and sometimes recurved in *fruit*. The *capsules* are single or in groups of 2 or 3 on the branchlet, and are urn-shaped, smooth and *c.* 5 mm in diameter. The *seeds* are dark brown and angular.

Distinctive features. *Melaleuca stramentosa* is similar to *Melaleuca plumea* Craven and *Melaleuca similis* Craven in having 4 or 5 stamens per bundle and pink flowers, but differs in having no hairs on the short stem below the flower head rather than dense spreading hairs, and fruits with persistent calyx lobes that are thickened and often recurved.

Species name. Derived from the Latin word *stramentum* (straw or thatch), referring to the matted indumentum of hairs that is characteristic of this species.

Distribution. A restricted distribution centred on the Kundip area, south of Ravensthorpe, where it is locally abundant.

Habitat Requirements:

Soils: Grey or brown coloured sandy clay loam with laterite and quartz fragments at the surface.

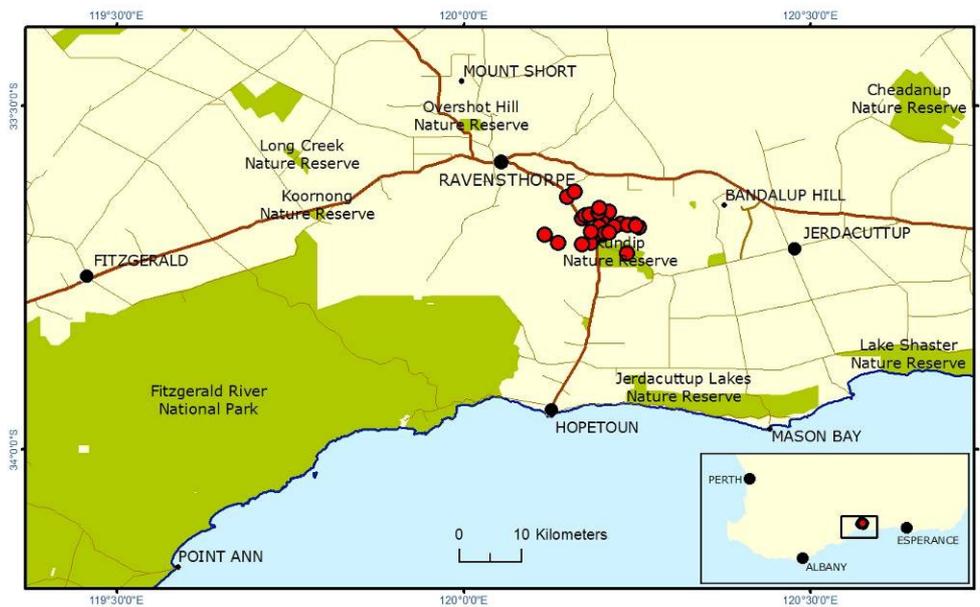
Landforms: Usually found on lower and mid slopes of undulating terrain.

Vegetation: Frequently recorded from mallee over a heath or scrub comprising of *Banksia* or *Melaleuca*.

Fire: This species is suspected to be highly vulnerable to frequent fire and monitoring of different sized populations is recommended to observe postfire changes. (Nathan McQuoid, pers. comm.).

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
01a	Hopetoun-Ravensthorpe Rd	Shire Rd Verge	01/10/2002	10
01b	Mt Desmond	Other Reserve	01/10/2002	1
02a	Hopetoun-Ravensthorpe Rd	Shire Rd Verge	20/10/2002	1
02b	Kundip	Other Reserve	20/10/2002	22
02c	Kundip	Other Reserve	20/10/2002	
02d	Kundip	UCL	20/10/2002	
02e	Kundip	UCL	20/10/2002	
03	Ravensthorpe	Shire Rd Verge	18/10/1983	
04a	Kundip	UCL	09/11/2002	20
04b	Kundip	Other Reserve	09/11/2002	
05	Hopetoun-Ravensthorpe Rd	Shire Rd Verge	17/10/2002	2
	Kundip	Other Reserve	08/12/2003	1000
	Kundip	Other Reserve	07/10/2005	'occasional'
	Mt Desmond	Other Reserve	26/04/2007	'isolated plants'
	Mt Desmond	Other Reserve	26/04/2007	'30-70% cover'
	Kundip	Other Reserve	05/09/2007	'isolated plants'
	Mt Desmond	Other Reserve	07/09/2007	'30-70% cover'
	Ravensthorpe Range	UCL	27/09/2007	'isolated plants'
	Ravensthorpe Range	UCL	01/10/2007	'30-70% cover'
	Ravensthorpe Range	UCL	01/10/2007	'30-70% cover'
	Ravensthorpe Range	UCL	01/10/2007	'30-70% cover'
	Ravensthorpe Range	UCL	27/09/2007	'30-70% cover'
	Kundip	Other Reserve	03/10/2007	'10-30% cover'
	Kundip	Other Reserve	05/11/2004	10000
	Kundip	UCL	05/11/2008	1
	Kundip	UCL	05/11/2008	2
	Kundip	UCL	05/11/2008	10000
	Kundip	UCL	05/11/2008	400
	Kundip	UCL	05/11/2008	20
	Kundip	Nature Reserve	05/11/2008	5000
	Kundip	UCL	05/11/2008	1
	Kundip	UCL	05/11/2008	5000
	Kundip	Other Reserve	05/11/2008	70
	Kundip	UCL	05/11/2008	300
	Kundip	Other Reserve	04/11/2008	400
Total:				122450



References:

Craven, L.A. & Lepschi, B.J. (1999). Enumeration of the species and infraspecific taxa of *Melaleuca* (Myrtaceae) occurring in Australia and Tasmania. *Australian Systematic Botany* 12: 819-927.

Holliday, I. (2004). *Melaleucas: a field and garden guide*, 2nd edition (New Holland Publishers (Australia) Pty Ltd: Sydney).

Note: Lyn Craven has reviewed this description (2009).

Melaleuca ulicoides Craven & Lepschi

Family: MYRTACEAE

Other names: Previously listed under the phrase name *Melaleuca* sp. Gorse (A.S. George 7224).

Conservation status: Removed from DEC priority list in 2010.

Flowering time: September to November.

Information date: 28/01/2011



Photo: A. Markey

Taxonomy:

Description. A single-stemmed *shrub* to 0.5–2 m high then spreading with dense, arching branches to 3 m wide, with a prickly, gorse-like habit. The young leaves are hairless, or with sparse hairs on the margin then becoming hairless. The stalkless *leaves* are in a dense, spiral arrangement on the stem and are erect to widely spreading, narrowly ovate to lanceolate, 3.5–7 mm long and 0.5–1 mm wide, and are 5–9 veined. The oil glands are obscure and scattered, and the apices acute with a pungent mucro. The *bracts* are scale-like and overlapping. The *inflorescences* are heads of 1–11 stalkless *flowers*, which are axillary on the main branchlet or on small lateral branchlets. The floral tube is a cup shaped, green *hypanthium* with a rounded base, bearing the floral parts above the ovary. The outer surface is densely hairy. *Flowers* are *c.* 10.5 mm long. The 5 ovate *sepals* are red-brown with white membranous margins, hairless, and *c.* 2 mm long and 2 mm wide. The outer surface is faintly ridged and more membranous towards the entire margin. The 5 *petals* are shortly stalked, broadly ovate and white. They are without oil glands and *c.* 3.5 mm long and 2 mm wide. *Stamens* are attached to the hypanthium, with cream filaments that are joined at their base forming 5 stalked bundles that are *c.* 6 mm long and positioned opposite the petals, with 14–21 *anthers*. The densely hairy *ovary* has 3 locules and the summit is convex, with the style *c.* 9 mm long with the base in the central depression of the ovary. *Fruit* is a stalkless woody, ellipsoid and smooth capsule to 2.5 mm wide, with the sepals becoming 3–5 triangular, thickened lobes on the rim surrounding the 3 dehiscent valves.

Distinctive features. *Melaleuca ulicoides* is most similar to *Melaleuca coronicarpa* D.A.Herb. but differs in having a much denser leaf arrangement and a lower leaf surface with 5–9 veins rather than the 9–17 veins present in *M. coronicarpa*. *Melaleuca coronicarpa* has been recorded as a compact or open erect shrub and, forming dense thickets, rarely arching, while *M. ulicoides* is noted as having a single long stem and then spreading arching branches. In addition, it is also noted from specimens and photographs, that *M. ulicoides* has cream filaments rather than the white noted on *M. coronicarpa* specimens but this should be reviewed in the field. *Melaleuca ulicoides* differs from *M. undulata* in having narrowly ovate-lanceolate leaves rather than ovate, and the oil glands on the lower leaf surface are obscure and scattered, rather than prominent and in rows between the veins.

Species name. Derived from the generic name *Ulex*, in reference to the similarity in habit between this plant and *Ulex europaeus* (gorse).

Distribution. Restricted to the Ravensthorpe area in Western Australia.

Habitat Requirements:

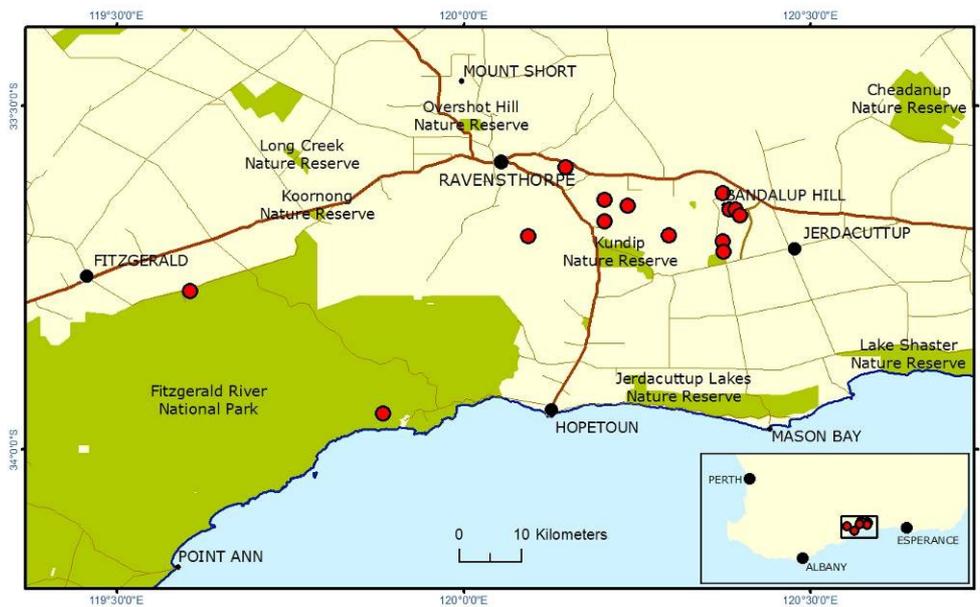
Soils: In stony red-brown clay, commonly associated with basalt or laterite.

Landforms: Most frequently found on hillslopes, occasionally near drainage lines.

Vegetation: Recorded from both mallet-dominated forests and mallee shrublands.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Fitzgerald River NP	National Park	1/11/1965	
	Ravensthorpe Range	UCL	1/10/1969	
	Hopetoun	Unknown	7/11/1969	
	Bandalup Hill	Mining lease	16/02/1998	'common'
	Bandalup Hill	Mining lease	18/02/1998	'dominant'
	Bandalup Hill	Mining lease	20/02/1998	'common'
	Ravensthorpe Range	Other Reserve	18/10/2005	
	Ravensthorpe Range	Other Reserve	1/05/2006	
	Ravensthorpe Range	UCL	20/04/2007	'10–30% cover'
	Bandalup Hill	Mining lease	25/05/2007	'<10% cover'
	Ravensthorpe Range	Other Reserve	26/05/2007	'<10% cover'
	Bandalup Hill	Mining lease	30/05/2007	'isolated plants'
	Ravensthorpe Range	UCL	4/09/2007	'<10% cover'
	Bandalup Hill	Mining lease	11/10/2007	'locally frequent'
	Ravensthorpe Range	UCL	19/03/2007	'10-30% cover'
	Ravensthorpe Range	UCL	20/03/2007	'30-70% cover'
	Ravensthorpe Range	UCL	22/03/2007	'<10% cover'
	Ravensthorpe Range	UCL	22/04/2007	'<10% cover'
	Kundip	UCL	11/09/2007	'30-70% cover'
	Ravensthorpe Range	UCL	4/10/2007	'30-70% cover'
	Ravensthorpe Range	UCL	24/04/2007	'30-70% cover'
	Mason Bay Rd	Unknown	25/05/2007	'<10% cover'
	Kundip	UCL	26/05/2007	'<10% cover'
	Kundip	UCL	26/05/2007	'isolated plants'
	Ravensthorpe Range	UCL	28/09/2007	'<10% cover'
	Ravensthorpe Range	Other Reserve	4/10/2007	'<10% cover'
	Ravensthorpe Range	UCL	22/11/2008	'10-30% cover'
	Ravensthorpe Range	UCL	6/12/2008	'10-30% cover'
Total:				



References:

Craven, L.A., Lepschi, B.J. & Cowley, K.J. (2010). *Melaleuca* (Myrtaceae) of Western Australia: five new species, three new combinations, one new name and a new state record. *Nuytsia* 20: 27–36.

