

*Report on the conservation status of 40 taxa
from the Ravensthorpe Range
Part 1*

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Banksia corvijuga

Photo: S Kern



**Department of
Environment and
Conservation**

Funded under the
Biodiversity Conservation
Initiative

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 reports provides a conservation assessment of the first 40 taxa. A subsequent report will be produced by the South Coast Region covering the additional taxa.

The work aims at not only consolidating the population details for each taxa from the different DEC databases (DEFEL, WA Herbarium, Kern *et al.* 2008) but also provide a resource to allow easier identification of these taxa. 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 most taxa.

Data provided to DEC 's Species and Communities Branch has resulted in nine additions, five changes and two deletions to the Priority Flora list for the 40 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.

Taxa reviewed:

Acacia bifaria
Acacia disticha
Acacia durabilis
Acacia laricina var. *crassifolia*
Acacia rhamphophylla
Acacia sp. Ravensthorpe Range (B.R. Maslin 5463)
Acrotriche sp. Ravensthorpe (S. Kern et al. LCH 16953)
Banksia corvijuga
Banksia foliosissima
Calothamnus sp. Kundip (A.S. George & L.G.H. Oliver ASG 17657)
Chorizema circinale
Conostylis lepidospermoides
Cryptandra craigiae
Dampiera sp. Ravensthorpe (G.F. Craig 8277)
Daviesia megacalyx
Daviesia newbeyi
Drosera grieviei
Eucalyptus desmondensis
Eucalyptus gardneri subsp. *ravensthorpensis*
Eucalyptus oleosa subsp. *corvina*
Gastrolobium rigidum
Grevillea fulgens
Grevillea patentiloba subsp. *platypoda*
Grevillea punctata
Guichenotia anota
Guichenotia apetala
Gyrostemon sessilis
Hibbertia sp. Ravensthorpe (E. Tink 335)
Hydrocotyle decipiens
Kunzea acicularis
Kunzea cincinnata
Lasiopetalum sp. Desmond (N. McQuoid 653)
Leptospermum sp. Bandalup Hill (G. Cockerton 11001)
Marianthus mollis
Melaleuca penicula
Melaleuca sp. Kundip (G.F. Craig 6020)
Melaleuca stramentosa
Micromyrtus navicularis
Pultenaea craigiana
Tetratheca applanata

Acknowledgements

Many people contributed in numerous ways in compiling the information and providing photos of the taxa covered in this report. In particular the following people are acknowledged: Maria Lee (DEC Ravensthorpe); Mike Fitzgerald, Damien Rathbone, Frederick Del Mey (DEC Esperance District); Sarah Barrett (DEC Abany Region); Russell Barrett, Ryonen Butcher, Ray Cranfield, Mike Hislop, Barbara Rye, Kevin Thiele, Juliet Wege, Paul Wilson (DEC WA Herbarium); Melanie Smith (DEC Species & Communities Branch); Neil Gibson (DEC Science Division); Gill Craig (Ravensthorpe); Matthew Inman, Travis Inman (BHP); Geoff Cockerton (Western Botanical); and Nathan McQuoid. The project was funded through DEC's Biodiversity Conservation Initiative.

Acacia bifaria Maslin

Family: FABACEAE

Common Name: 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 to 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* (leaflike stalks) 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 *A. 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. From the Latin *bi-* (two) and *-farius* (-ranked), referring to the phyllodes being in two ranks on opposite sides of the branchlet apex.

Distribution. Ravensthorpe and Fitzgerald River. Known from the Ravensthorpe Range to just east of Jerramungup.

Habitat Requirements:

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

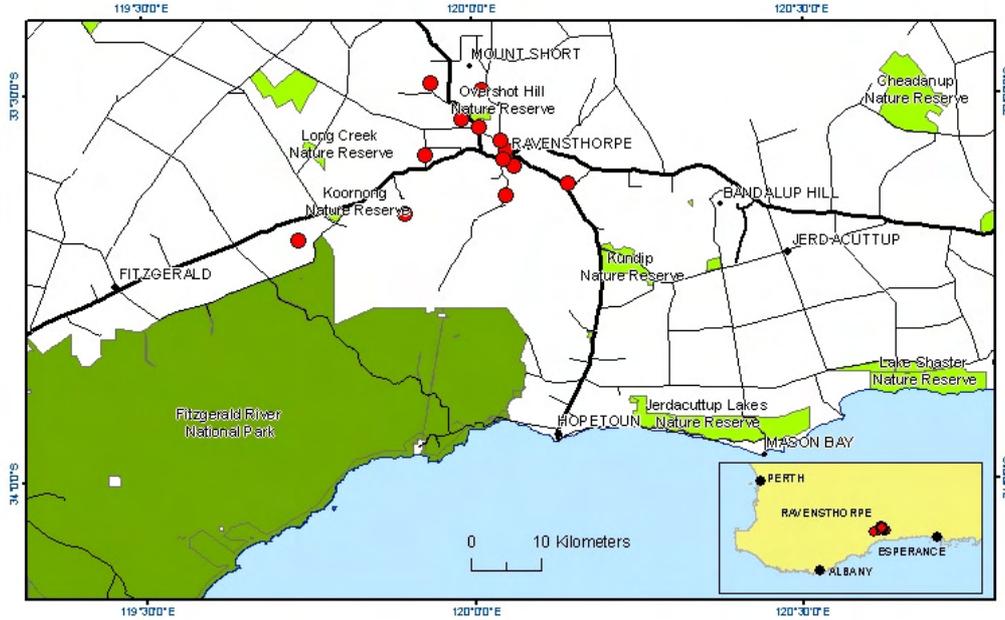
Landforms: The species is frequently found on the lower and mid-slopes of hills or in gently undulating terrain.

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	Mature	Seedlings	Condition
	Overshot Hill	Other Reserve	01/11/2008			Unknown
	Mt Short	UCL	18/11/2007	“isolated”		Unknown
	Elverdton Rd/ Mt Desmond	Other Reserve	15/11/2005	“frequent”		Unknown
	Ravensthorpe	Private Property	22/09/2004	“occasional”		Unknown
	Ravensthorpe	Shire Rd Verge	10/10/2001	“common”		Unknown
	Ravensthorpe	Other Reserve	12/08/2001	“occasional”		Unknown
	Ravensthorpe	Private Property	14/09/2000	“very common”		Unknown
	Ravensthorpe	Shire Rd Verge	19/08/1995	“occasional”		Unknown
	Ravensthorpe	Shire Rd Verge	30/08/1980			Unknown
	Moir Rd Ravensthorpe	Shire Rd Verge	10/01/1979	“common”		Unknown
	Newdegate- Ravensthorpe Rd	MRD Rd Verge	14/10/1976			Unknown
	Ravensthorpe		15/12/1974			Unknown
	Ravensthorpe		21/12/1971			Unknown
	Hopetoun- Ravensthorpe Rd	Shire Rd Verge	20/12/1971	“common”		Unknown

	Floater Rd Ravensthorpe	Shire Rd Verge	18/11/1971	"common"		Unknown
	Unknown	Other	13/09/1971			Unknown
	Unknown	Other	12/09/1964			Unknown
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

Common name: None

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

Flowering period: 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* (leaf-like branches) 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 *A. 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 *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. Thumb Peak, Middle Mt Barren, Corackerup Creek and the Ravensthorpe Range. Restricted to the Fitzgerald River National Park and the Ravensthorpe Range.

Habitat Requirements:

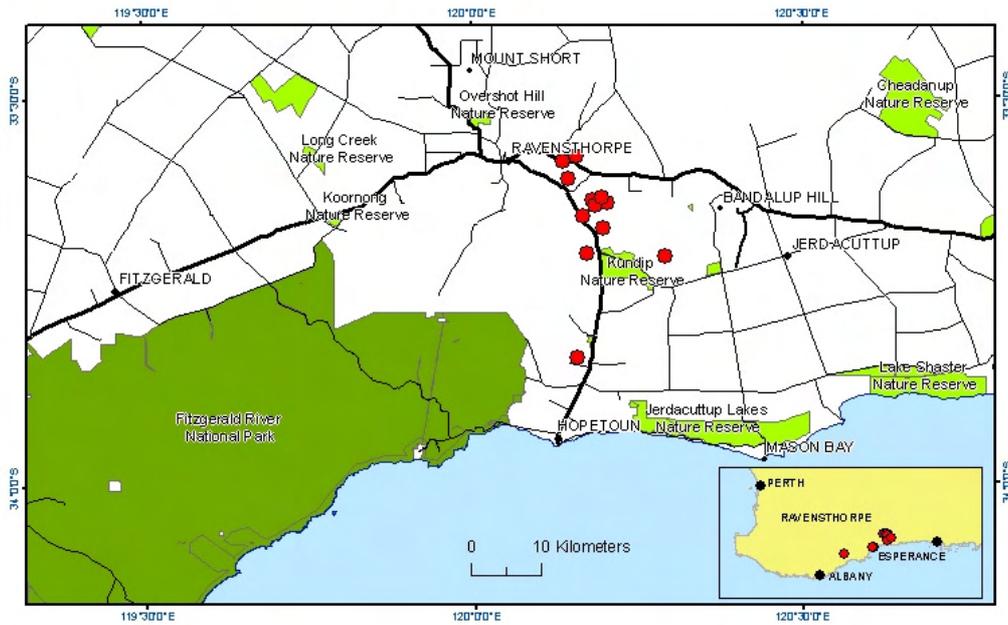
Soils: Red-brown sandy loams and loamy clays, usually with rock fragments at the surface.

Landforms: Recorded frequently from drainage lines, slopes and hill crests in hilly terrain.

Vegetation: Tall mallee usually with mid to high shrubland strata, frequently over *Lepidosperma* sedges.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Mature	Seedlings	Condition
	Mt Desmond	Other Reserve	09/11/2006	1000		Unknown
	Ravensthorpe	UCL	16/11/2004	10		Unknown
	Mt Desmond	Other Reserve	06/02/2004	10		Unknown
	Mt Desmond	Other Reserve	07/09/2007			Unknown
	Mt Desmond	Other Reserve	18/04/2007			Unknown
	Ravensthorpe	UCL	21/04/2007			Unknown
	Ravensthorpe	UCL	26/05/2007			Unknown
	Mt Desmond	Other Reserve	10/10/2007			Unknown
	Hopetoun- Ravensthorpe Rd	Shire Rd Verge	08/09/1992			Unknown
	Mt Desmond	Other Reserve	11/02/1997	4		Unknown
	Kundip	Other Reserve	22/11/1998			Unknown
	Kundip	Other Reserve	07/12/2003	6		Unknown
Total:				1030		



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

Common name: None

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

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* (leaflike stalks) 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 micro *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 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 *A. 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, and refers to the persistent prominent stipules.

Distribution. Ravensthorpe Range and Jerdacuttup. Mostly recorded from the Ravensthorpe Range, with single records from the Jerdacuttup River 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.

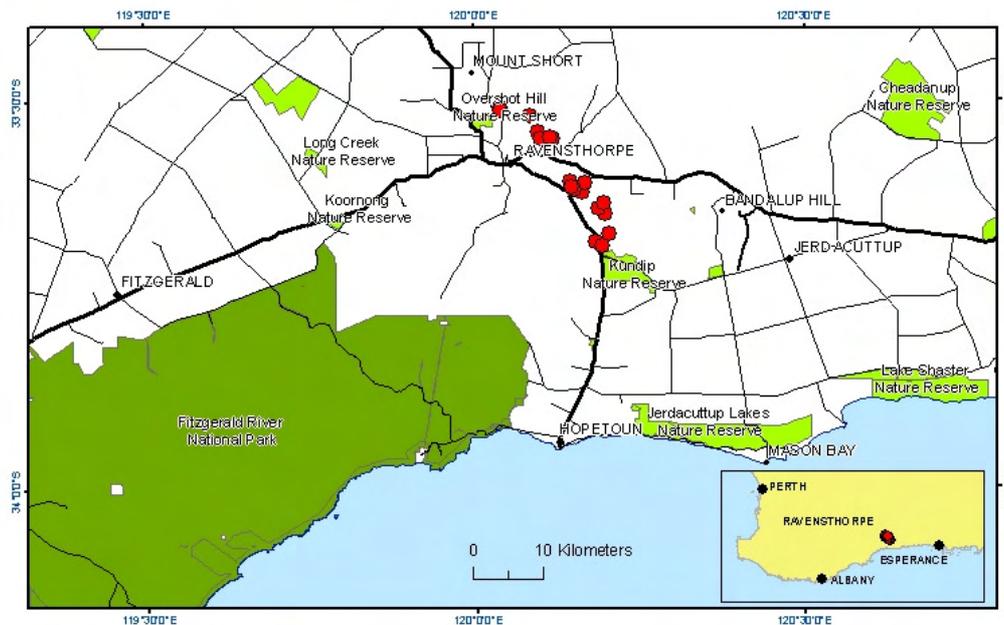
Biology:

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

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Mature	Seedlings	Condition
	Ravensthorpe	UCL	15/03/2007			Unknown
	Mt Desmond	Other Reserve	18/04/2007	“isolated plants”		Unknown
	Ravensthorpe	UCL	07/09/2007	“isolated plants”		Unknown
	Mt Desmond	Other Reserve	06/02/2004	5-10		Unknown
	Mt Desmond	Other Reserve	29/11/2005	100+ (mature + juveniles)		Unknown
	Ravensthorpe	UCL	02/10/2007			Unknown
	Ravensthorpe	UCL	02/10/2007	“isolated plants”		Unknown
	Mt Desmond	Other Reserve	09/10/1975			Unknown
	Mt Desmond	Other Reserve	21/04/1962			Unknown
	Mt Desmond	Other Reserve	15/12/1992	“scattered”		Unknown

	Mt Desmond	Other Reserve	21/09/2005	“abundant”		Unknown
	Mt Desmond	Other Reserve	08/01/1979	“rare”		Unknown
	Kundip	Water Reserve	01/09/1979			Unknown
	Elverton Rd	Shire Rd Verge	17/11/2004	“frequent”		Unknown
	Kundip	Other Reserve	11/12/2003			Unknown
	Kundip	Other Reserve	05/12/2003	1		Unknown
	Ravensthorpe	UCL	30/11/2005	>1000		Unknown
	Ravensthorpe		24/10/1998	“frequent”		Healthy
	Ravensthorpe	UCL	22/11/2008			
	Ravensthorpe	UCL	04/12/2008			Unknown
	Ravensthorpe	UCL	06/12/2008			Unknown
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 laricina Meisn. var. *crassifolia* Maslin

Family: FABACEAE

Common name: None

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

Flowering period: 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 mainly has slightly thicker main branchlets *c.* 1.5–2 mm across rather than slender main branchlets *c.* 1 mm across, and mainly has 17–21 flowers per head rather than 20–30 flowers.

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

Distribution. Restricted to the Ravensthorpe Range. Mt Desmond, Mt Short, Ravensthorpe Range, Kundip, 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*) over heath.