Note: Recent survey has located populations in the Ravensthorpe Range north of the highway.

Microcorys pimeleoides F.Muell.

Family: LAMIACEAE

Other names: None

Conservation status: Removed from DEC priority list in 2010.

Flowering time: October to December.

Information date: 15/1/2010



Photo: D. Rathbone

Taxonomy:

Description. A robust, glabrous *shrub* 25–70 cm high and 50–80 cm wide. The *leaves* are shortly petiolate, narrowly ovate or elliptic to oblong-lanceolate, and crowded in whorls of 3 or occasionally 4. They are thick, concave, 2.5–9 mm long and 2–4 mm wide, and keeled towards the leaf apex. The floral leaves are ovate or elliptic. The *bracteoles* at the base of the pedicel are linear-lanceolate. There are 2 or 3 *flowers* crowded together at the ends of the branches in terminal leafy heads. The 5-lobed *calyx* is *c.* 5.5 mm long, with ovate lobes that are *c.* 1.5 mm long and hairless except for the minutely fringed margin. The *corolla* is mauve or mauve-purple, 10–14 mm long and much longer than the calyx. The outer surface of the corolla has dense, white, spreading and simple hairs. The tube is *c.* 6 mm long, with a dilated throat that is white with purple spots and densely hairy. The upper lip of the corolla is small and very concave or hooded, with 2 spreading, obovate-orbicular lobes, *c.* 3.2 mm long. The lower lip is larger, with 3 spreading, obcordate-orbicular lobes, *c.* 4.2 mm long. The *stamens* are completely enclosed in the corolla, with the 2 upper *anthers* fertile and each with a bearded appendage. The 2 lower anthers are sterile and reduced to two linear, club-like lobes that are mobile on the hairy filament, and also with a long appendage. The *ovary* is deeply 4-lobed, with glands towards the apex and the *style* arises from the depressed centre of the ovary. The style is hairless and divided into 2 towards the apex. *Fruit* not seen.

Distinctive features. There are many species of *Microcorys* in the Ravensthorpe to

Esperance area. *Microcorys pimeleoides* differs from *Microcorys barbata* R.Br., *Microcorys exserta* Benth., *Microcorys longiflora* F.Muell. and *Microcorys subcanescens* Benth. in having a hairless rather than hairy outer calyx. Its shortly hairy outer corolla surface differs from the glabrous corolla of *Microcorys glabra* (Bartl.) Benth., and it differs from *Microcorys obovata* Benth. in having narrowly ovate rather than obovate leaves. *Microcorys pimeleoides* is similar to *Microcorys virgata* R.Br. in having a hairless calyx but differs in having two distinct anterior lobes on the upper lip of the corolla (the anterior lobes are absent in *M. virgata*).

Species name. The species name refers to the *Pimelea*-like habit of the plant.

Distribution. This species occurs in the Ravensthorpe area and in Frank Hann National Park.

Habitat Requirements:

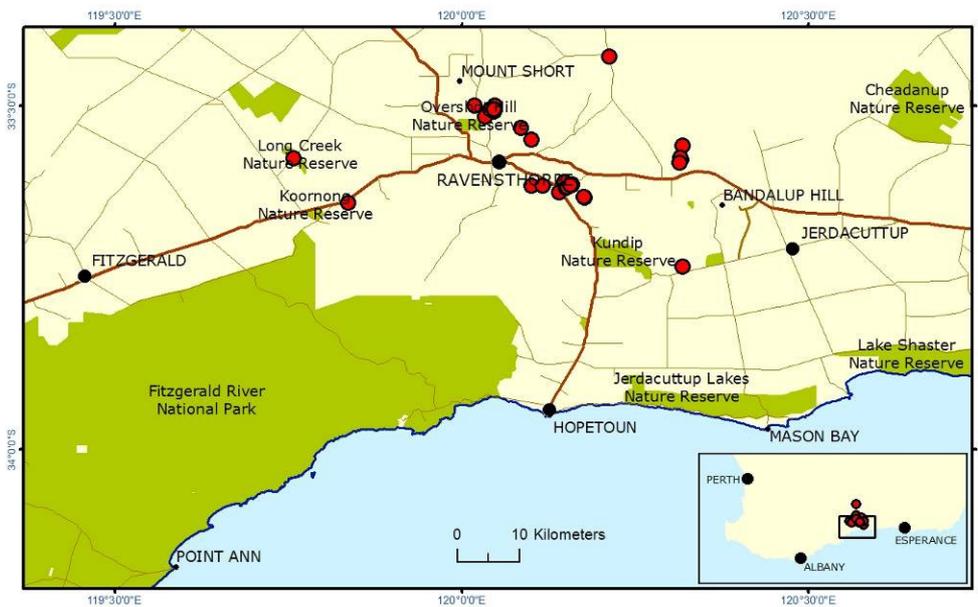
Soils: Most frequently recorded from sandy loam soils and occasionally clay. Commonly associated with laterite gravel.

Landforms: Gently undulating plains to hilltops.

Vegetation: Occurs in open mallee shrubland, tall shrubland, regenerating heath, or low woodland. *Microcorys pimeleoides* has been recorded as abundant in post fire regrowth.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Ravensthorpe	UCL	26/04/2001	50
	Hayes Road	Rd Verge Shire	8/10/2000	714
	Long Creek Road	Rd Verge Shire	11/12/1999	7000
	Elverdton Rd	Rd Verge Shire	3/11/1998	
	Elverdton Rd	Rd Verge Shire	24/11/1999	150
	Mt Desmond	Other Reserve	1/09/2002	
	Shoemaker Levy	Mining Lease	22/11/1999	650
	Shoemaker Levy	Mining Lease	28/10/1999	650
	Shoemaker Levy	Mining Lease	2/11/2004	650
	Shoemaker Levy	Mining Lease	30/10/2004	650
	Ravensthorpe	UCL	7/11/2004	699
	Ravensthorpe Range	UCL	18/11/2007	'<10% cover'
	Ravensthorpe Range	UCL	11/10/2007	'<10% cover'
	Nindibillup Rd	Rd Verge Shire	26/12/2001	
	Ravensthorpe	UCL	3/11/2004	11
	Upper Oldfield	UCL	11/11/2005	1000
	Ravensthorpe	Rd Verge Shire	25/10/2006	100
	Mt Desmond	Other Reserve	3/12/2006	100
	Unknown	Rd Verge Shire	3/11/2004	
	Mt Desmond	Other Reserve	27/11/1999	
	Ravensthorpe	UCL	23/10/1989	
	Mt Desmond	Other Reserve	27/10/1968	
	Mt Desmond	Other Reserve	31/10/1965	
	Unknown	Private Property	1/01/1900	
	Mt Short	UCL	11/12/2008	'<10% cover'
	Mt Short	UCL	18/11/2008	'10-30% cover'
	Mt Short	UCL	18/11/2008	'<10% cover'
Total:				12424



References:

Mueller, F. (1859). *Fragmenta Phytographiae Australiae*, Volume 1: 156-157 (Government Printer: Melbourne).

Micromyrtus navicularis Rye

Family: MYRTACEAE

Other names: Previously listed under the manuscript name *Micromyrtus racemosa* var. *carinata* J.W.Green

Conservation status: Priority Three under DEC Conservation Codes for Western Australian Flora.

Flowering time: Flowers recorded from July to February and also in April and May.

Information date: 22/01/2009



Photo: A. Markey

Taxonomy:

Description. An erect *shrub* to 1.6 m high that is single-stemmed at the base, with dense, opposite-decussate, long leaves on the short spreading lower branches that form 4 rows. The short branches are far exceeded by tall spindly stems that bear shorter, less dense leaves. The shortly stalked *leaves* are very narrowly obovate from side view, with a rounded somewhat incurved apex, and are to 4.5 mm long and 0.7 mm wide, with the margin entire or minutely toothed towards the apex. The lower surface is very convex, usually with a row of oil glands on each side of the midrib, and usually with 8–14 prominent oil glands per row, sometimes with a partial second row. The upper surface is very concave, with the margins incurved towards one another. *Flowers* are stalked to 2 mm long, solitary in each leaf axil, and 3–4 mm in diameter. *Bracteoles* fall early or later, are rather dry and membranous, more or less linear, to 1.8 mm long, and pale lime green to yellowish-brown. The *floral tube* (hypanthium) is to 2.3 mm long and is 10-ribbed. The 5 *sepals* are almost semicircular, to 0.4 mm long and 0.5 mm wide. The 5 obovate *petals* have the claw erect and the remainder widely spreading in flower, are to 1.8 mm long, white inside, sometimes turning partially deep pink outside, with the apex broadly obtuse, and with some prominent glands on the outer surface. The 10 shortly stalked *stamens* are inserted in 2 whorls of 5. The *anthers* are almost globular but divided by slits into 3 lobes, with an erect, very broad gland projecting laterally beyond the anther cells. The *ovary* has 2 ovules and a *style* c. 0.4 mm long. The *fruit* is a nut (i.e. indehiscent), to

2.2 mm long and 0.8 mm wide, and is 1-seeded. The medium golden-brown to dark red-brown *seed* is narrowly obovoid-conic and to 1.7 mm long and 0.7 mm wide.

Distinctive features. *Micromyrtus navicularis* belongs to the *Micromyrtus triptycha* complex but is distinguished by its very narrow leaves which have a well developed boat shape and glands commonly in only one row on each side of the leaf (other members of the *M. triptycha* complex have several main rows of oil glands). It also appears to have larger and more obviously 4-ranked leaves on the lower lateral branches rather than on the upper more erect branches. There are no similar species of *Micromyrtus* in the Ravensthorpe area.

Species name. From the Latin word *navicularis* (boat-shaped), referring to the leaves.

Distribution. Restricted to the Ravensthorpe Range.

Habitat Requirements:

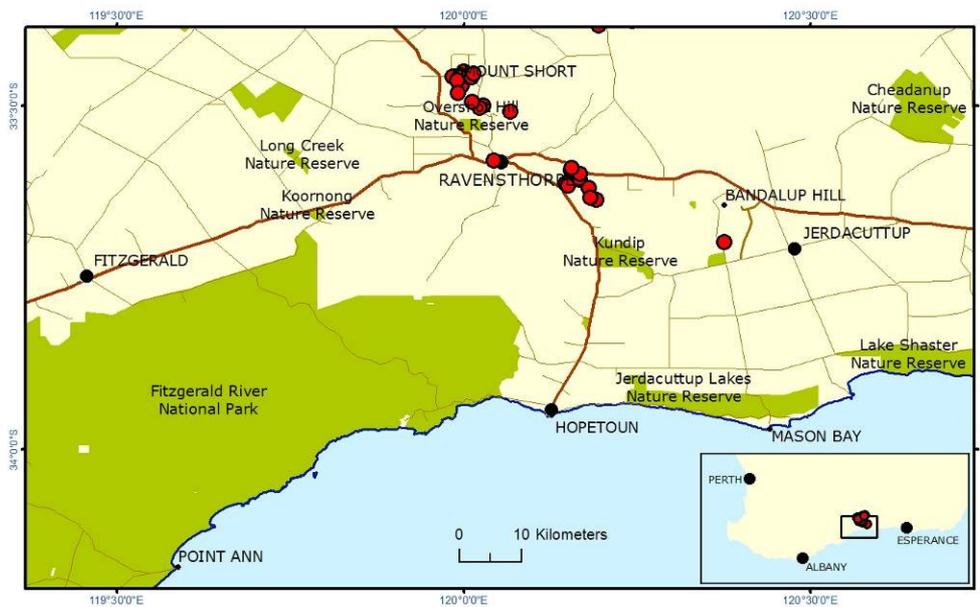
Soils: Brown coloured sandy loam soils with lateritic gravel or rock fragments at the surface.

Landforms: Known mainly from the mid and upper slopes of the Ravensthorpe Range.

Vegetation: Recorded from mallee heath and thicket communities. Associated species include: *Eucalyptus falcata* subsp. *falcata*, *Eucalyptus pleurocarpa* and *Hakea subsulcata*.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Mt Desmond	Other Reserve	24/04/2007	'<10% cover'
	Mt Desmond	Other Reserve	24/04/2007	'isolated plants'
	Mt Desmond	Other Reserve	25/05/2007	'<10% cover'
	Mt Desmond	Other Reserve	31/05/2007	'<10% cover'
	Mt Desmond	Other Reserve	07/09/2007	'isolated plants'
	Mt Short	UCL	12/09/2007	'<10% cover'
	Mt Short	UCL	26/09/2007	'<10% cover'
	Mt Desmond	Other Reserve	04/10/2007	'isolated plants'
	Mt Short	UCL	05/10/2007	'isolated plants'
	Elverdton Rd	Shire Rd Verge	30/09/1999	'occasional'
	Mt Short Rd	Shire Rd Verge	08/12/2003	
	Ravensthorpe Range	UCL	19/11/2008	'isolated plants'
	Mt Short	UCL	11/12/2008	'isolated plants'
	Mt Short	UCL	22/01/2009	'isolated plants'
	Mt Short	UCL	22/01/2009	'isolated plants'
	Mt Benson	UCL	23/01/2009	'isolated plants'
			Total:	



References:

Rye, B.L. (2006). A partial revision of the south-western Australian species of *Micromyrtus* (Myrtaceae: Chamelaucieae). *Nuytsia* 16(1): 117–147.

Note: Barbara Rye has reviewed this description (2009).

Pultenaea calycina (Turcz.) Benth. subsp. *proxena* Orthia & Chappill

Family: FABACEAE

Other names: Previously listed under the phrase name *Pultenaea* sp. Bandalup (G.F. Craig 3625).

Conservation status: Priority Four under DEC Conservation Codes for Western Australian Flora.

Flowering time: August to November.

Information date: 15/1/2010



Photo: S. Kern

Taxonomy:

Description. A compact *shrub* that is 0.3–1.5 m high. The yellow, smooth *branchlets* are not spiny and have velvety, short, white hairs, becoming hairless. The triangular, black to red *stipules* are 0.4–1.5 mm long and not fused together at the base. The smooth *leaves* are light to olive green or bright green, usually in whorls of 3 (rarely 4) or occasionally spiralled. They are narrowly obovate and strongly inrolled, 4.4–12.9 mm long and 0.7–3.3 mm wide, with a club-shaped and obtuse apex, and sparse hairs are either present or absent. The *flowers* are in groups of 1–5, with leaf-like *bracts* and 2 *bracteoles* at the base of the calyx. The *calyx* is red to green, often hairless, with the 2 upper lobes much larger than the lower 3 lobes and elliptic to obovate with the apex obtuse. The 3 lower calyx lobes are triangular or narrowly triangular, with the apex tapering to a protracted point. The pea flower has a *standard* petal with a claw to 1.2–1.7 mm long and a kidney-shaped lamina 5.5–7.4 mm long and 7.4–8.6 mm wide that is recurved towards the apex and minutely notched, The front is deep yellow, with a central yellow eye surrounded by a thin red line, while the back is mostly yellow but sometimes with a pale red apex. The lateral *wings* are 5.5–6.3 mm long and yellow, sometimes tinged red. The *keel* is to 6.6 mm long, pale yellow externally with a pale red apex, and internally a brighter yellow with a large red patch. The 10 *stamen* filaments are to 4.8 mm long. The *ovary* is 1.5–2.5 mm long, flattened laterally, densely hairy, and with 2 *ovules*. The hairless *style* is hooked, and 2.2–2.8

mm long. The pod and seed have not been seen.

Distinctive features. *Pultenaea calycina* subsp. *proxena* differs from *Pultenaea calycina* (Turcz.) Benth. subsp. *calycina* primarily in the leaf shape (club-shaped versus oblong or slightly club-shaped) and in the curvature of the leaf margins (strongly inrolled, versus flat to broadly incurved and broadly U-shaped in cross section). They are similar in floral characteristics.

Subspecies name. The subspecies name is derived from Latin and has two meanings: *prox* (alike) and *en* (indeed?) since herbarium specimens superficially look nothing alike those of subsp. *calycina*; and secondly *pro* (for) and *xena*, in reference to the fictitious warrior princess.

Distribution. Restricted distribution between Ravensthorpe and Bandalup Hill.

Habitat Requirements:

Soils: In a variety of soil types from silty loam to heavy clay, usually calcareous.

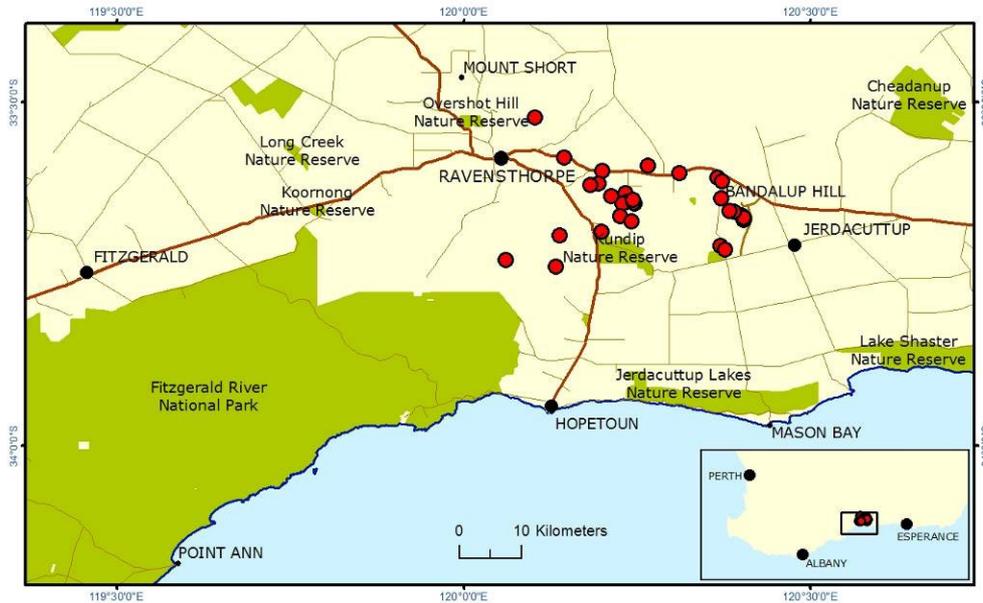
Landforms: Moderate hillslopes and sometimes near drainage lines.

Vegetation: Typically occurs in mallee woodland with low to medium shrub understorey.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Bandalup	Other Reserve	5/11/1992	
	Bandalup Hill	Mining Lease	18/02/1998	
	Ravensthorpe	Private Property	16/08/1999	
	Unknown	Rd Verge Shire	27/10/2002	
	Bandalup Hill	Mining Lease	27/10/2002	
	Bandalup	Other Reserve	28/11/2002	1000
	Ravensthorpe	UCL	26/08/2003	1000
	Mt Desmond	Other Reserve	15/10/2003	
	Unknown	Rd Verge Shire	2/05/2004	
	Unknown	Rd Verge Shire	30/04/2004	
	Bandalup Hill	Mining Lease	7/12/2004	
	Ravensthorpe	Private Property	22/11/2004	
	Ravensthorpe	UCL	18/10/2005	25
	Ravensthorpe	UCL	18/10/2005	2
	Ravensthorpe	UCL	11/02/2005	100
	Ravensthorpe	UCL	24/11/2005	30
	Ravensthorpe	UCL	24/11/2005	2
	Ravensthorpe Range	UCL	19/03/2007	'isolated plants'
	Ravensthorpe Range	UCL	4/09/2007	'<10% cover'
	Mt Desmond	Other Reserve	24/04/2007	'<10% cover'
	Mt Desmond	Other Reserve	24/04/2007	'<10% cover'
	Ravensthorpe Range	UCL	23/05/2007	'<10% cover'
	Ravensthorpe Range	UCL	23/05/2007	'isolated plants'
	Ravensthorpe Range	UCL	23/05/2007	'<10% cover'
	Bandalup Hill	Mining Lease	24/05/2007	'<10% cover'
	Ravensthorpe Range	UCL	26/05/2007	'<10% cover'
	Bandalup Hill	Mining Lease	27/05/2007	'<10% cover'
	Bandalup Hill	Mining Lease	29/05/2007	'isolated plants'
	Ravensthorpe	UCL	7/05/2007	
	Ravensthorpe	UCL	7/05/2007	
	Ravensthorpe	UCL	7/05/2007	
	Ravensthorpe	UCL	7/05/2007	
	Bandalup Hill	Mining Lease	8/10/2007	'isolated plants'

	Bandalup Hill	Mining Lease	8/10/2007	'10-30% cover'
	Bandalup Hill	Mining Lease	9/10/2007	'<10% cover'
	Ravensthorpe	UCL	27/09/2007	'<10% cover'
	Ravensthorpe	UCL	29/09/2007	'<10% cover'
	Mt Desmond	Other Reserve	11/06/2008	30
	Ravensthorpe	UCL	7/05/2009	
	Ravensthorpe	UCL	7/05/2009	
	Total:			2189



References:

Orthia, L.A., de Kok, R.P.J. & Crisp, M.D. (2005). A revision of *Pultenaea* (Fabaceae: Mirbeliacea). 4. Species occurring in Western Australia. *Australian Systematic Botany* 18: 171-172.

Pultenaea craigiana C.F.Wilkins, Orthia & Crisp

Family: FABACEAE

Other names: Previously listed under the phrase name *Pultenaea* sp. Kundip (G.F. Craig 6008).

Conservation status: Priority Three under DEC Conservation Codes for Western Australian Flora.

Flowering time: August to November; fruiting in December.

Information date: 23/06/2008



Photo: S. Kern

Taxonomy:

Description. An upright spindly, rounded *shrub* that is to 50 cm high (rarely to 1 m). The non spinescent *branchlets* have dense, appressed, white, hairs at the apex, becoming hairless. The *stipules* are persistent, red-brown becoming black, to 1.3 mm long and with the bases fused to each other across the stem. The *leaves* are spreading or ascending, spirally arranged, narrowly obovate to obovate, inrolled onto and concealing the upper surface and 1.3–8 mm long. The lower surface is yellow-green, with scattered, white, appressed hairs on new growth, becoming hairless. The apex is club-shaped and obtuse, with the apical 1/3 recurved. The solitary *flowers* are in the leaf axils but grouped towards the branchlet apex. *Bracts* are absent, with each flower subtended by a leaf and stipules. The *flower stalk* is straight and 0.2–0.5 mm long. The two red-brown, ovate *bracteoles* just below the calyx are persistent, to 1.3 mm long, and have a toothed margin. The *hypanthium* is 0.4–0.6 mm long. The *calyx* is not prominently ribbed, the tube is green and the lobes are red with a dark red marking present or absent at the junction. The 5 calyx lobes are asymmetrical; the upper 2 are sickle-shaped, to 0.6 mm long and fused for 2–3.9 mm; the lower 3 are ovate, to 2.4 mm long and fused for 1.0–1.8 mm; the lobe apices are acute. The clawed *standard* is broadly ovate, to 4.2 mm long and 8.2 mm wide, and notched at the apex, and yellow with flares of red following the veins on the upper surface and surrounding a basal, ovate, pale lemon eye. The 2 clawed *wings* are straight, oblong, or scarcely obovate, to 4.3 mm long, with a red centre and yellow towards the

rounded apex. The clawed *keel* is scarcely obovate and with a rounded apex, to 5.5 mm long, and dark red with a narrow yellow margin towards the tip. There are 10 *stamen* filaments to 4.6 mm long, with cream *anthers*. The stalkless *ovary* is laterally flattened, has 2 ovules, and dense, white hairs evenly distributed on the outside. The *style* is hooked, to 2.1 mm long, with scattered hairs throughout, and a capitate *stigma*. The ellipsoid *pod* is to 4.3 mm long and 2.6 mm wide, and the outer surface has sparse, white hairs. The ovoid *seeds* are smooth, pale greenish-brown with black, irregular markings, to 2.1 mm long and with a yellow-white, translucent *aril*.