Biology:

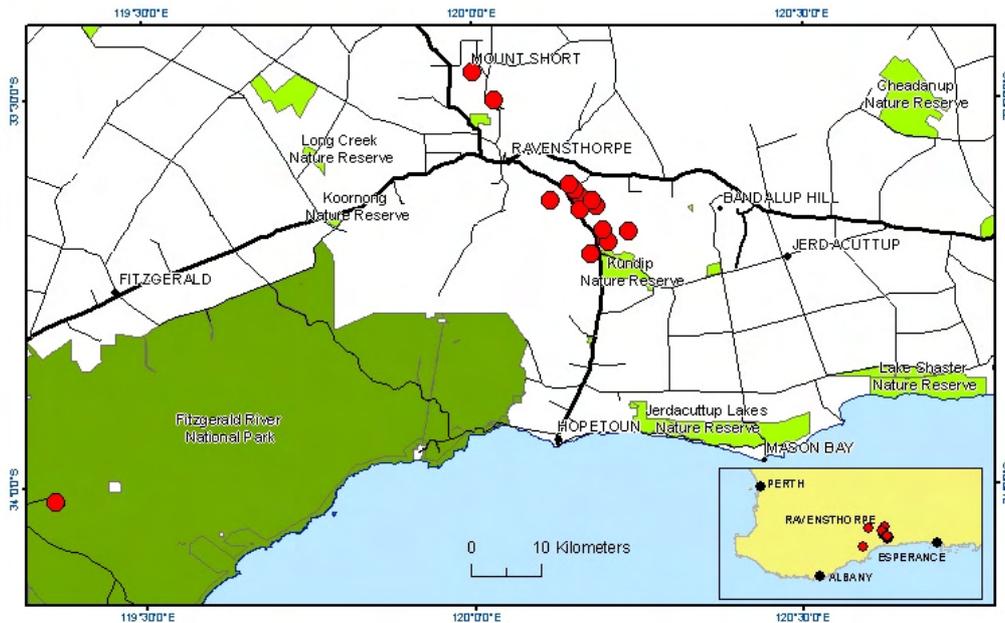
Abundance: Appears to be relatively common.

Disturbance: Appears to be a disturbance opportunist.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Mature	Seedlings	Condition
01-	Hayes Road	Shire Rd Verge	26/04/2001	100		Unknown
02-	Fitzgerald River NP	National Park	27/10/1994	“locally common”		Unknown
03-	Kundip	Other Reserve	02/09/1982			Unknown
04-	Mt Desmond	Other Reserve	09/10/1975			Unknown
05-	Mt Desmond	Other Reserve	11/02/1997	2		Unknown
06-	Mt Short	UCL	30/08/1963			Unknown
	Mt Short	UCL	06/09/2007			Unknown
	Ravensthorpe	UCL	27/09/2007			Unknown
	Mt Desmond	Other Reserve	07/09/2007			Unknown
	Mt Desmond	Other Reserve	26/04/2007			Unknown
	Mt Desmond	Other Reserve	21/09/2005	“rare”		Unknown
	Kundip	Other Reserve	21/09/2005	“rare”		Unknown
	Mt Desmond	Other Reserve	01/09/1979			Unknown
	Mt Desmond	Other Reserve	22/09/2005			Unknown

	Mt Desmond	Other Reserve	06/02/2004	20		Unknown
	Kundip	Other Reserve	08/12/2003	100		Unknown
	Kundip	Other Reserve	05/12/2003	“occasional”		Unknown
	Fitzgerald River NP	National Park	07/10/2007	30		Unknown
				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 rhamphophylla Maslin

Family:	FABACEAE
Common Name:	Kundip Wattle
Conservation Status:	Declared Rare Flora
IUCN Criteria:	Vulnerable D2
Flowering period:	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* (flattened leaf-like branches) 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 *A. laricina* Meisn. and *A. cedroides* Heward ex 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 *A. 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 *rhamphos* (a curving bill or beak) and *phyllon* (a leaf) in reference to the beaked phyllode apex.

Distribution. Endemic to the Kundip area.

Habitat Requirements:

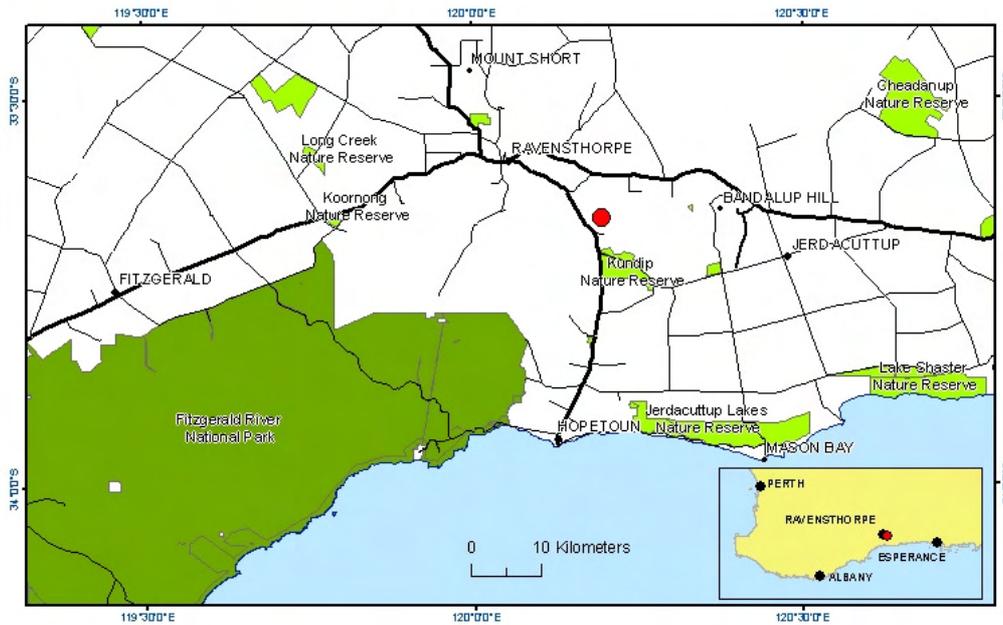
- Soils:** In well drained sandy clay, on or near the contact zone between serpentine and banded iron formations.
- Landforms:** On stony slopes overlooking a seasonal drainage line.
- Vegetation:** Open shrub mallee.
- Associated Species:** *Eucalyptus cernua*, *E. pleurocarpa*, *E. transcontinentalis*,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

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 *P. cinnamomi*. However *A. rhamphophylla*, and two closely related species, have not been tested to date (B. Shearer, personal communication).
- 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	Mature	Seedlings	Condition
01-	Kundip	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

Common name: None.

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

Flowering period: 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* (flattened leaf-like branchlets) 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 *A. 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 *A. 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:

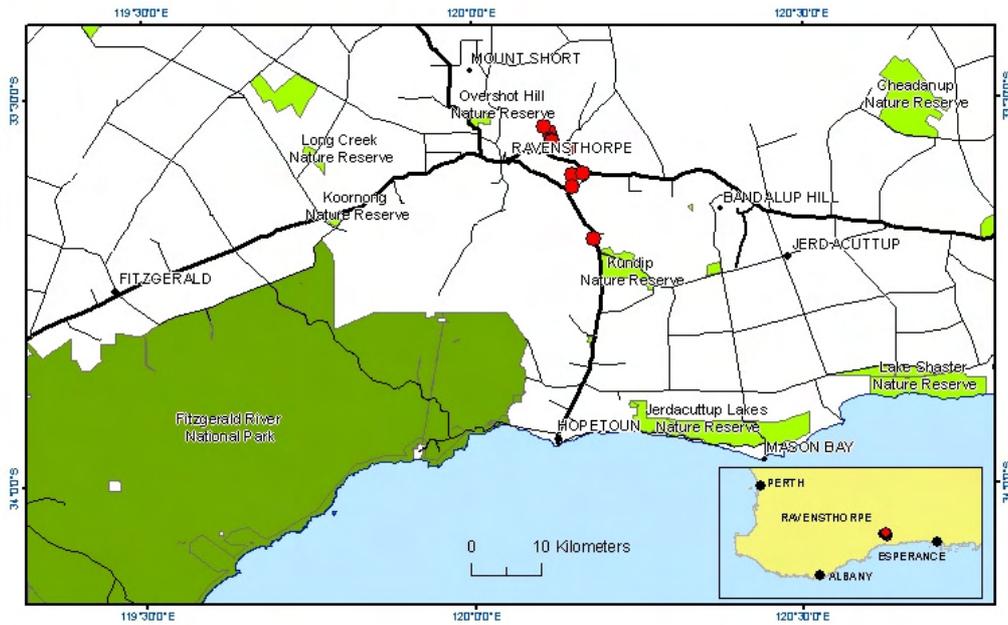
Soils: Usually recorded from rocky loam or rocky clay soils.

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	Mature	Seedlings	Condition
01-	Ravensthorpe	UCL	30/03/2007	“isolated plants”		Unknown
	Mt Desmond	Other Reserve	09/10/1975			Unknown
	Mt Desmond	Other Reserve	27/09/1983	“infrequent”		Unknown
	Elverdton Rd	Shire Rd Verge	01/09/1979			Unknown
	Kundip	Water Reserve	31/08/1980	1		Unknown
	Ravensthorpe	UCL	19/11/2008			Unknown
	Ravensthorpe	UCL	22/11/2008			Unknown
	Ravensthorpe	UCL	06/12/2008			Unknown
	Ravensthorpe	UCL	11/12/2008			Unknown
Total:				1		



References.

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

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

Acrotriche sp. Ravensthorpe (S. Kern et al. LCH 16953)

Family: EPACRIDACEAE

Common Name: None
Conservation status: Priority 1
Flowering period: August and September
Information date: 12/06/2009



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* sp. Ravensthorpe (S. Kern et al. LCH 16953) is most likely to be confused with *A. 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. sp* Ravensthorpe (S. Kern et al. LCH 16953). *Acrotriche* sp Ravensthorpe (S. Kern et al. LCH 16953). 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. Undescribed.

Distribution. Only known from Bandalup Hill.

Habitat Requirements:

NB: This species is only known from one location so the habitat descriptions below may not be representative.

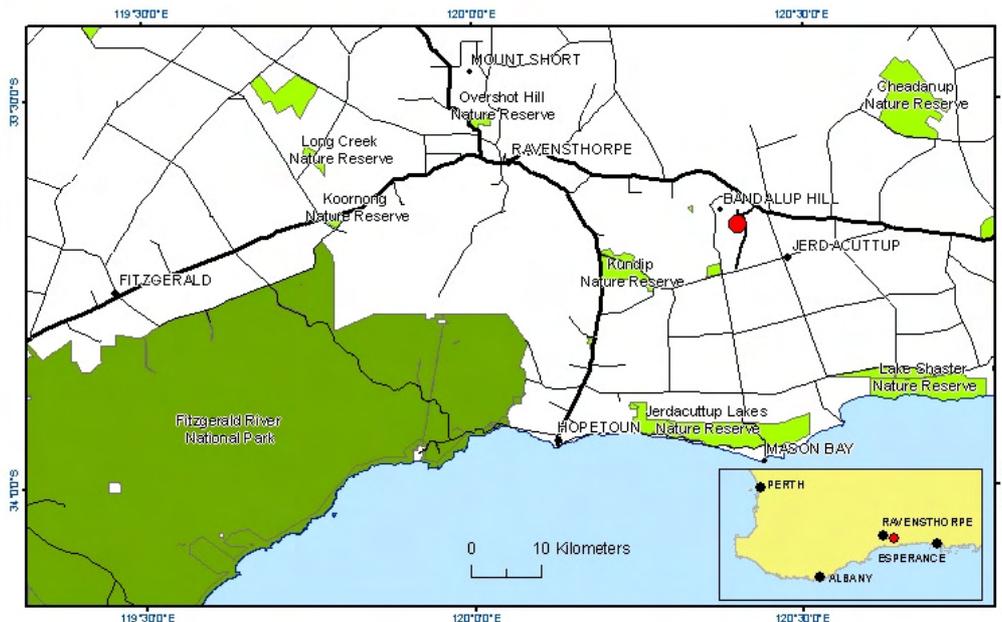
Soils: Brown loam.

Landforms: Moderately inclined mid-slope.

Vegetation: *Eucalyptus purpuraea* low woodland.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Mature	Seedlings	Condition
	Bandalup Hill	Mining lease	18/10/2008	“frequent”		
Total:						



References.

Note: Description compiled by Wilkins and reviewed by Mike Hislop (2009) who is currently working on the group.

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 One under DEC Conservation Codes for Western Australian Flora.

Flowering period: September and 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 *B. 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 *corvus* (a raven) and *jugum* (chain of mountains), in reference to the Ravensthorpe Range.

Habitat Requirements:

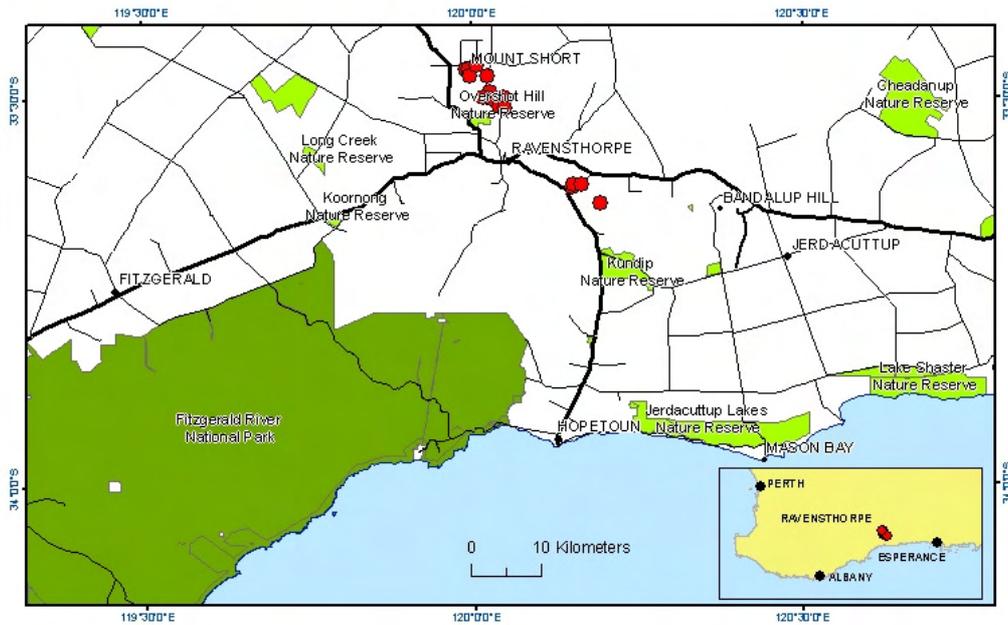
Soils: Brown clayey sands or sandy loams with lateritic fragments at the surface.