Distinctive features. *Pultenaea craigiana* is possibly most closely related to *Pultenaea brachytropis* Benth., which it closely resembles in the fused stipules and in floral and inflorescence characters, e.g. the blunt, red-tipped calyx. However, these species are easily distinguished by the leaf blades, which have involute margins in *P. craigiana* and strongly recurved margins in *P. brachytropis*. *Pultenaea calycina* subsp. *proxena* Orthia & Chappill has similar leaves to *P. craigiana* and occurs in the Ravensthorpe area. *Pultenaea craigiana* differs from *P. calycina* subsp. *proxena* in having leaves that are strongly inrolled, rather than strongly incurved and the stipules are fused together at the base rather than free. The calyx upper lobes are also falcate rather than rotund and the lower three lobes are more developed.

Species name. The specific epithet honours Dr Gillian Craig, a botanist in the Ravensthorpe area who discovered this new species.

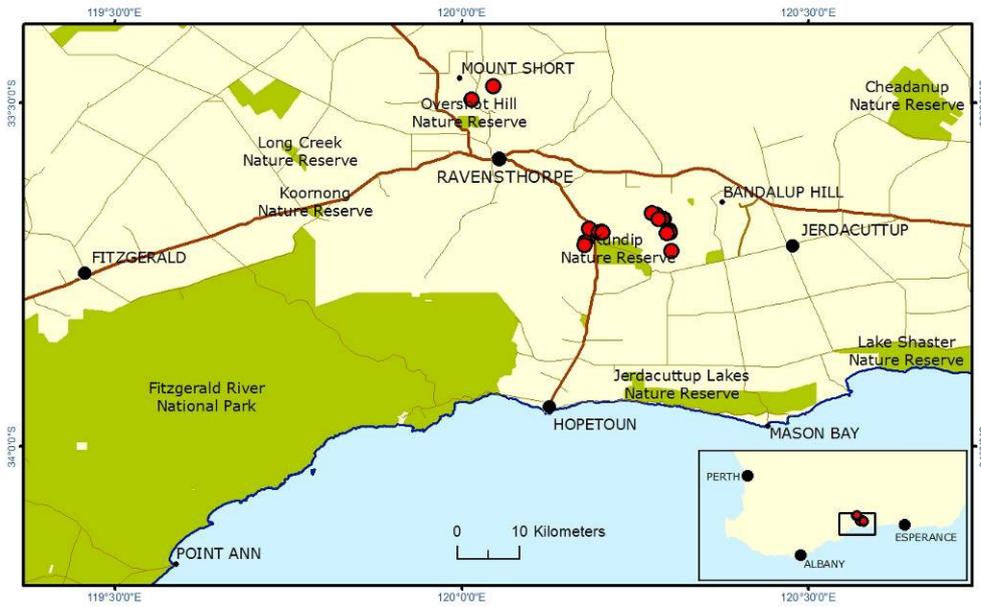
Distribution. *Pultenaea craigiana* has a restricted distribution in the Ravensthorpe Range.

Habitat Requirements:

Soils: Usually recorded from grey or brown clay loams, with stone fragments on the surface.
Landforms: Frequently recorded from the lower slopes of undulating hilly terrain.
Vegetation: Recorded from a range of woodland and mallee heath communities.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
01a	Kundip	Other Reserve	01/10/2004	
01b	Kundip	Other Reserve	05/11/2004	
01c	Kundip	Other Reserve	13/12/2004	100
02a	Kundip	Other Reserve	21/09/2005	100
02b	Kundip	Other Reserve	21/09/2005	20
03a	Ravensthorpe Range	UCL	30/09/2007	'>10% cover'
03b	Ravensthorpe Range	UCL	30/09/2007	'>10% cover'
04-	Ravensthorpe Range	UCL	28/05/2007	'isolated plants'
05-	Ravensthorpe Range	UCL	21/08/2007	
Total:				220



References:

Wilkins, C.F., Orthia, L.A., & Crisp, M.D. (2009). A new species of *Pultenaea* (Mirbelieae: Fabaceae) from Kundip, Western Australia. *Nuytsia* 19(1): 191-196.

Pultenaea wudjariensis Orthia

Family: FABACEAE

Other names: None.

Conservation status: Priority One under DEC Conservation Codes for Western Australian Flora.

Flowering time: July to November.

Information date: 15/1/2010



Photo: D. Rathbone

Taxonomy:

Description. An erect *shrub* that grows to 60 cm high, with dense foliage. *Branchlets* are ascending, moderately or densely hairy, and not spinescent. The black or dark reddish-brown *stipules* are narrowly triangular, 1–2 mm long, and free at their base. The smooth *leaves* are light green with reddish highlights, ascending, opposite, elliptic or obovate and incurved, 2.8–4.5 mm long and 1.4–2.6 mm wide, with medium density hairs on the lower surface. The apex is obtuse to rounded, sometimes with a short abrupt terminal point. The solitary *flowers* are in the axils of the leaves. The *bracts* are leaf-like and the 2 *bracteoles* at the base of the calyx are lanceolate and to 3 mm long. The *calyx* is red to green and the outer surface has scattered, white, appressed hairs. The 2 upper calyx lobes are elliptic to obovate with an obtuse apex and are much larger than the 3 lower lobes which are narrowly triangular with an acuminate apex. The pea flower has a *standard* with a claw that is *c.* 1.5 mm long. The standard *lamina* is a rounded kidney-shape with a notched apex, *c.* 7.3 mm long and 8.5 mm wide, and yellow with a central yellow eye, sometimes surrounded by a thin red line. The lateral *wings* are *c.* 6.5 mm long and yellow, but darkening towards the base. The *keel* is up to 6 mm long and yellow at the base with red blotches towards the apex. The 10 *stamen* filaments are up to 6 mm long. The *ovary* is *c.* 2.5 mm long, flattened laterally, densely hairy, and has a curved, hairless *style* to 2.8 mm long. There are two *ovules*. *Pods* and *seed* not seen.

Distinctive features. *Pultenaea wudjariensis* differs from *Pultenaea calycina* (Turcz.) Benth. in its smaller leaves, longer pedicels, more rounded upper calyx lobes and grooved rather than spreading and round calyx hairs, DNA sequencing (Orthia *et*

al. 2005) suggests *Pultenaea wudjariensis* is closely related to *Pultenaea rotundifolia* (Turcz.) Benth. which has similarly long pedicels relative to the floral bracts and comparable calyx and bracteole morphology, but *P. wudjariensis* differs in having narrowly elliptic or obovate rather than rotund leaves.

Species name. The species name honours the traditional owners of the type locality, the Wudjari language group.

Taxonomic notes. This species is suggested by Dr. Gillian Craig to be a possible hybrid from parentals *P. rotundifolia* and *P. calycina* subsp. *proxena* (pers. comm. 2009). Genetic studies are required to verify this hybrid status since examination of herbarium material has been inconclusive.

Distribution. Known only from the Bandalup Hill area, east of Ravensthorpe.

Habitat Requirements:

Soils: In clay soil associated with komatiite or basalt.

Landforms: Mid to lower hillslopes.

Vegetation: Occurs in mallee shrubland, co occurring with *Pultenaea rotundifolia* and *P. calycina* subsp. *proxena*.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Ravensthorpe	Private Property	2/10/1985	
3	Bandalup Hill	Mining Lease	24/07/2005	
1a	Bandalup Hill	Mining Lease	29/10/2005	38
1b	Bandalup Hill	Mining Lease	16/11/2005	12
2	Bandalup Hill	Mining Lease	19/11/2007	
Total:				50



References:

Orthia, L.A., de Kok, R.P.J. & Crisp, M.D. (2005). A revision of *Pultenaea* (Fabaceae: Mirbeliacea). 4. Species occurring in WA. *Australian Systematic Botany* 18: 202-203.

Siegfriedia darwinioides C.A.Gardner

Family: RHAMNACEAE

Other names: None.

Conservation status: Removed from DEC priority list in 2010.

Flowering time: May to November.

Information date: 15/1/2010



Photo: S. Kern

Taxonomy:

Description. A spreading, low *shrub* to 1 m high and 1.5 m wide, with hairy branchlets becoming hairless with age. The *stipules* are quickly deciduous. The *leaves* are stalked, opposite, narrowly-ovate to oblong or linear, and 0.8–4.2 cm long and 0.25–0.8 cm wide. They are mid-green and hairless on the upper surface, with a prominent cream reticulate pattern, and a midrib situated below the surface. The lower surface has dense, rust-coloured, stellate hairs (multiple arms per hair), becoming grey. The margins are entire, strongly recurved or rolled down to the lower surface, and the apex is obtuse or with a point. The terminal, nodding *flower heads* are golden-yellow or orange, becoming brown. The 2 outermost, smaller bracts have dense, rusty hairs and are apically divided with a central point to 3 mm long. There are 6–12 stalkless flowers in a cluster surrounded by 6–10 large, coloured bracts which have scarcely or prominently toothed margins and are 1.5–1.8 cm long and 0.7–1.7 cm wide. The *calyx* tube is top-shaped, 1.5–4.5 mm long, and shorter than the lobes. There are 4 or 5 lobes which are ovate to ovate-lanceolate, 2–2.5 mm long and hairless, or very rarely with dense rusty hairs on the outer calyx tube. *Petals* and *disc* are absent. The *ovary* is inferior with 3 (rarely 4) locules. The *style* is long and slender, as long as the stamens, and is shortly 3-branched at the apex. The 4 or 5 *stamens* are 6–7 mm long and clearly projecting from the calyx. The *fruit* capsule has 3 (sometimes 4) crustaceous segments opening at the base of the inner angle in longitudinal slits. The seeds have a fleshy *aril*.

Distinctive features. The only species in the genus *Siegfriedia*. It differs from the genus *Pomaderris* in its practically sessile flowers, the long, erect and exerted stamens, the absence of a disc, the opposite leaves, and the large persistent involucre bracts.

Species name. The name refers this species superficial similarity to the bracteated *Darwinia*.

Distribution. Restricted to the area east of Stirling Ranges, and the Ravensthorpe region.