Landforms: Moderate slopes with a western aspect.

Vegetation: Usually tall open to very open mallee shrubland over shrubland strata, above open to very open sedges.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Mature	Seedlings	Condition
01-	Ravensthorpe	UCL	21/03/2000			Unknown
02a	Ravensthorpe	Other Reserve	02/12/1993	13	0	Unknown
03a	Mt Short	Other Reserve	27/10/2006			Unknown
03b	Mt Short	UCL	27/10/2006			
04-	Floater Rd	Shire Rd Verge	25/10/1987			Unknown
05-	Ravensthorpe	UCL	26/04/2001	100	0	Unknown
06-	Mt Desmond	Other Reserve	01/12/1993			Unknown
07-	Ravensthorpe	UCL	16/11/2004			Unknown
08-	Ravensthorpe	Other Reserve	15/11/2004	100	0	Unknown
09-	Mt Short	Other Reserve	06/04/2006	100	0	Unknown
	Mt Desmond	Other Reserve	09/01/1979			Unknown
	Ravensthorpe	UCL	26/09/2007			Unknown
	Ravensthorpe	UCL	11/10/2007			Unknown
	Ravensthorpe	UCL	28/05/2007			Unknown
	Ravensthorpe	UCL	12/09/2007			Unknown
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 Two under DEC Conservation Codes for Western Australian Flora.

Flowering period: 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 *B. 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.

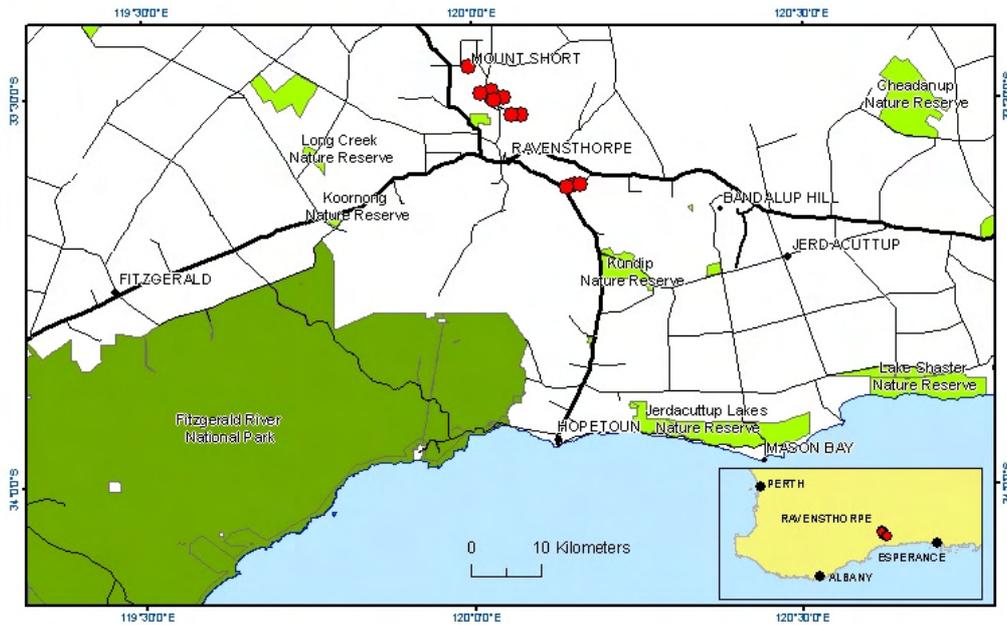
Distribution. Known from the Ravensthorpe Range, the Tarin Rock and Harrismith regions

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 to very open mallee shrubland
- Associated Species:** *Eucalyptus falcata* subsp. *falcata*.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Mature	Seedlings	Condition
01-	Ravensthorpe	VCL	26/04/2001	2000		Unknown
02-	Mt Desmond	Other Reserve	01/12/1993	100		Unknown
03-	Elverdton Rd	Other Reserve	08/09/1993	4		Unknown
04-	Dumbleyung-Lake Grace Rd	Water Reserve	19/12/1983			Unknown
05a	Tarin Rock NR	Nature Reserve	26/07/1984	60		Unknown
05b	Dumbleyung-Lake Grace Rd	MRD Rd Verge	14/06/2000			Unknown
05c	Tarin Rock NR	Nature Reserve	26/07/2002	50		Unknown
05d	Tarin Rock NR	Nature Reserve	26/07/2002	70		Unknown
05e	Tarin Rock NR	Nature Reserve	26/07/2002	50		Unknown
06a	Dumbleyung-Lake Grace Rd	MRD Rd Verge	26/07/2002	20		Unknown
06b	Tarin Rock NR	Nature Reserve	26/07/2002			Unknown
	Mt Desmond	Other Reserve	15/09/1963	4		Unknown
	Mt Short	UCL	14/03/2007			Unknown
	Ravensthorpe	UCL	17/03/2007			Unknown
	Ravensthorpe	UCL	22/03/2007			Unknown
	Mt Short	UCL	28/04/1981			Unknown
	Mt Short	UCL	12/09/2007			Unknown
	Ravensthorpe	UCL	11/10/2007			Unknown
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*, Flora of Australia Vol.17b: 251-363. ABRIS/CSIRO Melbourne, Australia.

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

***Calothamnus* sp. Kundip (A.S. George & L.G.H. Oliver ASG 17657)**

Family: MYRTACEAE

Common name: None

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

Flowering period: September to November.

Information date: 26/03/2009



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 and 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 *C. 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. Undescribed.

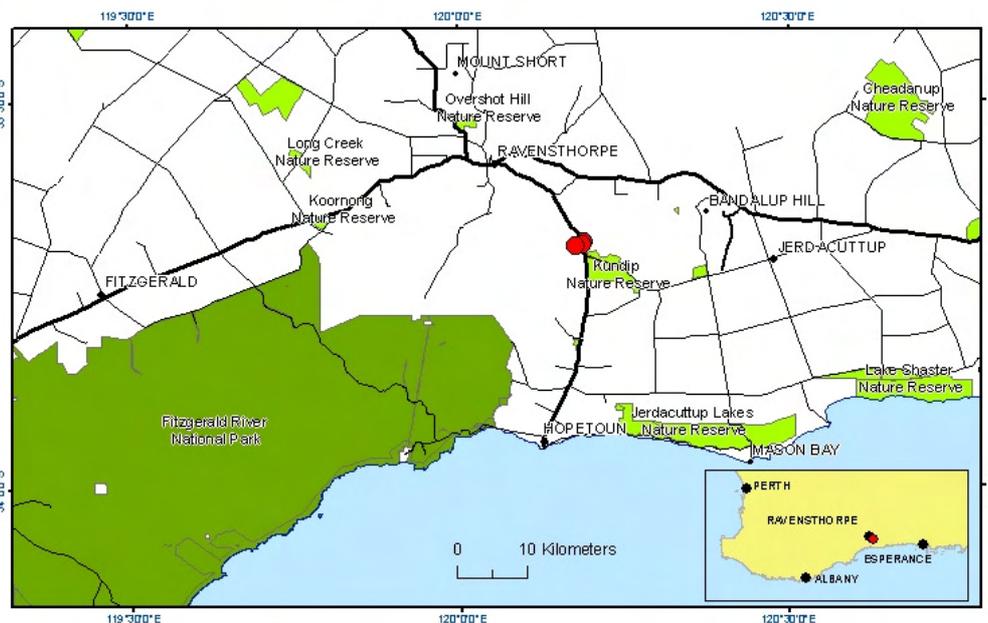
Distribution and habitat. Endemic to the Kundip area in the Ravensthorpe Range.

Habitat Requirements:

- Soils:** Occurs mostly in quartzite soil.
- Landforms:** Populations have been found on hillslopes and hillcrests.
- Vegetation:** Mallee shrublands.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Mature	Seedlings	Condition
	Kundip	Other Reserve	06/10/2007	“isolated plants”		Unknown
	Kundip	Other Reserve	06/10/2007			Unknown
	Hopetoun-Ravensthorpe Rd	Shire Rd Verge	29/09/2004	“common”		Unknown
	Kundip	Other Reserve	20/02/1985			Unknown
Total:						



Reference.

Note: Draft description provided by A.S. George who is actively working on a paper describing this species.

Chorizema circinale J.M.Taylor & Crisp

Family: FABACEAE

Other names. None.

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

Flowering period: September to December.

Information date: 23/06/2008



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 zig-zagged. 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 2 *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, and 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., *C. obtusifolium* (Sw.) J.M.Taylor & Crisp, *C. ulotropis* J.M.Taylor & Crisp and *C. 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 *circinalis* (curved or bent like a crosier) and refers to the strongly recurved or curled leaves.

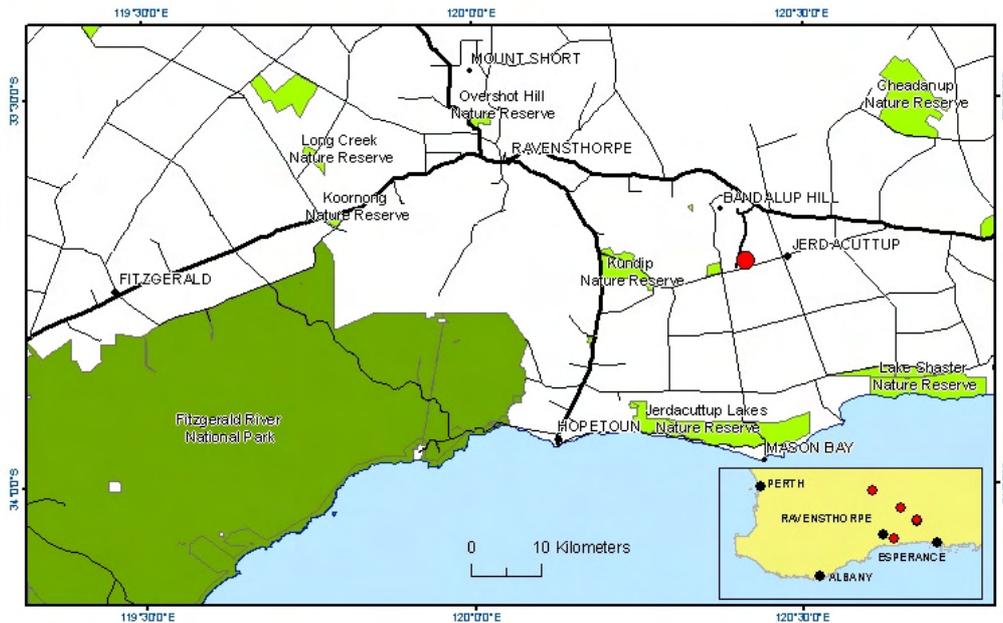
Distribution. East of Southern Cross, north west of Grasspatch, Ninety Mile Tank and the Ravensthorpe area.

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	Mature	Seedlings	Condition
01-	North Cascade	Gravel Reserve	19/09/1993	70		Unknown
02-	Jilbadji Nature Reserve	Nature Reserve	01/11/2004	200		Unknown
	Ninety Mile Tank	UCL	16/12/1979			Unknown
	Jerdacuttup		06/09/1983			Unknown
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 reviewed this species description (2009).

Conostylis lepidospermoides Hopper

Family: HAEMODORACEAE

Common name: Sedge Conostylis
Conservation Status: Declared Rare Flora
IUCN Criteria: Vulnerable D1
Flowering period: 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.

Conservation status. *Conostylis lepidospermoides* has a narrow geographical range with most known populations on road verges adjacent to cleared farmland. Gazetted as Declared Rare Flora under the Western Australian Wildlife Conservation Act 1950.

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

Distribution. Only occurs in the southern sandplains E of Ravensthorpe and N 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 tetragona*.

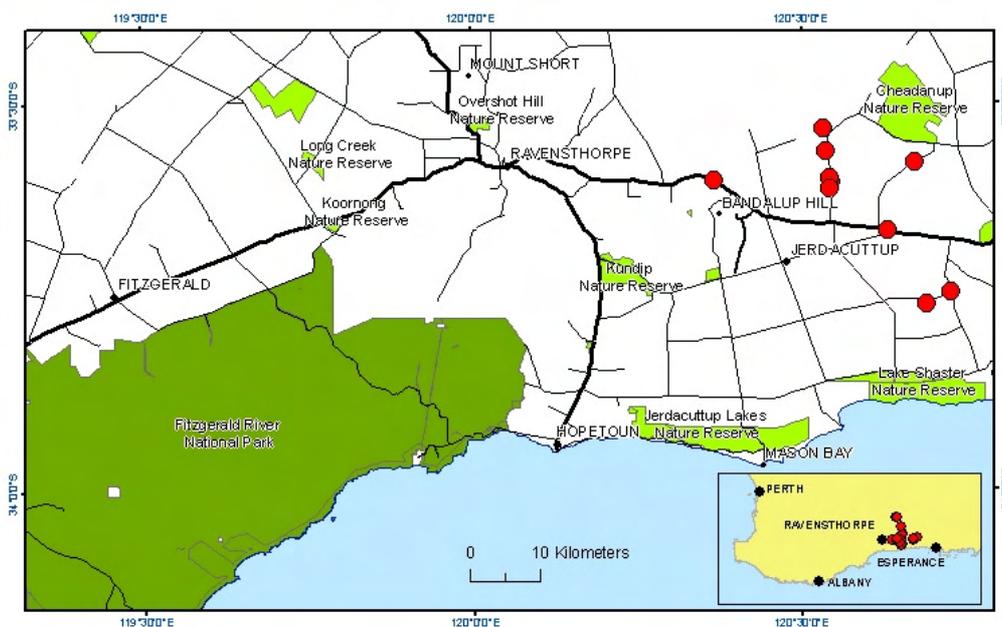
Biology:

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	Mature	Seedlings	Condition
01-	Frank Hann NP	National Park	17/10/1974			Unknown
02-	Mills Rd	Shire Rd Verge	22/09/1993			Unknown
03-	Middle Road	Shire Rd Verge	09/09/1976	1		Unknown
04a	West Point Rd	Shire Rd Verge	01/10/1979	1		Unknown
04b	West Point Rd	Shire Rd Reserve	30/08/1992	24		Unknown
05-	Frank Hann NP	National Park	27/10/1980			Unknown
06a	West Point Rd	Shire Rd Verge	11/09/1992	49		Unknown
06b	Upper Oldfield	Private Property	11/09/1992	1		Unknown
07-	Lort River	Private Property	16/10/1968			Unknown
08-	Cascade	Private Property	26/09/1968			Unknown
09-	West Point Rd	Shire Rd Verge	10/09/1992	75		Unknown
10-	Dunn Swamp	UCL	21/09/1979			Unknown
11-	Rockhole Rd	Shire Rd Verge	15/09/1992	50		Unknown
12-	South Coast Hwy	MRD Rd Verge	27/09/1968			Unknown
13-	West Point Rd	Shire Rd Verge	01/10/1983			Unknown
14-	West Point Rd	Shire Rd Verge	06/09/1983			Unknown

15-	South Coast Hwy	MRD Rd Verge	02/02/1994	3		Unknown
16-	Middle Road	Shire Rd Verge	10/09/1993	500		Poor
17-	Upper Oldfield	UCL	09/09/2002	100		Unknown
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*, Flora of Australia Vol. 45:455. AGPS, Canberra.

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

Cryptandra craigiae Rye

Family: RHAMNACEAE

Other names. *Cryptandra* sp. Hopetoun (G.F. Craig 6408)

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

Flowering period: 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 *C. craigiae* from most members of its genus. Its close relatives are unclear, but it might be closest to *C. 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 honor of Gillian Craig, a consultant botanist who discovered this species.

Distribution. This species is known from just two populations near Hopetoun c. 1 km apart.

Habitat Requirements:

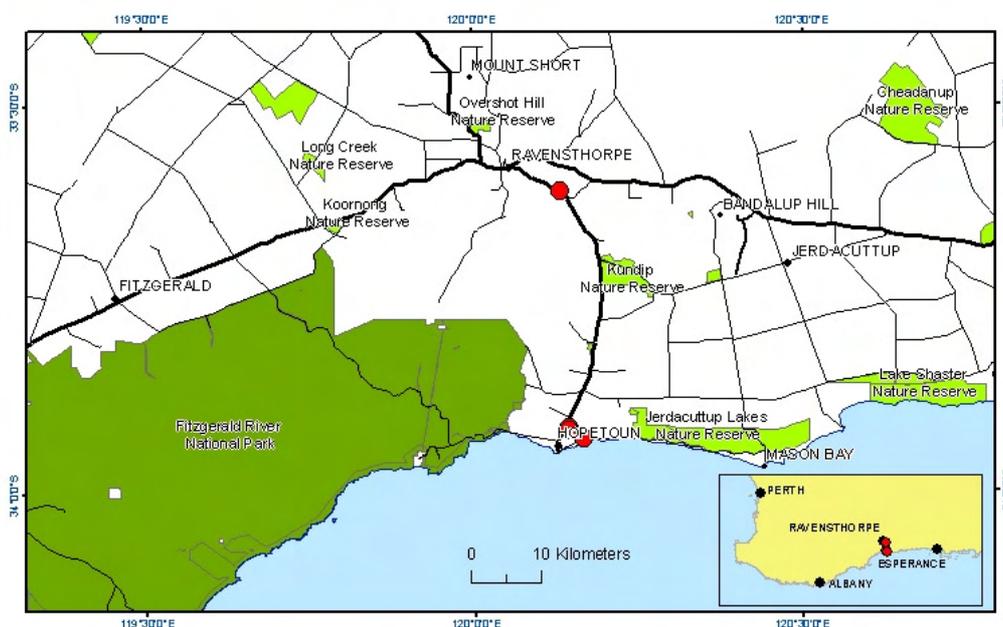
Soils: White to grey sands and orange-brown, sandy-clay loam.

Landforms: Mainly on low-lying sand dunes and on low rises between or adjacent to swampy areas. Also 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	Mature	Seedlings	Condition
01a	Hopetoun	Other Reserve	03/11/2006	50		Unknown
01b	Hopetoun	Other Reserve	13/05/2005			Unknown
02-	Hopetoun	Other Reserve	13/05/2005	“occasional”		Unknown
03-	Hopetoun- Ravensthorpe Rd	Shire Rd Verge	02/06/2005	3		Unknown
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 reviewed this species description (2009).

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

Family: GOODENIACEAE

Common name: None

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

Flowering period: 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 *D. 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 from the Ravensthorpe Range.

Habitat Requirements:

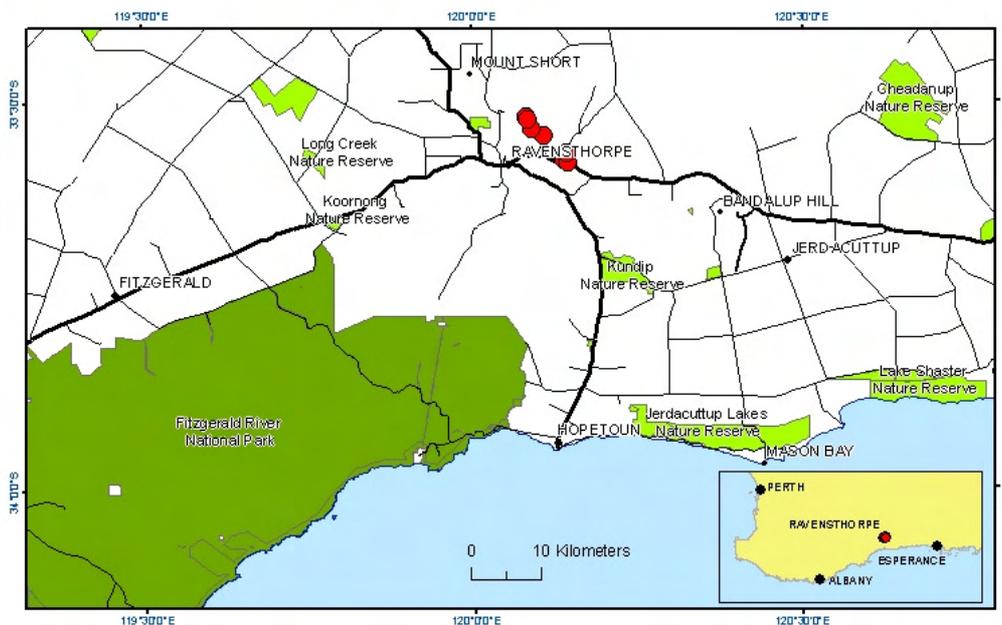
Soils: Often found around rock outcrops or in rocky soil.

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	Mature	Seedlings	Condition
	Mt McMahon	UCL	10/05/2007	1	0	Unknown
	Ravensthorpe	UCL	19/06/2007	2	0	Unknown
	Mt Benson	UCL	08/05/2007	20		Unknown
	Mt Benson	UCL	27/10/2006	20		Unknown
	Ravensthorpe	MRD Rd Verge	12/11/1973			Unknown
	Mt Benson	UCL	19/07/2007	1		Unknown
	Ravensthorpe		14/07/2007	15		Unknown
Total:				59		



References.

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

Daviesia megacalyx Crisp

Family: FABACEAE

Common Name: Large Sepalled Daviesia

Conservation Status: Declared Rare Flora

IUCN Criteria: Endangered B1+2e

Flowering period: August to September.

Information date: 20/06/2008



Photo S. Barrett

Taxonomy:

Description. Hairless *shrubs* to 1.6 m high, with erect, angular branchlets. The *phyllodes* (resemble leaves, however, the blade is reduced, and the petiole and rachis have assumed the functions of the whole leaf) are erect, leathery, green, narrowly-obovate or elliptic, 40–80 mm long and 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, and is apricot towards the margins and 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 *D. 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 *megas* (large) and *calyx* (calyx) which alludes to the enlarged and persistent fruiting calyx.

Distribution. Occurs only in 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.

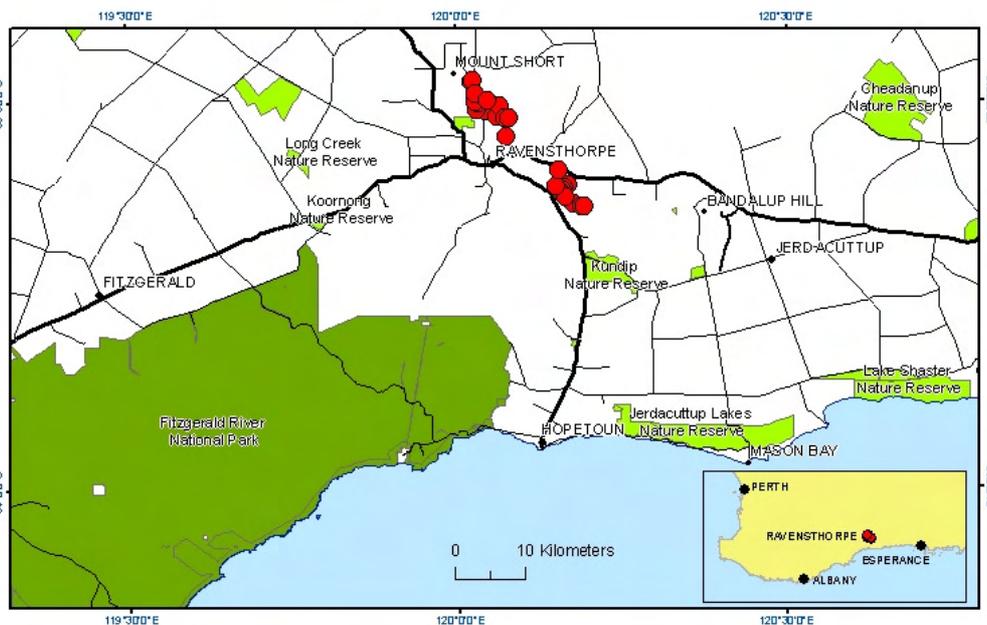
Biology:

- Disease:** The community in which *Daviesia megacalyx* occurs is considered to be susceptible to the disease. 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	Mature	Seedlings	Condition
01a	Elverdton Rd	Shire Rd Verge	17/11/2004	100	300	Healthy
01b	Mt Desmond	Other Reserve	17/11/2004			Healthy
01c	Mt Desmond	Other Reserve	17/11/2004	10	0	Healthy
01d	Mt Desmond	Other Reserve	11/09/1995			Healthy
01e	Elverdton Rd	Shire Rd Verge	17/11/2004			Unknown
01f	Mt Desmond	Other Reserve	21/09/2005	2000		Healthy
01g	Mt Desmond	Other Reserve	21/09/2005	20	0	Healthy
02a	Floater Rd	Shire Rd Verge	16/11/2004	15	0	Moderate

02b	Ravensthorpe	Water Reserve	16/11/2004	300		Healthy
03a	Ravensthorpe	UCL	16/11/2004	2000	100000	Unknown
03b	Ravensthorpe	UCL	16/11/2004	1	100	Healthy
03e	Ravensthorpe	UCL	23/01/2001	6	0	Healthy
04-	Mt Desmond	Other Reserve	15/11/2004		3000	Healthy
05-	Ravensthorpe	UCL	30/03/1995	1	0	Healthy
06-	Ravensthorpe	UCL	25/10/1987	14	0	Disturbed
07a	Mt Desmond	Other Reserve	15/11/2004	10	300	Healthy
07b	Mt Desmond	Other Reserve	26/07/2005	300		Healthy
08a	Ravensthorpe	UCL	27/05/2001			Unknown
08b	Ravensthorpe	UCL	27/04/2001			Unknown
09-	Mt Desmond	Other Reserve	26/07/2005		500	Healthy
	Mt Desmond	Other Reserve	15/02/2007			Unknown
	Ravensthorpe	UCL	22/03/2007			Unknown
	Ravensthorpe	UCL	22/03/2007			Unknown
	Ravensthorpe	UCL	06/09/2007			Unknown
	Ravensthorpe	UCL	12/09/2007			Unknown
	Mt Desmond	Other Reserve	04/10/2007			Unknown
	Ravensthorpe	UCL	11/10/2007			Unknown
			Total:	4777	104200	



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 period: 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 *phyllodes* (resemble leaves, however, the blade is reduced, and the petiole and rachis have assumed the functions of the whole leaf) 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) and 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 *D. grahamii*, 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* maybe confused with *D. pauciflora* 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.

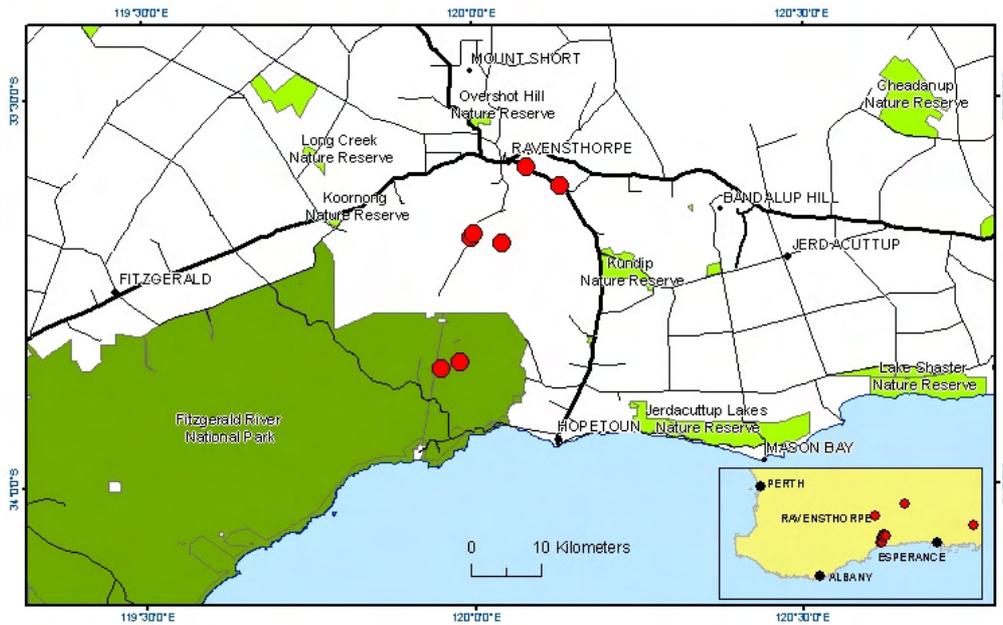
Distribution. Ravensthorpe Range, Fitzgerald River National Park and Barker Lake. Known from six localities in three widely separated regions. Three of the localities (including the type) are within a few kilometres of each other, south of Ravensthorpe. The remaining two are isolated collections from between Lake Grace and Pingaring, and south of Coolgardie.

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	Mature	Seedlings	Condition
01-	Moir Rd	Shire Rd Verge	24/11/1994	50		Unknown
02-	Fitzgerald River NP	National Park	11/01/1979			Unknown
	Ravensthorpe	UCL	18/09/1978			Unknown
	Fitzgerald River NP	National Park	30/05/1970			Unknown
	Ravensthorpe	UCL	08/09/1995			Unknown
	Parmango Rd.	Shire Rd Verge	10/08/1991	1	0	Unknown
	Hopetoun-Ravensthorpe Rd	Shire Rd Verge	15/02/2005			Unknown
	Bremer Range	UCL	16/03/2005	2	0	Unknown
	West River	Shire Rd Verge	16/10/1999			Unknown
	Hopetoun-Ravensthorpe Rd	Shire Rd Verge	02/06/2005	1	0	Unknown
Total:				54		



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: This description has been reviewed by Crisp (2009).

Drosera grieviei Lowrie & N.G.Marchant

Family: DROSERACEAE

Other name: None

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

Flowering period: 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, and 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 (turbinata) 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, and 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 *D. 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.