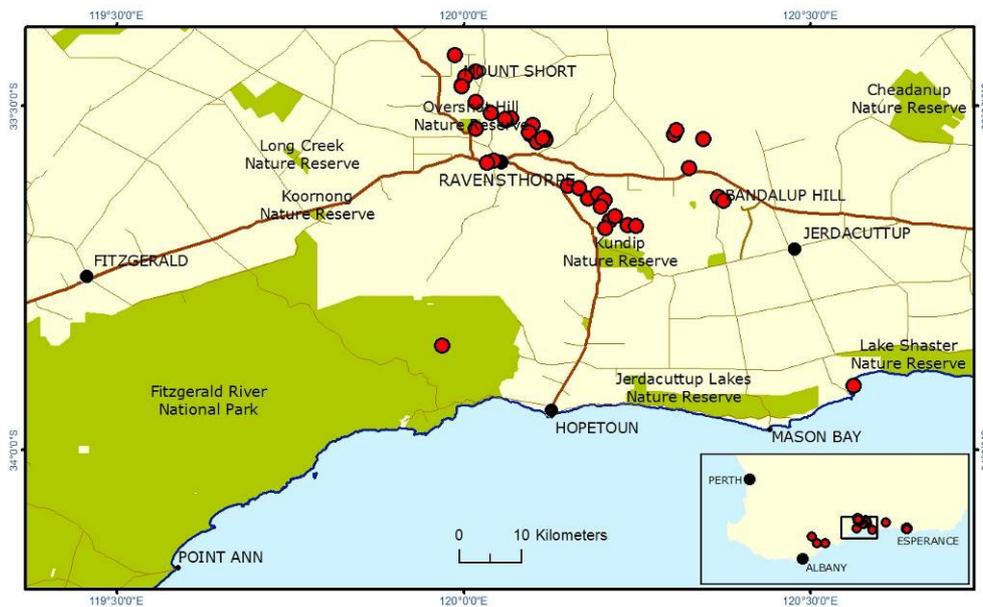
Habitat Requirements:

- Soils:** Recorded from a variety of soil types from sandy loam to light clay.
- Landforms:** Known from plains to hilltops, including drainage lines.
- Vegetation:** Usually recorded from mallee or mallet woodlands.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Starvation Boat Harbour	Other reserve	1/08/1925	
	Ravensthorpe	Private Property	1/08/1957	
	Mt Short	UCL	30/08/1963	
	Esperance	Public Roads	1/06/1964	
	Mt Short	UCL	1/08/1965	
	Eyre Range	National Park	2/11/1965	
	Mt Short	UCL	14/08/1965	
	Mt Short	UCL	21/06/1966	
	Ravensthorpe Range	UCL	15/08/1966	
	Ravensthorpe Range	UCL	29/08/1968	
	Mt Short	UCL	26/04/1969	
	Ongerup	Private Property	29/08/1974	
	Gnowellen	Private Property	25/06/1976	
	Ravensthorpe Range	UCL	1/10/1980	'<10% cover'
	Ravensthorpe Range	UCL	28/04/1981	'frequent'
		UCL	27/05/1983	
		UCL	27/06/1983	
	Pallinup River	Other reserve	1/11/1988	
	Mt Short	UCL	16/12/1992	100+
	Ravensthorpe Range	Other reserve	8/09/1993	'common'
	Bandalup Hill	Mining lease	8/09/1993	300+
	Ravensthorpe Range	Other reserve	10/12/1997	'frequent'
	Bandalup Hill	Mining lease	16/02/1998	'rare'
	Rabbit Proof Fence	Private Property	17/05/1998	'uncommon'
	Mt Short	Private Property	18/09/1999	'frequent'
	Ravensthorpe Range	UCL	28/05/2000	'frequent'
	Neds Corner Road	Private Property	10/09/2001	'frequent'
	Bandalup Hill	Mining lease	17/07/2002	
	Bandalup Hill	Mining lease	10/07/2002	
	Ravensthorpe Range	Other reserve	26/07/2005	'locally abundant'
	Ravensthorpe Range	Other reserve	21/09/2005	'occasional'
	Mt Short	Public Roads	10/11/2006	100+
	Ravensthorpe Range	UCL	18/10/2006	200+
	Ravensthorpe Range	UCL	1/10/2007	'isolated plants'
	Ravensthorpe Range	UCL	2/10/2007	'isolated plants'
	Ravensthorpe Range	UCL	2/10/2007	'isolated plants'
	Ravensthorpe Range	Other reserve	3/10/2007	'<10% cover'
	Ravensthorpe Range	UCL	15/03/2007	'<10% cover'
	Ravensthorpe Range	UCL	17/03/2007	'isolated plants'
	Ravensthorpe Range	UCL	20/03/2007	'<10% cover'
	Ravensthorpe Range	UCL	21/03/2007	'10 – 30% cover'

Ravensthorpe Range	UCL	23/03/2007	'<10% cover'
Ravensthorpe Range	Other reserve	24/04/2007	'<10% cover'
Ravensthorpe Range	Other reserve	18/04/2007	'<10% cover'
Ravensthorpe Range	UCL	26/05/2007	'isolated plants'
Ravensthorpe Range	UCL	7/09/2007	'<10% cover'
Ravensthorpe Range	UCL	25/09/2007	'<10% cover'
Ravensthorpe Range	UCL	27/09/2007	'isolated plants'
Ravensthorpe Range	UCL	28/09/2007	'<10% cover'
Ravensthorpe Range	UCL	5/12/2008	'<10% cover'
Ravensthorpe Range	UCL	6/12/2008	'10 – 30% cover'
Ravensthorpe Range	UCL	21/11/2008	'isolated plants'
Ravensthorpe Range	UCL	22/11/2008	'<10% cover'
Ravensthorpe Range	UCL	25/01/2009	'isolated plants'
Total:			700+



References:

Gardner, C.A. (1933) 8. Contributions florae Australiae occidentalis No. VIII. *Journal of the Royal Society of Western Australia* 19: 85

Spyridium glaucum Rye

Family: RHAMNACEAE

Other names: Previously listed under the phrase name *Spyridium* sp. Ravensthorpe (E.M. Bennett *s.n.*).

Conservation status: Removed from DEC priority list in 2010.

Flowering time: September to November.

Information date: 15/1/2010



Photo: D. Rathbone

Taxonomy:

Description. An erect to spreading *shrub* to 1 m high, with dense hairs on the non-spinescent branchlets that are usually rust-coloured and become white. The free *stipules* are persistent. The *leaves* have stalks to 4 mm long and the blade is flat. The upper surface is green with few or no hairs, and is furrowed along the midvein. The lower surface is pale green and densely hairy. The leaf blade is usually obovate, sometimes oblong-elliptic, 12–16 mm long and 5–9 mm wide, with an entire margin that is recurved or revolute. The *inflorescence* is terminal, with 3–6 flowers in close clusters that are 3–6 mm wide. The *bracts* enclosing the inflorescence are brown, ovate, *c.* 3 mm long and hairy on the outer surface. The *flowers* are almost stalkless. The 5 *sepals* are 0.5–0.8 mm long and densely hairy. The *floral tube* is 0.8–1 mm long, with a dense covering of rust-coloured hairs, and there are 5 free, recurved lobes. The *disc* has distinct, hairless, triangular lobes between the 5 *stamens*. The *ovary* is inferior, with 3 locules and a densely hairy summit. The *style* is to 1.2 mm long, with star-shaped hairs towards the base, and 3 stigmatic lobes. The fruit is a *schizocarp* (a dry fruit formed from more than one carpel that splits to release 1-carpel fruitlets), that is *c.* 2 mm long and 1.6 mm wide and with dense rust-coloured hairs. The 1-seeded fruitlets are membranous to chartaceous, and white with dark red-brown *seeds c.* 1.4 mm long and 0.9 mm wide, with a small *aril*.

Distinctive features. This species has the distinguishing characteristic of having a small number of flowers (3–6) per inflorescence. It belongs to a group of *Spyridium* species that have triangular disc lobes between the 5 stamens at the summit of the floral tube, but is distinguished by its uniform covering of short, appressed hairs on the floral bracts, and its persistent hairs on the floral tube.

Species name. From the Latin word *glaucus* (bluish green or grey), referring to the glaucous leaf colour.

Distribution. Known only from the Ravensthorpe Range and Bandalup hill, where it is considered to be locally common.

Habitat Requirements:

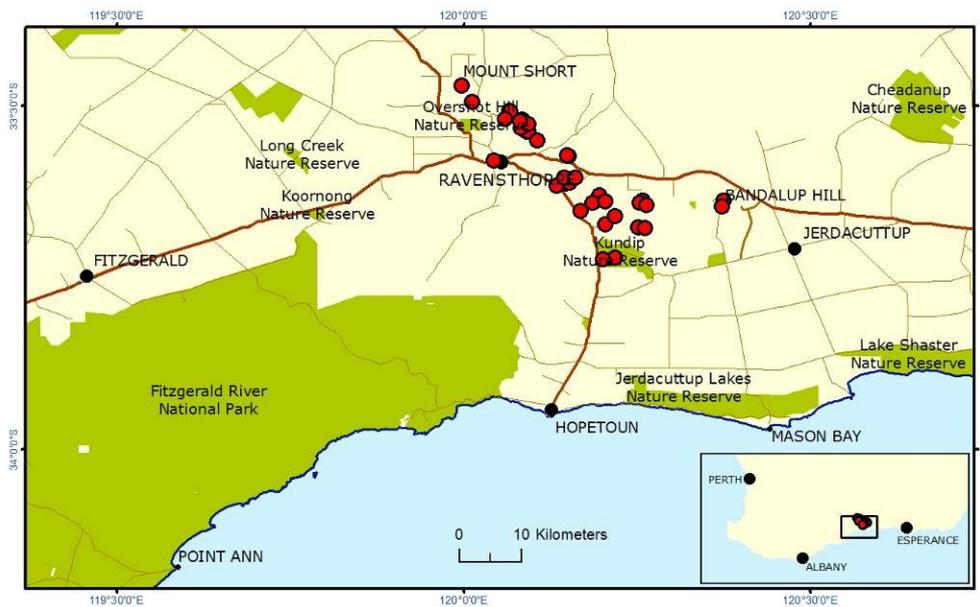
Soils: Recorded from a variety of soil types from sandy loam to medium clay.

Landforms: On hillslopes and hillcrests, occasionally found in drainage lines.

Vegetation: Most frequently reported from mallet or mallee woodlands with sparse understorey cover.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
01-	Mt Desmond	Other reserve	9/09/1999	20
02-	Mt Benson	UCL	26/04/2001	5
03-	Mt Desmond	Other reserve	15/10/1998	500
04-	Mt Short	UCL	15/10/1998	20
05-	Mt Desmond	Other reserve	11/02/1997	2
06-	Bandalup Hill	Mining lease	20/02/1998	16200
	Kundip	Other reserve	11/12/2003	20
	Ravensthorpe Range	Other reserve	6/02/2004	1000+
	Ravensthorpe Range	UCL	30/04/2004	20+
	Cordingup Creek	UCL	16/11/2004	30+
	Bandalup Hill	UCL	22/01/2005	
	Ravensthorpe Range	UCL	18/10/2005	'frequent
	Mt Desmond	Other reserve	15/02/2007	'>10% cover
	Ravensthorpe Range	UCL	16/03/2007	'isolated plants'
	Ravensthorpe Range	UCL	21/03/2007	'>10% cover'
	Ravensthorpe Range	Other reserve	18/04/2007	'>10% cover'
	Elverdton Rd	Other reserve	23/04/2007	'>10% cover'
	Ravensthorpe Range	Private Property	23/05/2007	'isolated plants'
	Kundip	UCL	26/05/2007	'isolated plants'
	Ravensthorpe Range	UCL	6/09/2007	'isolated plants'
	Kundip	UCL	11/09/2007	'>10% cover
	Ravensthorpe Range	UCL	28/09/2007	'isolated plants'
	Ravensthorpe Range	UCL	1/10/2007	'isolated plants'
	Ravensthorpe Range	UCL	19/11/2008	'isolated plants'
	Mt Benson	UCL	21/11/2008	'isolated plants'
	Mt Benson	UCL	4/12/2008	'isolated plants'
	Mt Benson	UCL	9/12/2008	'isolated plants'
	Mt McMahon	UCL	23/01/2009	'isolated plants'
	Mt Benson	UCL	23/01/2009	'isolated plants'
	Mt Benson	UCL	25/01/2009	10-30% cover
	Kundip	UCL	29/03/2010	1000+
	Kundip	Nature Reserve	31/05/2010	100+
	Kundip	Nature Reserve	31/05/2010	200+
Total:				19117+



References:

Rye, B.L. (1995). New and priority taxa in the genera *Spyridium* and *Trymalium* (Rhamnaceae) of Western Australia. *Nuytsia* 10: 120-121.

Note: Barbara Rye has reviewed this description (2009).

Spyridium sp. Jerdacuttup (A. Williams 332)

Family: RHAMNACEAE

Other names: None.

Conservation status: Removed from DEC priority list in 2010.

Flowering time: September to December.