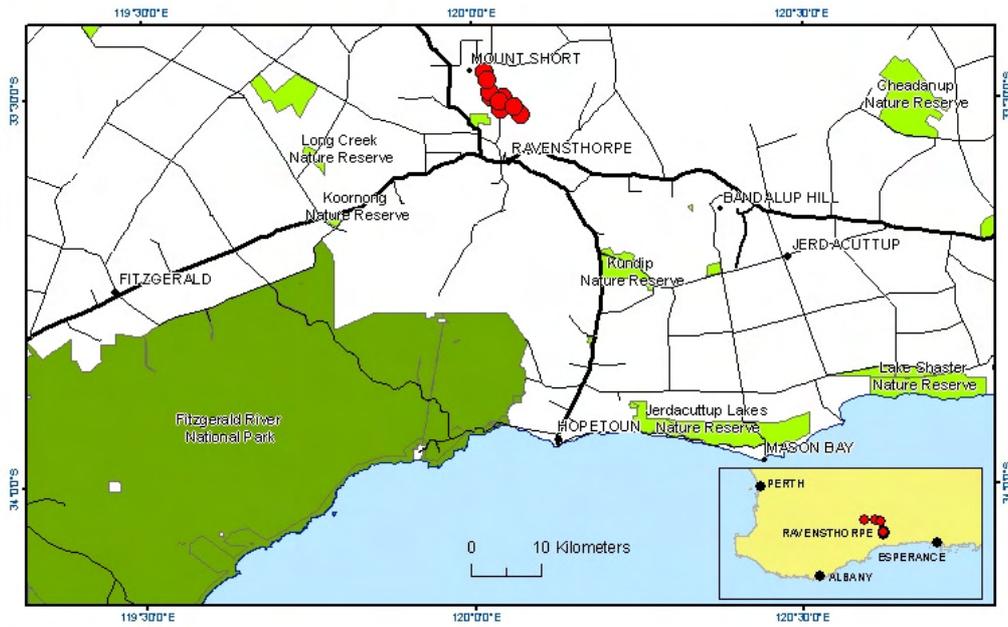
Distribution. Hyden, Lake King, Lake Grace and Ravensthorpe. A restricted distribution from E of Newdegate to E of Lake King and S to the Ravensthorpe Range.

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	Mature	Seedlings	Condition
01-	Lake King	Shire Rd Verge	17/09/1994			Unknown
02-	Lake King	Other Reserve	17/09/1994			Unknown
03-	Lake King	MRD Rd Verge	19/10/1995			Unknown
	Ravensthorpe	UCL	11/10/2007			Unknown
	Ravensthorpe	UCL	22/03/2007			Unknown
	Ravensthorpe	UCL	12/09/2007			Unknown
	Ravensthorpe	UCL	12/09/2007			Unknown
	Mt Short	Water Reserve	26/09/2007			Unknown
	Ravensthorpe	UCL	02/10/2007			Unknown
	Ravensthorpe	UCL	18/11/2008			Unknown
	Ravensthorpe	UCL	19/11/2008			Unknown
	Ravensthorpe		08/12/2008			Unknown
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), and to 1.1 cm long and 0.6 cm wide. The *operculum* (the cap formed by fusion or cohesion of calyx and corolla, that covers the stamens and carpels in the bud and becomes detached at maturity) 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, and 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 *E. sepulcralis* F.Muell. and *E. lansdowneana* J.E.Brown.

The peduncles are stout, the buds are fat and 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. *E. redunca* Schauer, *E. phaenophylla* subsp. *interjacens* Brooker & Hopper, *E. clivicola* Brooker & Hopper, *E. gardneri* subsp. *ravensthorpensis* Brooker & Hopper and *E. 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 where it is recorded on hillslopes.

Habitat Requirements:

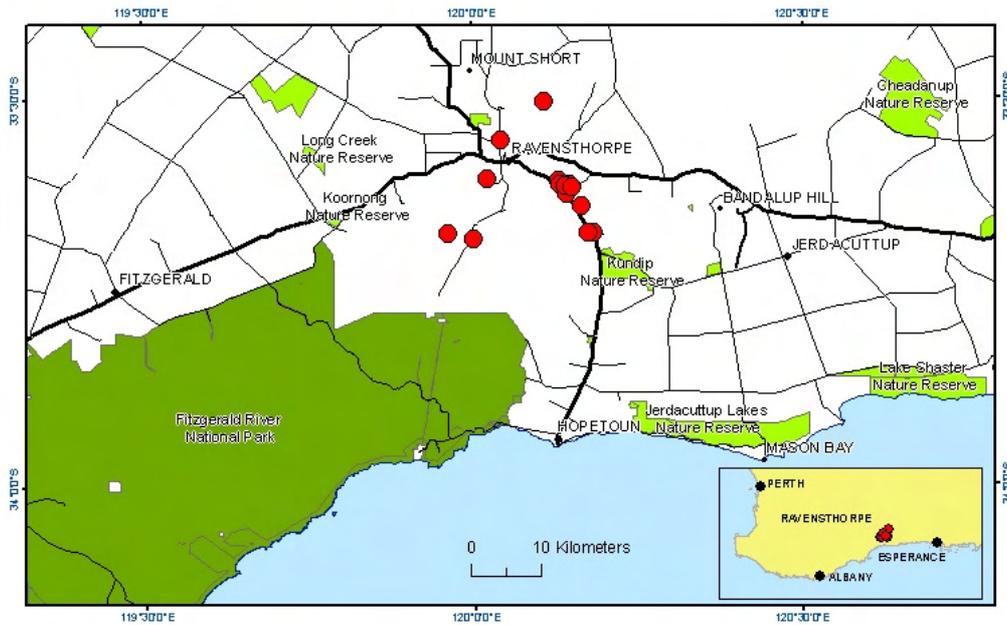
Soils: On stony granitic soils, coarse sand, sandy brown loam, low lying clay loam.

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	Mature	Seedlings	Condition
	Mt Desmond	Other Reserve	18/04/2007			Unknown
	Hopetoun-Ravensthorpe Rd	Shire Rd Verge	26/04/2007			Unknown
	Ravensthorpe	Other Reserve	08/09/2007			Unknown
	Ravensthorpe		21/10/1977	“scattered”		Unknown
	Kundip		25/05/1983	“common”		Unknown
	Udarrup Spring		11/09/1987			Unknown
	Hopetoun-Ravensthorpe Rd	Shire Rd Verge	20/09/1978			Unknown
	Ravensthorpe		01/04/1993	“frequent”		Unknown
	Mt Desmond	Other Reserve	16/09/1983			Unknown
	Mt Desmond	Other Reserve	16/09/1983			Unknown
	Sleepy Hollow		08/11/1997	“frequent”		Unknown
	Hopetoun-Ravensthorpe Rd	Shire Rd Verge	13/01/2002	>100		Unknown
	Ravensthorpe		05/11/2001	<50		Unknown
	Elverdton Rd		17/01/2005			Unknown
	Kundip		16/04/2000	1000		Unknown
	Mt Desmond		09/05/1989	“rare”		Unknown
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 - 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 subsp. *ravensthorpensis* Brooker & Hopper

Family: MYRTACEAE

Other names: Blue mallet.

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

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* (the cap formed by fusion or cohesion of calyx and corolla, that covers the stamens and carpels in the bud and becomes detached at maturity) 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* 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 *E. densa* Brooker & Hopper in being a mallet with blue green foliage but this species differs in having narrower adult leaves that are less than 12 mm wide. Also similar to the *E. pluricaulis* Brooker & Hopper which differs in being a multi-stemmed mallee rather than single-stemmed tree.

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

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

Habitat Requirements:

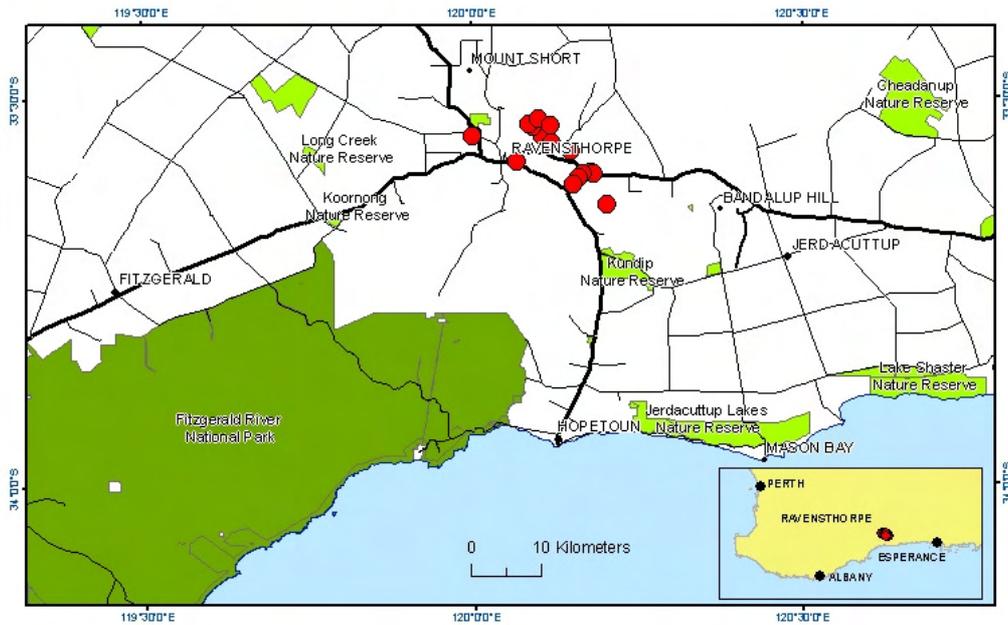
Soils: Red, lateritic loams and clay loams, sometimes with fragments at the surface.

Landforms: Found mostly on slopes 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	Mature	Seedlings	Condition
	Mt McMahon	UCL	02/10/2007			Unknown
	Kundip		26/05/2007			Unknown
	Elverdton Rd		23/04/2007			Unknown
	Ravensthorpe	UCL	23/03/2007			Unknown
	Ravensthorpe	UCL	21/03/2007			Unknown
	Ravensthorpe	UCL	20/03/2007			Unknown
	Ravensthorpe	UCL	16/03/2007			Unknown
	Mt Desmond		15/02/2007			Unknown
	Ravensthorpe		5/11/2003	“few”		Unknown
	Ravensthorpe	UCL	17/09/2000	“common”		Unknown
	Ravensthorpe		12/09/1997			Unknown
	Mt McMahon	UCL	7/04/1995			Unknown
	Ravensthorpe		9/04/1991	“common”		Unknown
	Elverdton Rd	Shire Rd Verge	11/11/1986	“locally frequent”		Unknown
	Ravensthorpe	Shire Rd Verge	7/06/1983			Unknown
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 - 189.

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

Family: MYRTACEAE

Other names: None

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

Flowering time: October to March and May.

Information date: 22/01/2009



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 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* (the cap formed by fusion or cohesion of calyx and corolla, that covers the stamens and carpels in the bud and becomes detached at maturity) 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 *E. 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 *E. 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. From the Latin *corvus* (a raven), in reference to the restricted distribution of this subspecies in the Ravensthorpe region.

Distribution. Confined to the Lake King to Ravensthorpe area. Locally abundant.

Habitat Requirements:

Soils: Shallow calcareous soils, limestone.

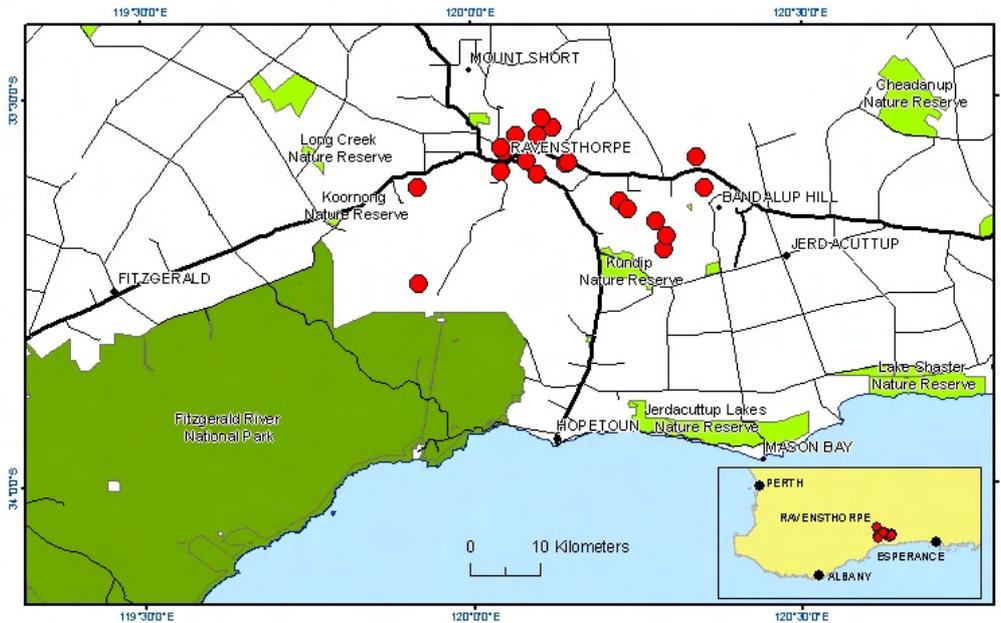
Landforms: Often found on gentle to moderate slopes, high in the landscape. Occasionally found on plains.

Vegetation: Open mallee shrubland, woodland with other *Eucalyptus* spp. and a sparse understorey.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Mature	Seedlings	Condition
	Kundip		11/09/2007			Unknown
	Kundip		04/09/2007			Unknown
	Kundip		26/05/2007			Unknown
	Ravensthorpe		23/04/2007			Unknown
	Ravensthorpe		23/04/2007			Unknown
	Ravensthorpe	UCL	22/04/2007			Unknown
	Kundip		20/04/2007			Unknown
	Ravensthorpe	UCL	21/03/2007			Unknown
	Ravensthorpe	UCL	20/03/2007			Unknown
	Lake King	Shire Rd Verge	02/02/2006	“good stand”		Unknown
	Ravensthorpe		01/12/2003	“fairly common”		Unknown
	Ravensthorpe		09/02/2003	“frequent”		Unknown
	Moir Rd		28/05/2002	“abundant”		Unknown
	Ravensthorpe	Private Property	03/12/1999	“fairly common”		Unknown
	Mt McMahon		27/11/1999	“fairly common”		Unknown
	Cocanarup	Timber Reserve?	10/11/1999	“frequent”		Good
	Ravensthorpe Range		10/11/1999			Good
	Bandalup	Mining lease?	25/10/1999			Unknown

	Bandalup		15/05/1999	“frequent”		Unknown
	Hopetoun- Ravensthorpe Rd	Shire Rd Verge	30/10/1998	“common”		Unknown
	Kybulup Creek		07/12/1990			Unknown
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.

Gastrolobium rigidum (C.A.Gardner) Crisp

Family: FABACEAE

Other names: Previously named *Oxylobium rigidum*
Conservation Status: Removed from DEC priority list in 2008
Flowering period: September to October.
Information date: 16/03/2009



Photo: G. Craig

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 $\frac{2}{3}$ 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.* $\frac{1}{2}$ 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 *G. 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.

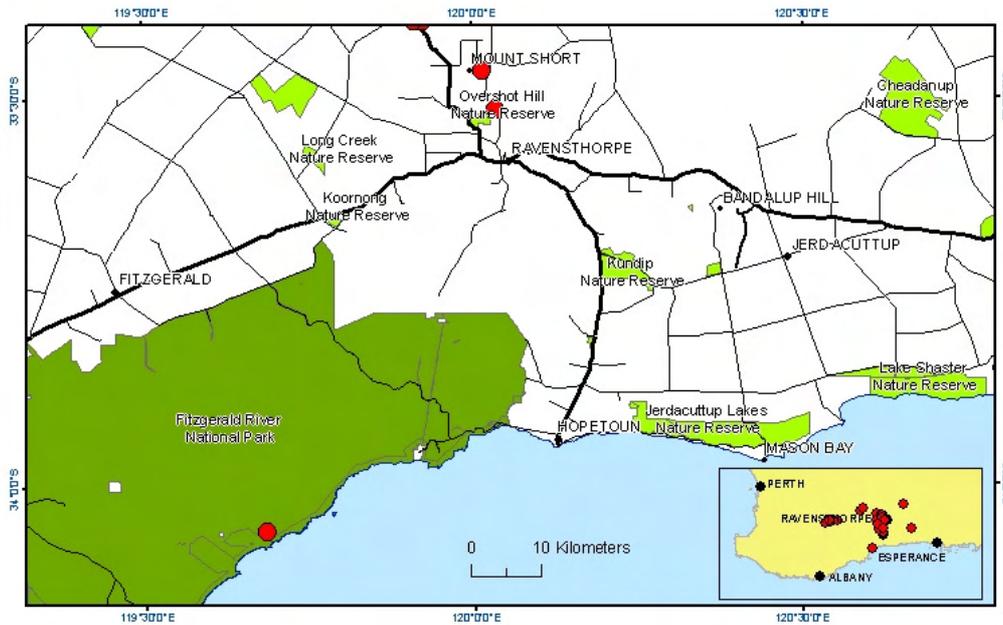
Biology:

Abundance: Several collections indicate the species is "common" or "abundant".

Disturbance: Appears to be a disturbance opportunist.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Mature	Seedlings	Condition
01a	Jackson NR	Nature Reserve	22/09/1989	10		Unknown
01b	Jackson NR	Shire Rd Verge	22/09/1989			Unknown
02a	Floater Rd	Shire Rd Verge	08/11/1989	500		Unknown
02b	Hayes Road	Private Property	08/11/1989			Unknown
03a	Hayes Road	Shire Rd Verge	08/11/1989	200		Unknown
03b	Hayes Road	Private Property	08/11/1989			Unknown
03c	Hayes Road	Shire Rd Verge	14/11/1998			Unknown
04-	Frank Hahn NP	National Park	10/10/1989	100		Unknown
05a	Tarin Rock North Rd	MRD Rd Verge	08/10/1989	15		Unknown
05b	Tarin Rock North Rd	Private Property	08/10/1989			Unknown
06-	Floater Rd	Shire Rd Verge	26/04/2001	1000		Unknown
07-	Tarin Rock Rd	Shire Rd Verge	01/01/1998			Unknown
08-	Mt Gibbs		28/10/1992	1000		Unknown
09-	Newdegate-Ravensthorpe Rd	MRD Rd Verge	26/10/1992	20		Unknown
10-	Fence Rd	Shire Rd Verge	26/10/1992	100		Unknown
11-	Fitzgerald River NP	National Park	06/10/1970			Unknown
12-	Ravensthorpe	UCL	24/10/1998			Unknown
	Moolyal Rd	Shire Rd Verge	07/11/1996			Unknown
	Mt Gibbs	Water Reserve	29/11/1964			Unknown
	Fence Road	Shire Rd Verge	19/10/1964			Unknown
	Ravensthorpe	Shire Rd Verge	12/10/2003			Unknown
	Lake King Norseman Rd	Shire Rd Verge	05/11/1998			Unknown
	Mount Short Rd	Shire Rd Verge	28/10/1998			Unknown
	Newdegate-Ravensthorpe Rd	MRD Rd Verge	28/10/1998			Unknown
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 & Weston (1987) Cladistics and legume systematics, with an analysis of the Bossiaceae, Brongniartieae and Mirbelieae. In: Advances in legume systematics. Part 3, edited by Charles H. Stirton

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).

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

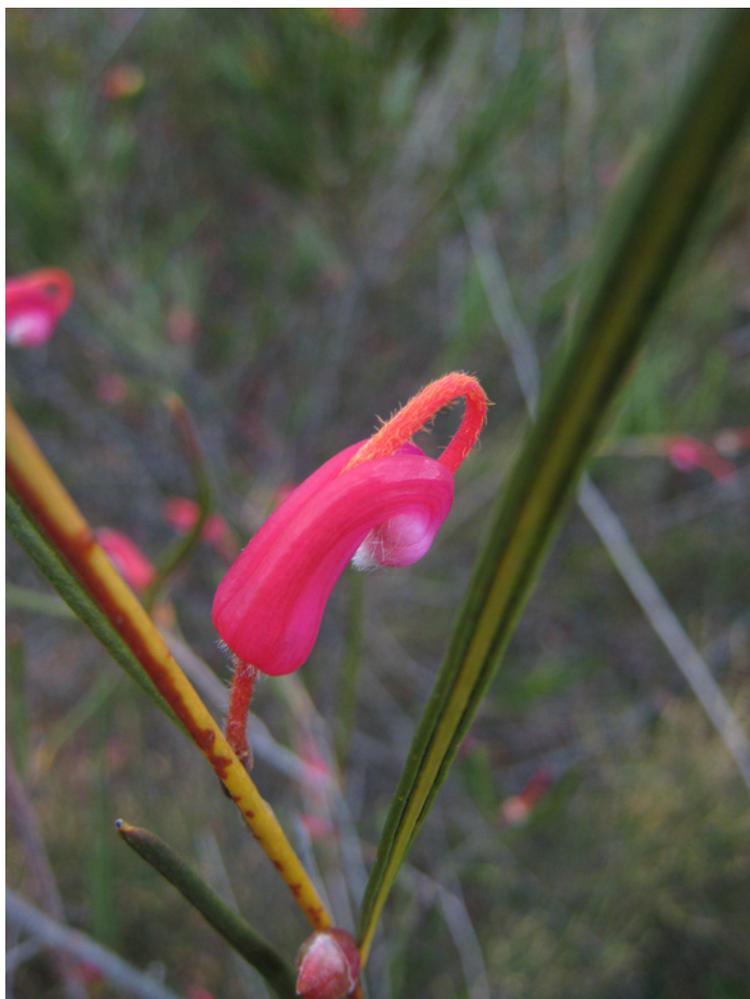


Photo: A. Markey

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 undissected, 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 *G. involucrata* A.S.George in having 1–3 red flowers, but that species differs in having pinnate leaves and persistent bracts.

Species name. Derived from the Latin *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:** Scrub and open mallee over heath and scrub.

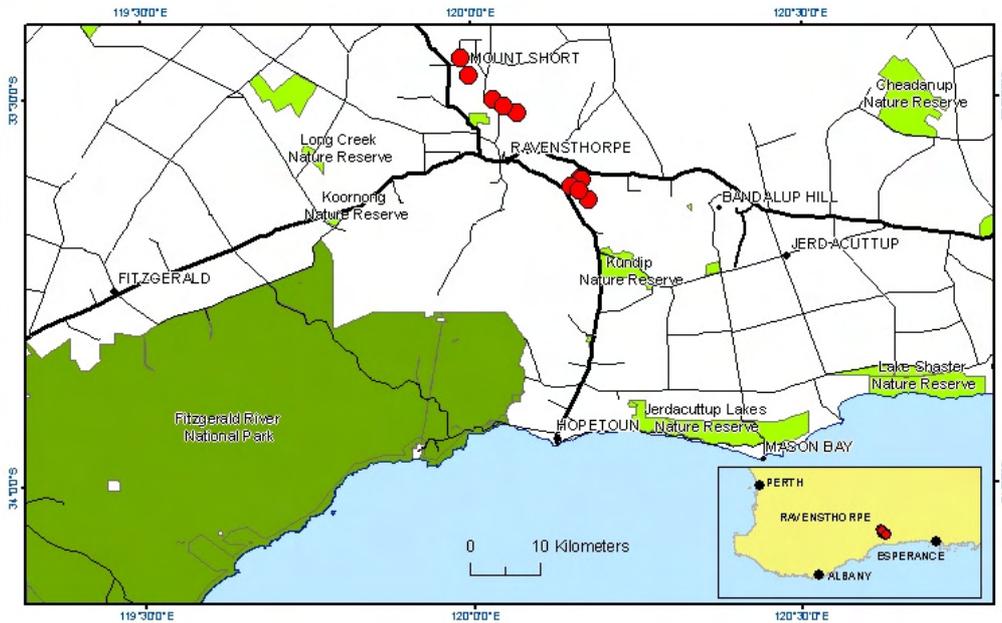
Biology:

- Disease:** Unknown; possibly moderate to high (dead/dying plants observed in south Elverdton Road gravel pit).
- Disturbance:** 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	Mature	Seedlings	Condition
01a	Mt Desmond	Other Reserve	30/09/1999	“occasional”		Unknown
01b	Mt Desmond	Other Reserve	04/10/2007	2000		Unknown
02-	Ravensthorpe	UCL	29/08/2001	“frequent”		Unknown
03-	Mt Desmond	Other Reserve	15/11/2004	1000		Unknown
04-	Ravensthorpe	UCL	16/11/2004	10000		Unknown
05-	Ravensthorpe	UCL	26/07/2005			Unknown
06-	Mt Short	UCL	06/09/2007	“isolated plants”		Unknown
	Mt Desmond	Other Reserve	02/08/1998	“common”		Unknown
	Mt Short	Gravel Reserve MRD	28/06/1976	“frequent”		Unknown

	Mt Short	UCL	30/08/1963			Unknown
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*. Flora of Australia. Volume 17A: 348. ABR/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: Priority One under DEC Conservation Codes for Western Australian Flora.

Flowering period: 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, zig-zag 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 *G. 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 *G. newbeyi* McGill. differs in its longer pistil (39–48 mm long) and conspicuously ridged fruits.

Subspecies name. From the Greek *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:

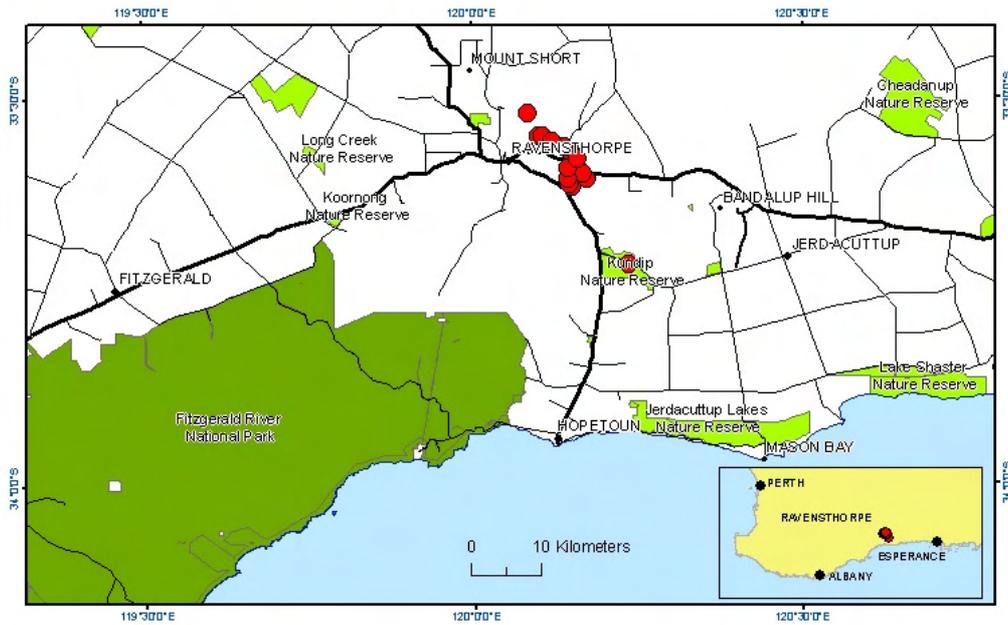
Soils: Gravelly soils and laterite.

Landforms: Hillsides and hilltops.

Vegetation: Amongst mallee woodland and tall sclerophyll shrubland.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Mature	Seedlings	Condition
	Ravensthorpe	UCL	18/10/2005	“rare”		Unknown
	Mt Desmond	Other Reserve	13/09/1998	“scattered”		Unknown
	Ravensthorpe		23/05/1998	“common”		Unknown
	Kundip	UCL	09/05/1996	“occasional”		Unknown
	Mt Desmond	Other Reserve	09/01/1979	“common”		Unknown
	Ravensthorpe		28/06/1976	“frequent”		Unknown
	Mt Desmond	Other Reserve	02/11/1962			Unknown
	Ravensthorpe	UCL	23/03/2007			Unknown
	Ravensthorpe	UCL	23/03/2007			Unknown
	Mt Desmond	Other Reserve	18/04/2007			Unknown
	Mt Desmond	Other Reserve	18/04/2007			Unknown
	Mt McMahon	UCL	02/10/2007			Unknown
	Ravensthorpe	Other Reserve	04/10/2007			Unknown
	Ravensthorpe	UCL	04/12/2008			Unknown
	Ravensthorpe	UCL	05/12/2008			Unknown
	Ravensthorpe	UCL	10/12/2008			Unknown
	Ravensthorpe	UCL	11/12/2008			Unknown
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 One under DEC Conservation Codes for Western Australian Flora.

Flowering time. April to November. Fruiting from September.

Information date: 22/01/2009



Scan: WA Herbarium

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, undissected, 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 undissected 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 *G. arcuaria* F.Muell. ex Benth. and *G. sulcata* Olde & Marriott. *Grevillea arcuaria* 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, and smaller perianth limbs and fruit. *Grevillea sulcata* has longer, linear leaves, with a flat rather than convex and angularly recurved upper surface.