Information date: 15/1/2010



Photo: D. Rathbone

Taxonomy:

Description. A sprawling *shrub* that is 5–30 cm high and to 95 cm wide, with non-spinescent branchlets that have dense, usually rust-coloured hairs that become white. The free *stipules* are persistent. The *leaves* have distinctive stalks to 3 mm long and the blade is flat. The upper surface is mid-green and furrowed along the midvein, with white, star-shaped hairs on the new growth, then becoming hairless, and usually with small, wart-like outgrowths or smooth. The lower surface is densely covered by tan-coloured, star-shaped hairs. The leaf blade is usually ovate, sometimes oblong-elliptic and *c.* 2.5–5.5 mm long and 1.6–2.5 mm wide, with an entire margin that is recurved or strongly rolled down to the lower surface. The *inflorescence* is terminal, *c.* 1 mm long, and compact with *c.* 17–25 flowers. The *bracts* enclosing the inflorescence are brown, ovate, *c.* 2 mm long and hairy on the outer surface. The white or yellowish *flowers* are short-stalked. The *floral tube* is 0.8–1 mm long, with a sparse covering of rust-coloured hairs *c.* 0.5 mm long on the outer surface and dense white hairs within. There are 5 free, recurved sepal lobes, *c.* 0.5–0.8 mm long and densely hairy within. The *disc* has distinct, hairless, triangular lobes between the 5 stamens. The 5 *petals* are hooded, *c.* 0.5 mm long and enclose the stamens. The *ovary* has 3 locules with the summit densely hairy. The *style* is *c.* 1.2 mm long. The *fruit* and *seed* have not been observed.

Distinctive features. *Spyridium* sp. Jerdacuttup (A. Williams 332) differs from *Spyridium cordatum* (Turcz.) Benth. in having longer, ovate leaves that are longer than wide and with a more truncate base, rather than leaves that are almost as wide as long with a cordate base. *Spyridium* sp. Jerdacuttup (A. Williams 332) has broader leaves (> 1 mm wide) than *Spyridium microcephalum* (Turcz.) Benth. (< 1 mm wide), and its more distinct petioles to 3 mm long distinguish it from both species.

Species name. Undescribed.

Distribution. *Spyridium* sp. Jerdacuttup (A. Williams 332) is scattered along the south coast of the Western Australia, from northeast of Condingup to south of Jerremungup, including populations in Fitzgerald River National Park and Cheadanup Nature Reserve.

Habitat Requirements:

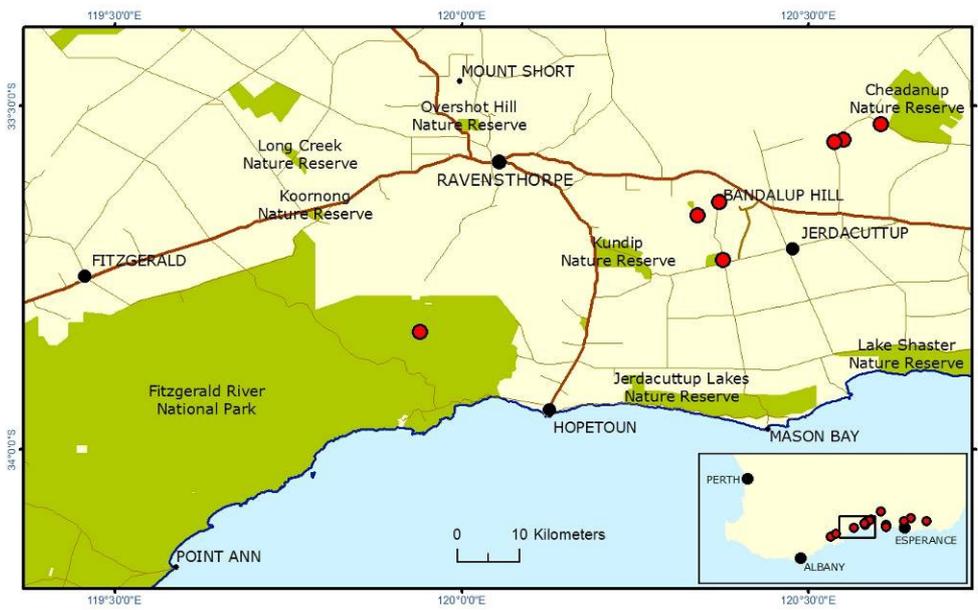
Soils: Occurs in varied soil types, including grey gravel sand over clay and sandy clay loam over ironstone.

Landforms: Most frequently reported from plains, also known from upper hillslopes.

Vegetation: In open mallee dominated vegetation over heath

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	Young River	Private Property	25/09/1968	
	Wittenoom Hills	Private Property	4/10/1968	
	Munglinup	UCL	18/10/1968	
	Fitzgerald River NP	National Park	7/10/1970	
		Crown lease	9/09/1974	
	Cheadanup NR	Nature Reserve	26/09/1985	
	Fitzgerald River NP	National Park	21/11/1986	
	West Point Road	Other reserve	30/08/1992	
	Condingup	Other reserve	10/10/1992	
	Muntz Road	Private Property	3/09/2001	
	Jerdacuttup	UCL	16/12/2001	'common'
	Bandalup Hill	Mining lease	9/10/2007	'<10% cover'
	West Point Road	Public Roads	13/09/2008	'frequent'
	Mason Bay Road	Shire road reserve	18/08/2009	100
	Hatfield Track	UCL	18/11/2009	30000
			Total:	30100



References:

Note: A distinct species according to *Spyridium* expert Barbara Rye (pers. comm. 2009).

Stachystemon vinosus Halford & R.J.F.Hend.

Family: EUPHORBIACEAE

Other names: Previously listed under the phrase name *Stachystemon* sp. Mt Baring (K.R. Newbey 9773).

Conservation status: Priority Four under DEC Conservation Codes for Western Australian Flora.

Flowering time: Flowers and fruits have been collected from September to November.

Information date: 15/1/2010



Photo: D. Rathbone

Taxonomy:

Description. A compact *shrub* to 10 cm high with hairless stems that either spread horizontally and then grow upwards, or are erect with many branchlets that are smooth, \pm round in cross section and hairless. The stalked *leaves* are arranged alternately or in opposite pairs along the branchlets, and there are narrowly triangular stipules. The leaf blade is concave above and convex below, narrowly ovate or narrowly oblong-elliptic in outline, up to 10 mm long and 2 mm wide, and has minute papillae on both surfaces. The leaf margins are flat and prominently thickened while the tip is straight or slightly recurved, and acute with a white point. The plant is monoecious (having the male and female reproductive structures in separate flowers on the same plant), with the *flowers* solitary in the axils of the upper leaves and grouped into terminal clusters. Bracts and bracteoles are present. *Male flowers* are on stout stalks *c.* 0.5 mm long, with 6 tepals. The outer whorl has 3 tepals that are shorter than the inner 3, are ovate, to 3 mm long and 2 mm wide, and distinctively maroon to purplish coloured with the margins irregularly toothed. The inner whorl has 3 longer tepals, linear to narrowly obovate in outline, up to 7 mm long and 1.5 mm wide, and the margins entire. There are 26–40 *stamens* with filaments of uneven length, and anthers that are papillose and dark purplish red. *Female flowers* are stalkless, with the 4–6 tepals \pm similar, narrowly ovate, to 2.5 mm long and 0.7 mm wide, white, slightly ribbed, dry and membranous, hairless on both surfaces, and with the margins minutely, irregularly toothed. The *ovary* has 2 locules and 2 styles that are *c.* 1.2 mm long and papillose at the base. The *capsule* is stalkless, \pm ovoid, compressed laterally, *c.* 6.5 mm long and 3.2 mm wide, smooth and hairless, and at maturity splits into two bivalved segments. *Seed* is subglobose, *c.* 3.2 mm long and 2.7 mm wide, with an aril.

Distinctive features. *Stachystemon vinosus* is a distinctive species though its affinities are uncertain. It is distinguished from other species of *Stachystemon* by its narrowly ovate or narrowly oblong-elliptic leaves, with an apical, whitish coloured stiff point up to 0.4 mm long and its large, ovate, maroon to purplish outer tepals in its male flowers.

Species name. From the Latin word *vinosus* (wine-coloured or purplish red), in reference to the colour of the perianth of the male flowers.

Distribution. *Stachystemon vinosus* occurs on the south coast of Western Australia from Cape Arid National Park to the Ravensthorpe region, including Bandalup Hill.

Habitat Requirements:

Soils: Typically sand to gravelly loam.

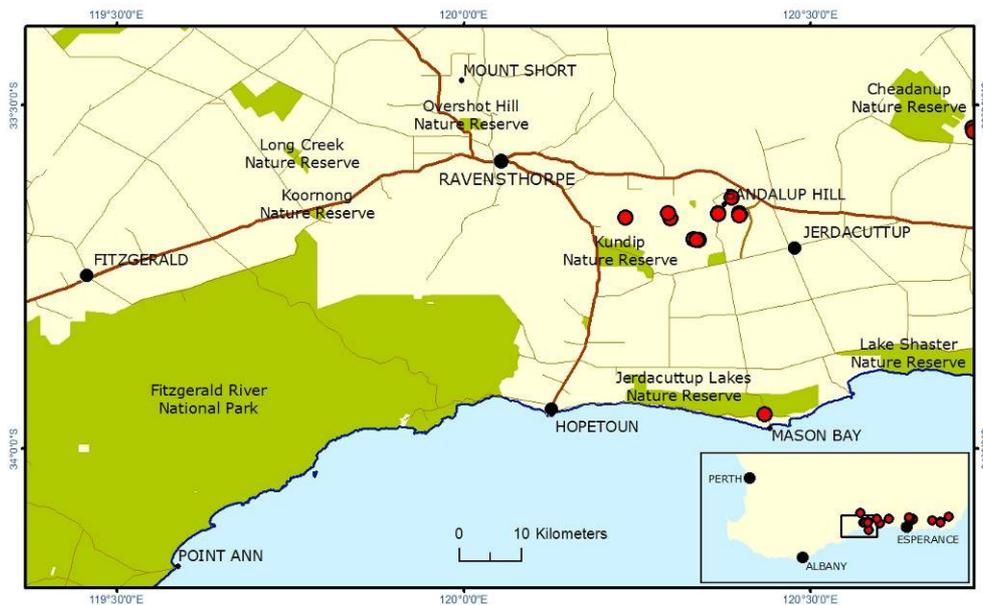
Landforms: Most frequently recorded from flats and sandplains, occasionally rocky hillslopes.

Vegetation: Associated with a range of vegetation types from mallee shrublands to low heath.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
01-	Mt Baring	UCL	1/12/2005	100+
02-	Bandalup Hill	Mining lease	1/12/2005	100+
03-	Wittenoom Road	Public Roads	1/12/2005	20+
04-	Wittenoom Road	Public Roads	1/12/2005	100+
05-	Cascades Road	Public Roads	5/03/2006	80
06-	Cascades Road	Public Roads	25/05/2006	100
07-	Bandalup Hill	Mining lease	27/09/2006	10
08-	Nindabillup Road	Public Roads	29/03/2007	14696
09-	Cape Arid NP	National Park	30/03/2007	6
10a	Scadden Road	Private Property	30/03/2007	21
10b	Scadden Road	UCL	30/03/2007	100 (+100 seedlings)
11-	Munglinup	Public Roads	18/04/2007	1580
12-	Ravensthorpe Range	UCL	19/04/2007	2500
13-	Ravensthorpe Range	UCL	24/04/2007	4713
14b	Ravensthorpe Range	UCL	23/05/2007	101
14c	Ravensthorpe Range	UCL	30/05/2007	75
14a	Ravensthorpe Range	UCL	29/06/2007	2933
15a	Scadden Road	UCL	19/09/2007	100
15b	Scadden Road	UCL	19/09/2007	1000
16	Scadden Road	UCL	8/10/2007	'<10% cover'
17	Bandalup Hill	Mining lease	23/01/2008	2
18	Mt Burdett	Private Property	3/10/2008	6
	Oldfield	Public Roads	21/10/1968	
	Mt Baring	UCL	16/11/1976	
	Scadden NR	Nature Reserve	11/10/1983	
	Wittenoom Road	Private Property	12/10/2000	
	Jerdacuttup Lakes NR	Nature Reserve	7/10/2002	2
	Bandalup Hill	Mining lease	28/02/2003	
	Nindabillup Road	Private Property	12/11/2003	141
	Munglinup	Private Property	12/11/2003	13
	Cascades Road	Public Roads	5/09/2004	1
	Hatfield Track	UCL	14/09/2004	30
	Ravensthorpe	Public Roads	6/11/2004	101
	Bandalup Hill	Mining lease	8/11/2004	0
	Bandalup Hill	Mining lease	8/11/2004	0

	Ravensthorpe Range	UCL	12/03/2005	4
	Ravensthorpe Range	UCL	12/03/2005	2
	Nindabillup Road	Public Roads	12/03/2005	100
	Ravensthorpe Range	UCL	12/03/2005	151
	Bandalup Hill	Mining lease	2/06/2005	100
	Dempster Road	UCL	5/06/2005	0
	Bandalup Hill	Mining lease	5/06/2005	0
	Condingup	Public Roads	22/09/2005	40
Total:				29028+ (+100 seedlings)



References:

Halford, D.A. & Henderson, R.J.F. (2003). Studies in Euphorbiaceae A.L.Juss. sens. Lat. 5, a revision of *Pseudanthus* Sieber ex Spreng. and *Stachystemon* Planch. (Oldfieldioideae Kohler & Webster, Caletieae Mull. Arg.). *Austrobaileya* 6(3): 497-532.