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

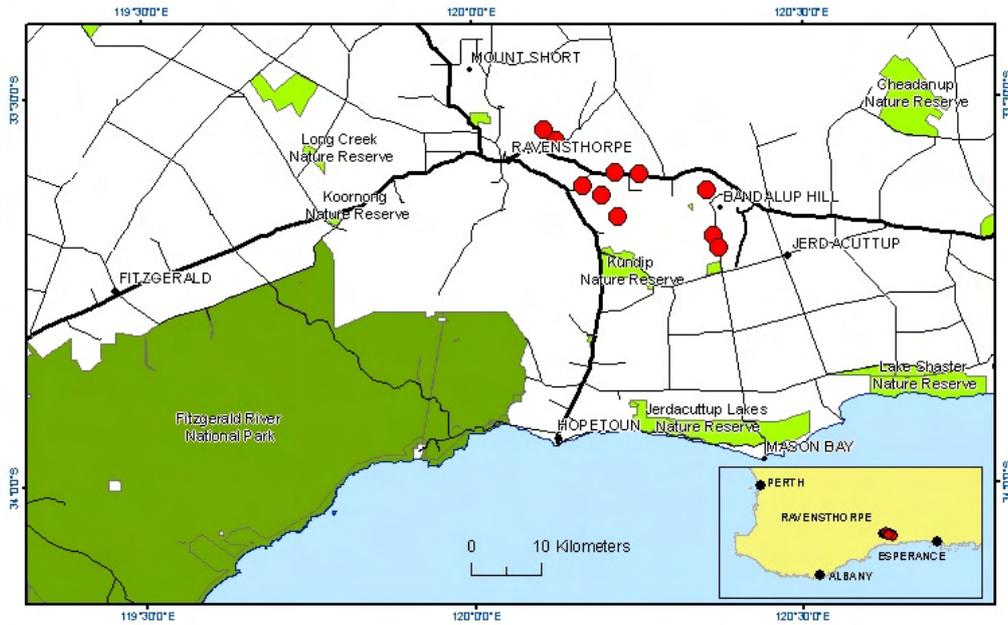
Distribution. Known from the Ravensthorpe Range and to the E of Ravensthorpe near the Jerdacuttup River.

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	Mature	Seedlings	Condition
	Kundip	Other Reserve	28/09/2007			Unknown
	Jerdacuttup		25/05/2007			Unknown
	Mt McMahon	Private Property	11/05/2007	“occasional”		Unknown
	Mt McMahon	UCL	10/05/2007	“rare”		Unknown
	Elverdton Rd		13/09/2000	1		Unknown
	Jerdacuttup		15/04/2000	“rare”		Unknown
	Bandalup		15/05/1999	“occasional, scattered”		Unknown
	Ravensthorpe	UCL	23/04/1999	“occasional”		Unknown
	Ravensthorpe		25/04/1998	“uncommon”		Unknown
	Ravensthorpe	Shire Rd Verge	12/10/1991	“occasional”		Unknown
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 *s.l.* (previously STERCULIACEAE)

Other names: None

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

Flowering period: 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 *G. 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 Latin *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 vicinity of Mt Short near Ravensthorpe.

Habitat Requirements:

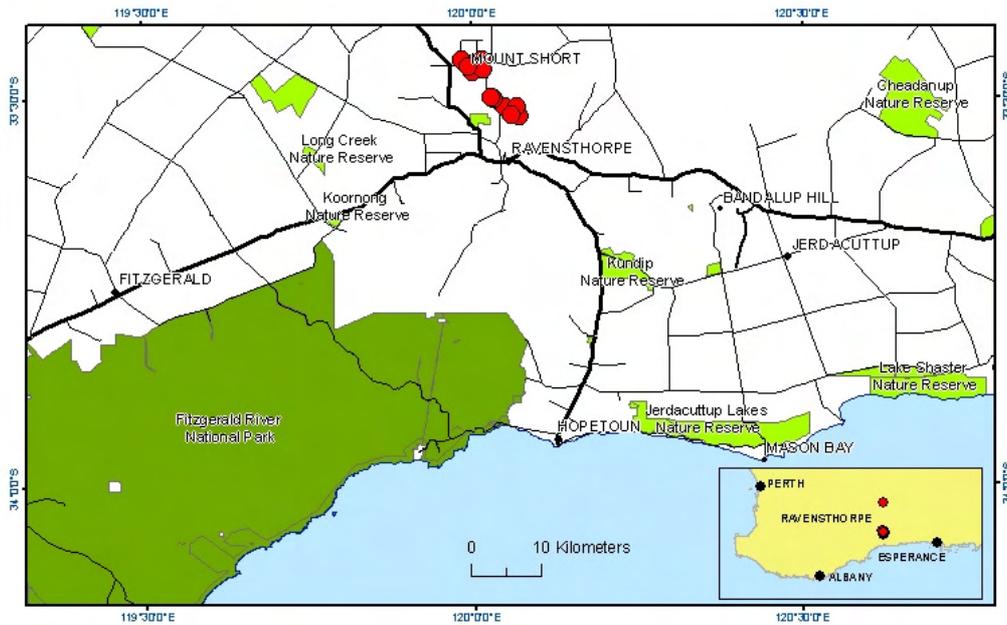
Soils: Generally brown sandy loam with lateritic fragments at the surface.

Landforms: Gently inclined mid-slopes to hillcrest, usually with a western aspect.

Vegetation: Usually 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	Mature	Seedlings	Condition
01a	Mt Short	Shire Rd Verge	25/09/1997			Unknown
01b	Mt Short	Water Reserve	06/04/2006	100		Unknown
01c	Mt Short	Shire Rd Verge	25/09/1997			Unknown
01d	Mt Short	UCL	01/08/2007			Unknown
02-	Mt Short	Water Reserve	13/01/2002			Unknown
03-	Mt Short	Private Property	10/09/1994			Unknown
04-	Ravensthorpe	UCL	08/05/2007			Unknown
05-	Ravensthorpe	UCL	26/04/2001	10		Unknown
06-	Ravensthorpe	UCL	24/10/2003			Unknown
07-	Ravensthorpe	UCL	16/11/2004	“occasional”		Unknown
08-	Ravensthorpe	UCL	08/05/2007			Unknown
09-	Mt Short	Water Reserve	16/12/1992	12		Unknown
	Mt Short	Water Reserve	14/03/2007			Unknown
	Ravensthorpe	UCL	17/03/2007			Unknown
	Ravensthorpe	UCL	06/09/2007			Unknown
	Ravensthorpe	UCL	12/09/2007			Unknown
Total:				122		



References:

Wilkins, C.F. & Whitlock, B.A. (2009) *Guichenotia anota* and *Guichenotia apetalata*. *Nuytsia* 19(1): 181–190

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

Guichenotia apetala A.S.George.

Family: MALVACEAE *s.l.* (previously STERCULIACEAE)

Common Name: Ravensthorpe Range Guichenotia

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

Flowering period: September to December.

Information date: 30/03/2009



Photo: S. Kern

Taxonomy:

Description. An erect, multi-stemmed, compact, grey-green *shrub*, that 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 *G. 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 Mt Desmond near Ravensthorpe.

Habitat Requirements:

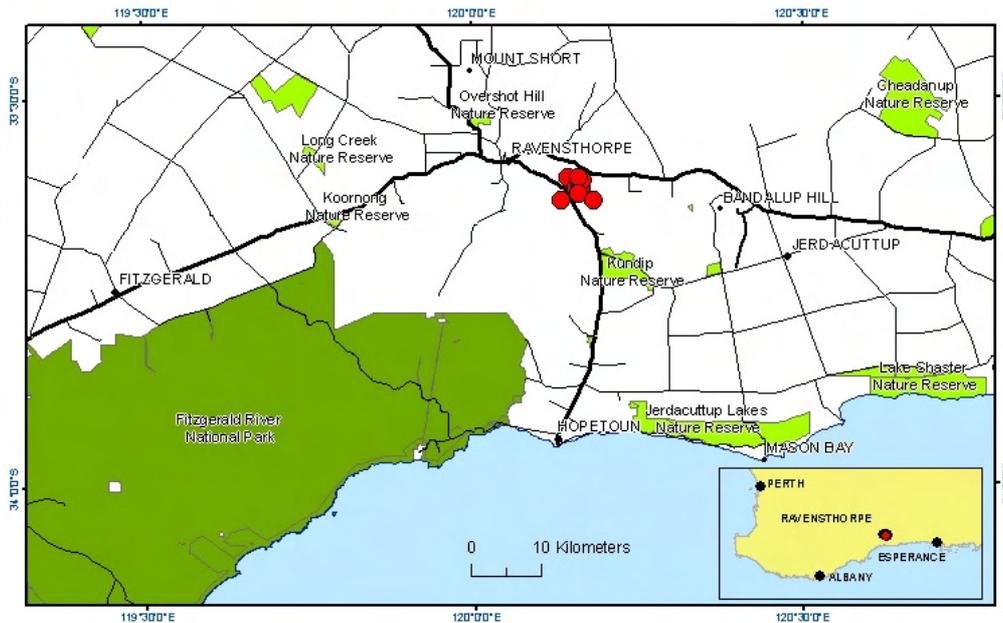
Soils: Habitually brown sandy loam or loamy sand with fragments at the surface.

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	Mature	Seedlings	Condition
01-	Mt Desmond	Other Reserve	28/09/2007	“frequent”		Unknown
02-	Mt Desmond	Other Reserve	08/09/1993			Unknown
03-	Mt Desmond	Other Reserve	24/10/2003			Unknown
04-	Mt Desmond	Other Reserve	17/11/2004			Unknown
05a	Mt Desmond	Other Reserve	08/07/1998			Unknown
05b	Mt Desmond	Other Reserve	21/09/2005			Unknown
	Mt Desmond	Other Reserve	30/09/1999			Unknown
	Mt Desmond	Other Reserve	23/04/2007			Unknown
	Mt Desmond	Other Reserve	26/04/2007			Unknown
	Mt Desmond	Other Reserve	07/09/2007			Unknown
	Mt Desmond	Other Reserve	18/09/1990	“scattered”		Unknown
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 apetala*. *Nuytsia* 19(1): 181–190

Gyrostemon sessilis A.S.George

Family: GYROSTEMONACEAE

Other names. None.

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

Flowering times. August to October.

Information date: 18/03/2009



Photo: S. Barrett

Taxonomy:

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 scarious 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 scarious. *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 *G. 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 *G. 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 *G. sp. Ravensthorpe* (G. Cockerton & N. Eveleigh 9467) can be formally assessed.

Distribution and habitat. Occurs from just W of Fitzgerald River National Park to Bandalup Hill, E of Ravensthorpe.

Habitat Requirements:

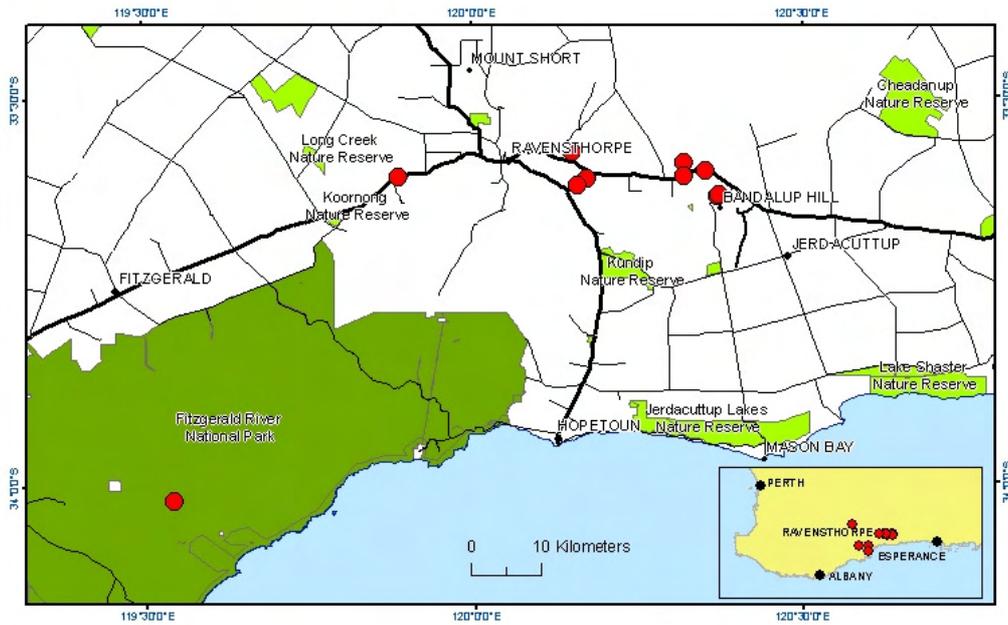
Soils: Usually found in lateritic soils. Occasionally also recorded from granitic soils.
Landforms: Recorded from both undulating sandplain and from slopes and crests in hilly terrain.
Vegetation: Usually recorded from regenerating mallee-shrubland and heath.

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	Mature	Seedlings	Condition
	Fitzgerald River NP	National Park	14/07/1970			Unknown
	Fitzgerald River NP	National Park	20/10/1970			Unknown
	Fitzgerald River NP	National Park	27/06/1974			Unknown
	Jerramungup	Private Property	16/11/1999	“occasional”		Unknown
	Bandalup Hill	Mining Lease	16/07/2002			Unknown
	Elverdton Rd	Shire Rd Verge	16/06/2003	“common”		Unknown
	Bandalup Hill	Mining Lease	10/09/2004	10000		Unknown
	Shoemaker Levy	Mining Lease	15/09/2004	“isolated individuals”		Unknown
	Bandalup Hill	Mining Lease	03/11/2004	20		Unknown
	Elverdton Rd	Shire Rd Verge	04/11/2004	10		Unknown
	Mason Bay Rd	Shire Rd Verge	05/11/2004	20		Unknown
	Ravensthorpe	UCL	14/02/2007			Unknown
	South Coast Hwy	MRD Rd Verge	27/11/2007	100		Unknown
	Cocanarup	UCL	10/12/06	1000		Unknown
	Ravensthorpe	UCL	18/10/06	50		Unknown
	Bandalup Hill	Mining Lease	12/02/06	50		Unknown
Total:				11250		



References:

George, A. S. (1982). *Gyrostemon*, Flora of Australia Vol. 8: 362-378. AGPS, Canberra.

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

***Hibbertia* sp. Ravensthorpe Range (E. Tink 335)**

Family: DILLENiaceae

Other names: None

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:

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* sp. Ravensthorpe Range (E. Tink 335) is likely to be confused with *H. mucronata* (Turcz.)Benth., *H. hamulosa* J.R.Wheeler and *H. sp.* Bandalup Hill (G.F. Craig 3479) 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. sp.* Ravensthorpe Range (E. Tink 335) 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. sp.* Bandalup Hill (G.F. Craig 3479) 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. sp.* Ravensthorpe Range (E. Tink 335) by its sessile flowers with 9–12 stamens.

Species name. A paper by Wege & Thiele formally describing this species has been submitted to *Nuytsia* and is currently in press.