Note: David Halford has reviewed this description (2009).

Synaphea platyphylla A.S.George

Family: PROTEACEAE

Other names: None.

Conservation status: Priority Three under DEC Conservation Codes for Western Australian Flora.

Flowering time: Recorded as flowering in September and October.

Information date: 15/1/2010



Photo: S. Kern

Taxonomy:

Description. A small *shrub* to 60 cm high. It has a woody rootstock with numerous *stems* that are concealed for the most part by overlapping, sheathing leaf bases. The stems are branched, with a sparse to medium density of hairs. The leaf stalk is up to 10 cm long. The *leaves* have a narrow or broad blade which extends to 12–25 cm long, is flat and hairless, narrowly obovate and the apex is obtuse to rounded. The blade can be undivided and up to 2 cm wide, or a mixture of undivided and 2- or 3-lobed and up to 6 cm wide. The blade has distinctive fine, shallow reticulations containing stomata inside small pits. The *inflorescence* is a spike to 10 cm long with numerous, widely spaced, solitary, yellow flowers with subtending bracts; the basal stem (peduncle) of the spike extends to 30 cm long and is branched into flowering spikes. *Flowers* have a hairless perianth (calyx and corolla) tube, that opens widely in the upper 1/3 to 1/2, with 4 lobes (tepals); the upper tepal being the longest and broadest, to 6.4 mm long and 2.6 mm wide, and hooded; the lateral 2 tepals are sickle-shaped; the lower tepal is smallest, to 4.2 mm long and 1.4 mm wide. The *stamens* are on broad filaments attached to each tepal; they are partially sterile with 1 fully-fertile (2-locular) anther on the lower tepal, 1 half-fertile (1-locular) anther on each lateral tepal and 1 fully-sterile anther on the upper tepal; locules of the fertile anthers are coherent across the adjacent tepals prior to explosive pollen release. The stalkless *ovary* has 1 locule with 2 ovules, and has spreading, dense, white hairs outside, with an apical ring of enlarged, translucent, flattened hairs. The *stigma* is distinctly bilobed and attached from its base to the sterile filament on the upper tepal by a narrow

column. The *fruit* is an obovoid nut, 3.5–6.5 mm long, with a distinctive terminal beak, 0.5–1.2 mm long, and with spreading hairs.

Distinctive features. *Synaphea platyphylla* is similar to *Synaphea petiolaris* R.Br. in leaf, flower and stigma morphology. Young leaves and the upper part of the flowering spikes (rachis, bracts, flowers and buds) tend to blacken on dried specimens of both of these species. *Synaphea platyphylla* can be distinguished by its shorter inflorescences (usually equal in length to the leaves or only shortly exceeding leaves), by its leaves having finer, shallower, reticulating veins, with the stomata sunken into small pits within these, and by its fruits having a short neck at the base and a prominent, acute beak at the apex.

Some narrow-leaved, small-flowered specimens from south of Wickepin were regarded as a potentially new taxon by George (1995), but continued taxonomic work in *Synaphea* has resulted in those collections being included within *S. platyphylla*. Specimens from the Ravensthorpe area have not been found to differ significantly from Wickepin area specimens (R. Butcher pers. comm).

Species name. From the Greek words *platy* (broad) and *phyllus* (leaf). Note that leaf width is now known to vary from very narrow to broad between populations.

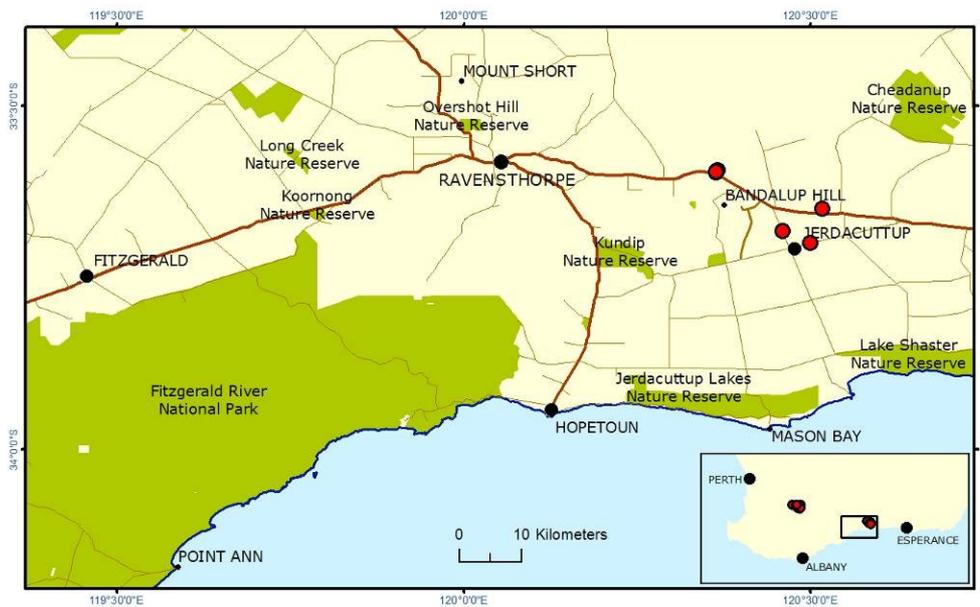
Distribution. *Synaphea platyphylla* has a disjunct distribution, occurring in both the Wickepin and Ravensthorpe areas.

Habitat Requirements:

- Soils:** Typically in sandy soil, often containing gravel.
- Landforms:** Flat or undulating terrain.
- Vegetation:** It grows in heathland, scrub or rarely mallee woodland.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
01	Dongolocking NR	Nature Reserve	11/09/1998	
02	Toolibin	Road Reserve	25/10/2000	28
03a	Toolibin	Railway Reserve	20/09/1996	'uncommon'
03b	Toolibin	Railway Reserve	2/11/1994	'locally frequent'
04	Harrismith	Railway Reserve	3/11/1994	'locally frequent'
	Jerdacuttup	Private Property	10/09/1971	
	Wickepin	Private Property	8/10/1977	
	Dongolocking	Private Property	3/10/1984	
	Dongolocking	Public Roads	25/09/1985	
	Dongolocking NR	Nature Reserve	14/10/1994	
	Bandalup Hill	Mining lease	5/06/2003	
	Bandalup Hill	Mining lease	8/10/2003	
	Toolibin		18/09/2003	
	Fence Road	Public Roads	21/09/2006	4
	Jerdacuttup	Public Roads	13/09/2008	1
Total:				33



References:

George, A.S. (1995). *Synaphea*. In *Flora of Australia*, Volume 16: 493 (AGPS, Canberra).

Note: Ryonen Butcher has reviewed this description (2009).

Tetratheca applanata R.Butcher

Family: ELAEOCARPACEAE

Other names: None.

Conservation status: Priority One under DEC Conservation Codes for Western Australian Flora.

Flowering time: Early August to September.

Information date: 23/06/2008



Photo: S. Kern

Taxonomy:

Description. A slender, lax to domed *sub-shrub* to 35 cm high, with several, few-branched stems that arise from the base. The *stems* are round in cross section and finely striped, with minute, acute, wart-like outgrowths, and often with scattered glandular hairs or remnant hair bases. The young stems are red and the mature stems green with silvery-grey acute apices where the stem apex has died off. The shortly stalked or stalkless *leaves* are alternate and fall off early; are to 1.9 mm long and 0.7 mm wide, oblong to elliptic, gently concave on the upper surface, and with flat margins that are slightly toothed and have sparse glandular hairs. The leaf apex is acute to obtuse, and both surfaces are hairless or with scattered glandular hairs. The *flowers* are solitary in the axils of leaves, with paired, hairy *bracts*. The *flower stalks* are to 8.5 mm long, longitudinally ridged and twisted towards the apex. The flower has 4 or 5 *calyx* segments that are pale green infused with pink to pink-red, fall off early and are to 2.1 mm long. They are narrowly to broadly ovate with an acute to obtuse apex. Externally the segments have a few simple hairs near the basal receptacle and very few, large, red, recurved glandular hairs. Internally they have short woolly hairs towards the margins, and straight to wavy hairs along the midline. The 4 or 5, pink *petals* fall early, are spoon shaped to narrowly obovate, to 5.6 mm long, and the apex is obtuse. The 8 or 10 red *stamens* are to 3.2 mm long, and are shortly fused into pairs at their base. They are narrow and tubular at the apex, expanding into a broad body which tapers into a flattened base; the pollen is released via apical pores. The *filament* is fused to its neighbour along the lowest half. The *ovary* has 2 locules with

one ovule in each, and dense hairs outside, that are intermixed with dense, red, glandular hairs. The *style* is c. 2 mm long, orange-pink at the base, yellow at the apex, and shortly hairy in the lower 1/3, with the stigma shortly tufted. *Fruit* and *seed* not seen.

Distinctive features. *Tetratheca applanata* is most similar to *Tetratheca nuda* Lindl. (Darling Scarp: North Dandalup–Avon Valley National Park) and *Tetratheca sparteae* (Benth.) R.Butcher (Toodyay area) as all three species have slender, leafless stems and glandular hairs on the mostly hairless flower stalk, receptacle and calyx segments. Like *T. applanata*, *T. nuda* has a mixture of simple and glandular hairs on the ovary, but has a shorter anther tube (0.3–0.5 mm long, compared to 0.6–1 mm long in *T. applanata*), while *T. sparteae* has only glandular hairs on the ovary and a longer anther tube (1.3–1.6 mm long). *Tetratheca applanata* can be distinguished from both *T. nuda* and *T. sparteae* by its stamens, which have the anther body flattened in the lower half and merging into the elongate, flattened filament. The stamens of *T. applanata* are most similar to those of *Tetratheca paucifolia* Joy Thomps. (Beverley–Mt Lesueur), but this species has acute projections on the anther body and longer (1.2–1.4 mm long), bright yellow to dull red-purple anther tubes (compared with smooth body and red anther tubes in *T. applanata*). *Tetratheca paucifolia* can be distinguished by its short flower stalks (1.8–3.7 mm long) which have a dense covering of short, stiff hairs and glandular hairs, with these hairs also found on the receptacle and calyx segments. The glandular hairs of *T. paucifolia* often have short, lateral hairs projecting from them, especially towards the base.

In the broader Ravensthorpe area, *Tetratheca applanata* is most similar to the Declared Rare *Tetratheca aphylla* F.Muell. subsp. *megacarpa* R.Butcher, as both these species are leafless and have acute projections on the stem. Like *T. paucifolia*, *T. aphylla* subsp. *megacarpa* can be distinguished from *T. applanata* by its short (1.5–4.8 mm long), thick flower stalks and the presence of dense, short, stiff hairs and glandular hairs on the flower stalk, receptacle and calyx segments. The stems of *T. aphylla* subsp. *megacarpa* are thicker (1.2–2 mm broad in the flowering region) than those of *T. applanata* and the projections are finer and sharper. The stamens are longer (3.1–5.4 mm long), the anther body is not flattened in the lower half and the filament is short and thick.

Species name. The epithet refers to the anthers, in which the base of the anther body and the filament are distinctly elongate and flattened (Latin *applanata* = ‘horizontally flattened’).

Distribution. *Tetratheca applanata* is known only from four disjunct locations in Western Australia: from near Dardadine, from east of Broomehill and from two populations east and north of Ravensthorpe.

Habitat Requirements:

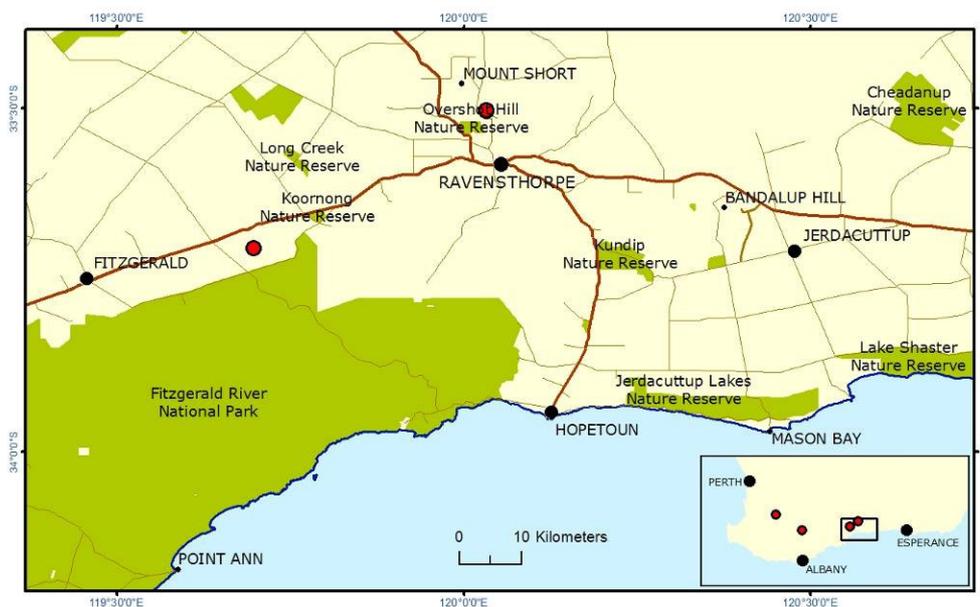
Soils: Sand, brown gravelly clay and sandy loams with lateritic and stony fragments at the surface.

Landforms: Hillcrests and undulating sandplains.

Vegetation: Mallee shrublands.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
01	Dardadine	Private Property	09/08/1997	
02	Ravensthorpe Range	UCL	07/10/2007	20
	Broomehill	Unknown	17/08/1971	
	West River	Unknown	17/08/1977	1
Total:				21



References:

Butcher, R. (2007). New taxa of leafless *Tetratheca* (Elaeocarpaceae, formerly Tremandraceae) from Western Australia. *Australian Systematic Botany* 20: 139–160.

Note: Ryonen Butcher has reviewed this description (2009).

Thysanotus parviflorus N.H.Brittan

Family: ASPARAGACEAE

Other names: None.

Conservation status: Priority Four under DEC Conservation Codes for Western Australian Flora.

Flowering time: October to November.

Information date: 15/1/2010



Photo: S. Kern

Taxonomy:

Description. Perennial *herbs* to 25 cm high, with a small rootstock that is surrounded by bracts and by the bases of leaves and stems of the previous years growth. The *roots* are fleshy and 1.5–2 mm wide. Tubers have not been observed and thought to be absent. There are 1 or 2 annual *leaves* usually present at flowering time. They are narrowly linear, round in cross section, 10–25 cm long, and hairless with membranous bases. The *inflorescence* is usually 1 per plant, with a hairless flowering scape that is 14–25 cm tall, round in cross section, with 1–4 branches, each subtended by a large triangular bract 4–6 mm long. Each branch has a pair of flowering stalks *c.* 2.9 cm long, each with a terminal umbel (the flower stalks are all one length and arise from the top of the inflorescence stalk) of 4–6 crowded, pale purple flowers; occasionally the lower umbel is stalkless. Each umbel is enclosed by a \pm broadly ovate-circular *bract* with narrow membranous margins, and *inner bracts* that are narrowly ovate, membranous, and with distinct purplish veins. The *flower* stalks are erect in flower, and nodding in fruit, and separate at maturity at an articulation towards the base. There are 6 free, pale purple *perianth segments*. The 3 outer segments (sepals) are to 7 mm long and 1.5 mm wide, linear with narrow membranous margins, and a point on the apex; the 3 inner segments (petals) are broadly-elliptic to circular, and 5–6 mm wide with a 2 mm long fringe. The 6 *stamens* are in 2 whorls, and have short filaments and purple *anthers*. The 3 inner anthers are 2 mm long and shorter than the

outer 3; all have terminal pores. The *ovary* is stalkless, with 3 locules and 2 ovules per locule. The *style* is to 3 mm long and hairless. The *capsule* is cylindrical, c. 4 mm long and 2 mm wide, and enclosed within the persistent perianth. The black *seeds* are up to 6 per capsule, and have a yellow, stalked aril.

Distinctive features. *Thysanotus parviflorus* is closest to *Thysanotus cymosus* Brittan as both have less than 8 hairless leaves, nodding fruit capsules and paniculate or cymose inflorescences rather than single flowers. *Thysanotus parviflorus* differs in having perianth segments 7 mm rather than 9–10 mm long, umbels in pairs rather than single, shorter anthers, and uniformly thickened roots (lacking distinct tubers).

Species name. From the Latin words *parvi* (small) and *florus* (flowers), referring to small flowered inflorescence.

Distribution. Occurs in southern coastal Western Australia from Cape le Grande to the Stirling Range, including Fitzgerald River National Park.

Habitat Requirements:

Soils: In sand or sandy loam.

Landforms: Known from a variety of landform types including near lakes/swamps, sandplains and hillslopes.

Vegetation: Typically occurs in mallee shrublands.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	West Mt Barren	National Park	28/10/1965	
	Stirling Range	National Park	15/10/1974	
	Cape le Grand	National Park	19/11/1979	
	Cape le Grand	National Park	19/11/1979	
	Stirling Range	National Park	19/11/1979	
	Brookton	Other	21/10/1983	'occasional'
	Mt Burdett	Nature Reserve	1/10/1984	
	Annie Peak	National Park	1/11/1986	
	Kundip	Other	27/10/1987	
	Cranbrook	Other	21/10/1997	'very few'
	Bandalup Hill	Rd Verge MRD	29/10/1997	
	Bandalup Hill	Mining Lease	05/11/2001	2
	Munglinup	Private Property	29/11/2001	3
	Nindibillup Rd	Rd Verge Shire	06/11/2004	'uncommon'
	Eyre Range	Fitzgerald Range NP	01/11/1986	
	Mt Short	UCL	4/10/2007	'isolated plants'
Total:				5



References:

Brittan, N.H. (1972). New Western Australian species of *Thysanotus* R.Br. (Liliaceae)-2. *Journal of the Royal Society of Western Australia* 54: 76-93.

Brittan, N.H. (1987). *Thysanotus*. In *Flora of Australia*, Volume 45: 309–339 (AGPS: Canberra).

Verticordia vicinella A.S.George

Family: MYRTACEAE

Other names: None.

Conservation status: Removed from DEC priority list in 2010.

Flowering time: January to May.

Information date: 15/1/2010



Photo: S. Kern

Taxonomy:

Description. This *shrub* reaches 1.2 m high and 30 cm wide. The linear to narrowly obovate, yellow-green *leaves* are oppositely arranged, 2.5–4 mm long and *c.* 0.7 mm wide. The upper surface of the leaf is flat and it is rounded below. The leaf apex is obtuse with a short, abrupt, terminal point. The small pink, dark pink or rarely light yellow or white *flowers* are scented, single, almost without stalks and crowded together in a rounded corymb (the stalks of the lower flowers are longer than those above, bringing all flowers to about the same level). The *bracteoles* persist. The *floral tube* is 5-ribbed, hairy, *c.* 0.8 mm long and without reflexed green appendages. There are 5 overlapping *sepals* to 2.5 mm long that are deeply divided into 3 or 4 feather-like, fringed segments. The 5 overlapping *petals* are also fringed, shortly hairy outside, ovate, without auricles (extra ear-like lobes) and up to 1.2 mm long. The 10 glandular *staminodes* (sterile anthers) are clearly evident and are as long as or exceeding the 10 fertile *stamens*. The *ovary* has 1 locule with 2 ovules, and the style is straight, 4.3–5 mm long, and with an extensive beard of simple, glandular hairs along the apical third. The 1- or 2-seeded *fruit* is dry and nut-like, indehiscent and enclosed within the persistent faded flower.

Distinctive features. While closely related to *Verticordia minutiflora* F.Muell., *V. vicinella* differs in having flowers that are usually darker pink to almost purple (more rarely pale yellowish) rather than white to very pale pink. The sepals differ in having more slender divisions, and the petals have short fine hairs on the outside rather than being hairless. The stamens are larger, and so are the staminodes, which have glandular hairs rather than being minutely hairy or with no hairs. It also has a longer

style that has a beard that extends for a longer distance. *Verticordia fastigiata* Turcz. has more open groups of darker yellow to dark red flowers and bracteoles that fall off early rather than persisting.

Species name. Derived from the Latin word *vicinus* (neighbouring) referring to the close relationship with *Verticordia minutiflora*.

Distribution. *Verticordia vicinella* occurs mainly from Esperance to Mt Ragged near Israelite Bay and around the Hopetoun area.

Habitat Requirements:

Soils: It mainly grows in white to grey sand, (rarely clay loam) or lateritic gravel close to ironstone outcrops. Sometimes recorded in damp areas.

Landforms: Typically known from sandplain areas.

Vegetation: Present in heath with other species of *Verticordia*, and emergent banksias or mallees.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Abundance
	E of Ravensthorpe		1/03/1957	
	Cape Arid NP	National Park	19/09/1976	
	Wharton	Other reserve	20/01/1980	
	Fence Road	Private Property	24/04/1980	
	Cape Arid NP	National Park	20/03/1981	
	Gibson	Private Property	2/10/1981	
	Mount Beaumont	UCL	2/01/1983	
	Mount Merivale	Private Property	3/05/1983	
	Esperance	UCL	1/03/1988	
	Esperance	Public Roads	1/03/1988	
	Esperance	Public Roads	13/04/1988	
	Esperance	Public Roads	25/09/1988	
	Lake Shaster	Private Property	6/06/1999	5
	Condingup	Public Roads	11/04/2002	'occasional'
	Hopetoun	Public Roads	13/04/2003	1
	Mason Bay Road	Public Roads	3/12/2004	
	SE Ravensthorpe	Public Roads	7/03/2005	200+
	Dempster Road	Public Roads	8/03/2005	
	Mount Baring	UCL	9/03/2005	
	Fisheries Road	Public Roads	9/03/2005	1500+
	Fisheries Road	Public Roads	10/03/2005	
	Hopetoun	Other reserve	13/05/2005	'common'
	Mason Bay Road	Public Roads	12/08/2005	
	Mason Bay Road	Public Roads	13/08/2005	
	Mason Bay Road	Public Roads	14/08/2005	
	Mason Bay Road	Public Roads	15/08/2005	
	Jerdacuttup Lakes NR	Nature Reserve	19/09/2005	
	Lake Shaster	Private Property	15/04/2006	'common'
	Hopetoun	Private Property	19/04/2006	'common'
	Hopetoun	Private Property	14/07/2007	'frequent'
	Hopetoun	Private Property	5/11/2008	2
	Mason Bay Road	Public Roads	unknown	
	Mason Bay Road	Public Roads	unknown	
Total:				1708+



References:

George, A.S. (1991). New taxa, combinations and typifications in *Verticordia* (Myrtaceae: Chamelaucieae). *Nuytsia* 7(3): 231–394.

George, E.A. (2002). *Verticordia: the turner of hearts*. (University of Western Australia Press: Perth).