Distribution. Known only from rocky hill slopes in the Ravensthorpe Range

Habitat Requirements:

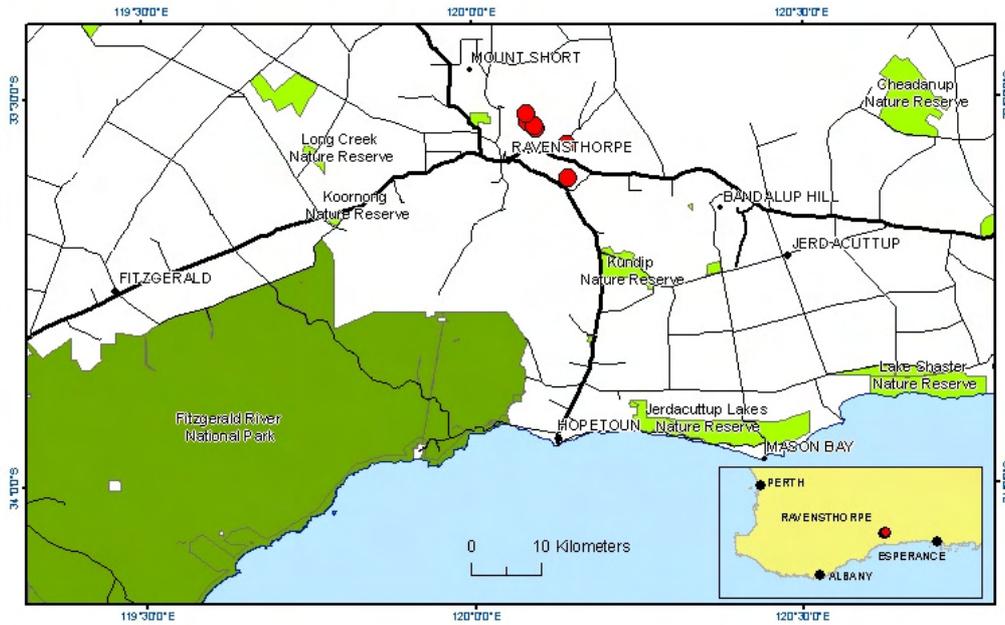
Soils: Loam over laterite.

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	Mature	Seedlings	Condition
	Ravensthorpe	UCL	10/09/2008	“locally frequent”		Unknown
	Mt McMahon	UCL	02/10/2007	“common”		Unknown
	Ravensthorpe	UCL	24/10/1998	“frequent”		Unknown
	Mt Desmond		18/04/2007			Unknown
	Ravensthorpe	UCL	21/11/2008			Unknown
	Ravensthorpe	UCL	04/12/2008			Unknown
	Ravensthorpe		05/12/2008			Unknown
Total:						



References:

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

Hydrocotyle decipiens H.Eichler ms

Family: APIACEAE

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 (carpopore) 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* has in the past been confused with *H. hispidula* Bunge and *H. medicaginoides* Turcz. The distinction between these species are 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 from a handful of localities from Fitzgerald River National Park to Mt Ridley.

Habitat Requirements:

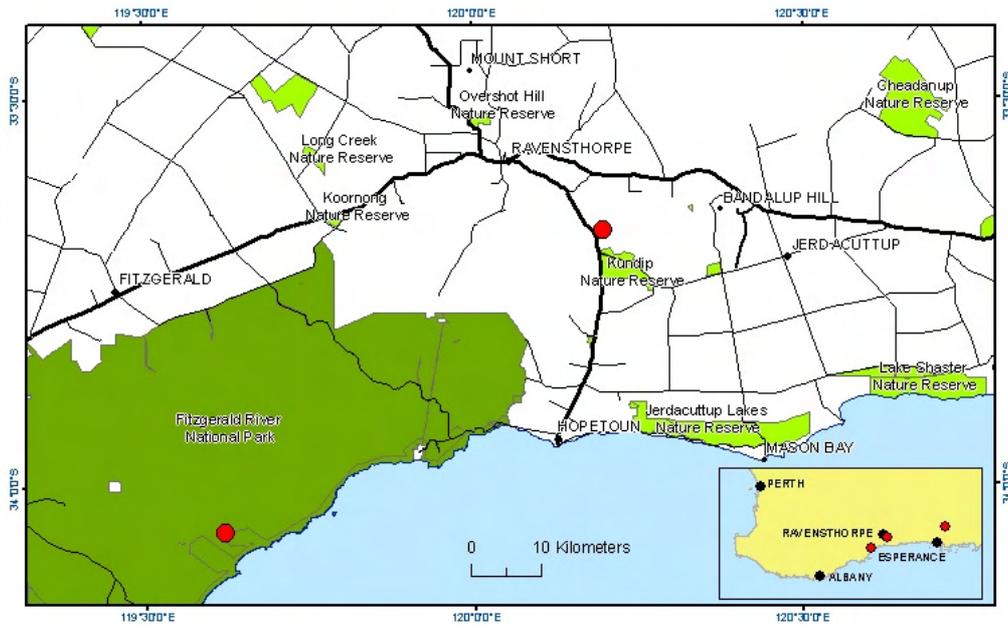
- Soils:** In organic, fine sandy or sandy loam soils.
- Landforms:** In drainage lines.
- Vegetation:** Recorded from riparian mallee and shrubland communities.
- Associated Species:** Frequently recorded with mosses and other *Hydrocotyle* species.

Biology:

- Abundance:** Frequently said to be "common".

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Mature	Seedlings	Condition
01-	Kundip	Other Reserve	31/10/2005	110		Unknown
02-	Scaddan	UCL	13/10/2005			Unknown
	Mt Ridley	Water Reserve	01/11/1975	"common"		Unknown
	Fitzgerald River NP	National Park	06/10/1970			Unknown
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: Priority One under DEC Conservation Codes for Western Australian Flora.

Flowering period: 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 *K. preissiana*, 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 for “needle-like”, referring to the long, tapering and pointed apex of the perules and bracts.

Distribution. Has a very restricted distribution NE 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 hill crest 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:

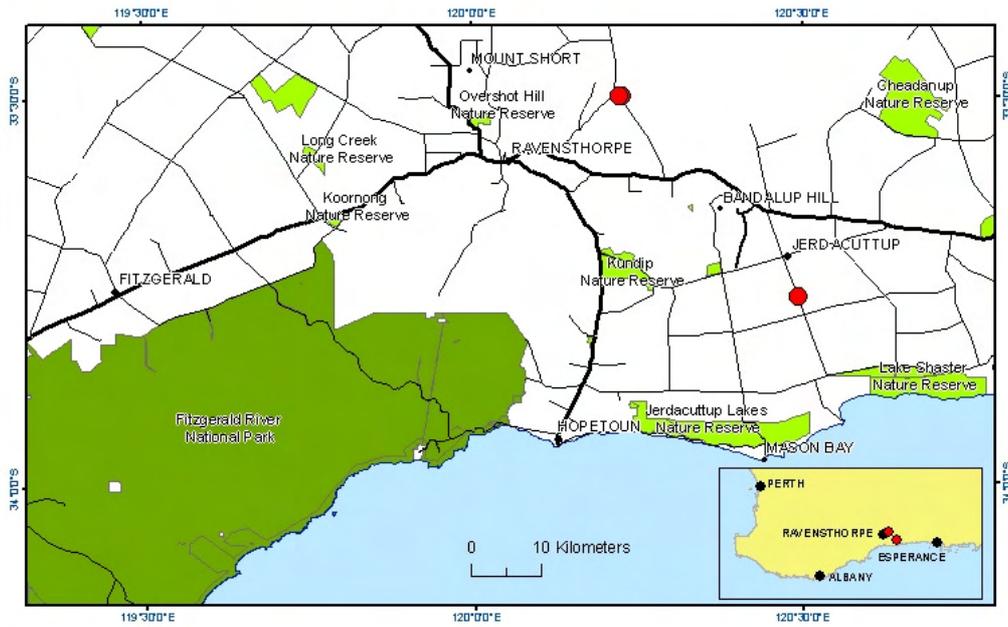
Disease: Believed to be susceptible to Phytophthora Dieback Disease.

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	Mature	Seedlings	Condition
01a	Nindibillup Rd	Shire Rd Verge	24/09/2007	2000		Healthy
01b	Bandalup	UCL	17/04/2008	2000	250	Healthy
01c	Ravensthorpe	UCL	02/10/2007	2000		Healthy
02-	Fence Rd	Shire Rd Verge	04/09/2008	200		Moderate
Total:				6200	250	



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

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, pink to deep magenta, almost stalkless *petals* are 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 *K. 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 *K. 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 *K. 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.

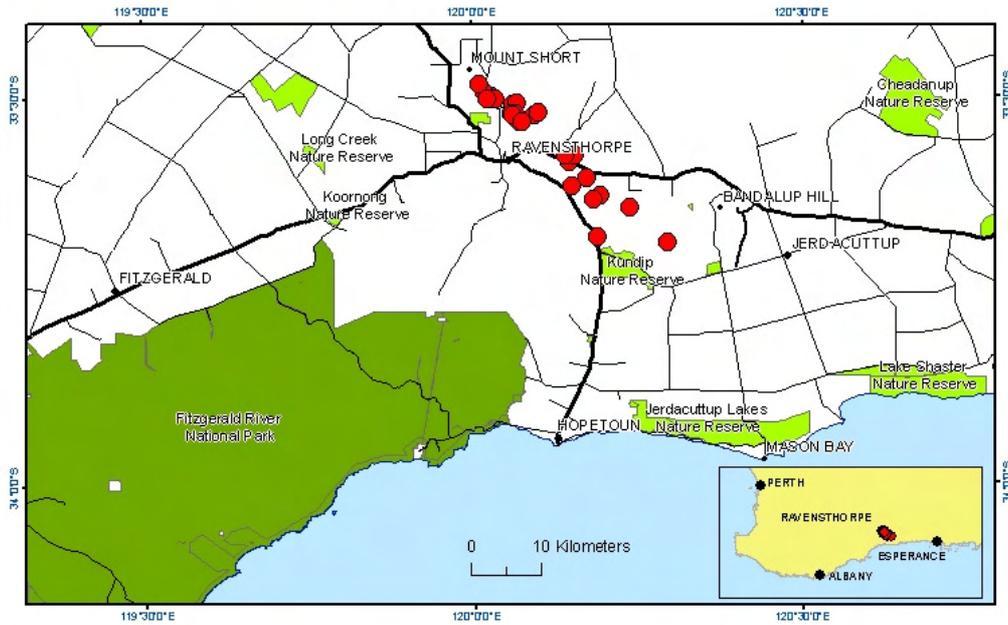
Distribution. Known only from the Ravensthorpe range area

Habitat Requirements:

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

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Mature	Seedlings	Condition
	Ravensthorpe	UCL	11/12/2008			Unknown
	Ravensthorpe	UCL	09/12/2008			Unknown
	Ravensthorpe	UCL	08/12/2008			Unknown
	Ravensthorpe	UCL	06/12/2008			Unknown
	Ravensthorpe	UCL	05/12/2008			Unknown
	Ravensthorpe	UCL	21/11/2008			Unknown
	Ravensthorpe	UCL	19/11/2008			Unknown
	Ravensthorpe	UCL	19/11/2008			Unknown
	Ravensthorpe	UCL	18/11/2008			Unknown
	Kundip	Other Reserve	06/10/2007			Unknown
	Ravensthorpe	Other Reserve	30/09/2007			Unknown
	Kundip	UCL	29/09/2007			Unknown
	Ravensthorpe	UCL	12/09/2007			Unknown
	Ravensthorpe	UCL	12/09/2007			Unknown
	Ravensthorpe	UCL	10/09/2007			Unknown
	Ravensthorpe	UCL	07/09/2007			Unknown
	Ravensthorpe	UCL	06/09/2007			Unknown
	Ravensthorpe	UCL	24/04/2007			Unknown
	Ravensthorpe	UCL	23/04/2007			Unknown
	Ravensthorpe	UCL	17/03/2007			Unknown
	Ravensthorpe	UCL	17/03/2007			Unknown
	Ravensthorpe	UCL	17/03/2007			Unknown
	Ravensthorpe	UCL	14/10/1998	“common”		Unknown
	Ravensthorpe	Other Reserve	13/09/1998	“scattered”		Unknown
	Mt Desmond	Other Reserve	16/10/1995	“rare at site”		Unknown
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.

Lasiopetalum sp. Desmond (N. McQuoid 653)

Family: MALVACEAE *s.l.* (was STERCULIACEAE)

Other names: None

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

Flowering period: 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 *L. indutum* Steud. and *L. 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 but currently genus is under review.

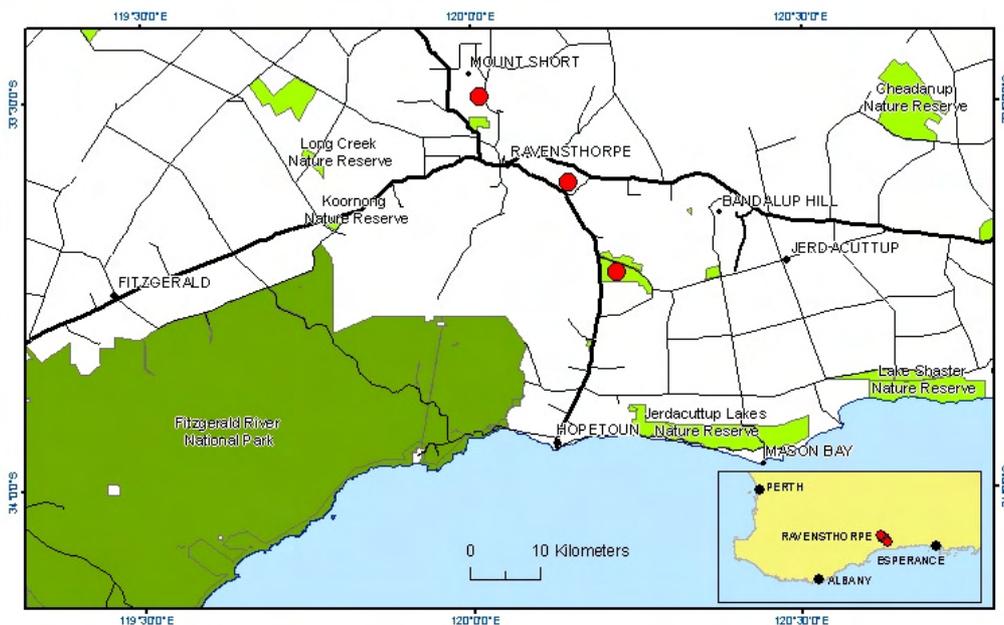
Distribution. Restricted to the Ravensthorpe area.

Habitat Requirements:

This species is known only from several 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	Mature	Seedlings	Condition
	Mt Desmond		05/11/2008	1	0	Unknown
	Kundip	Nature Reserve	2008	1	0	Unknown
	Ravensthorpe		30/08/1968			Unknown
Total:				2		



References:

Note: Description compiled by C. Wilkins (2009).

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, that 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 *L. 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.

Etymology. Named after the hill where it was first considered different from the other varieties.

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.

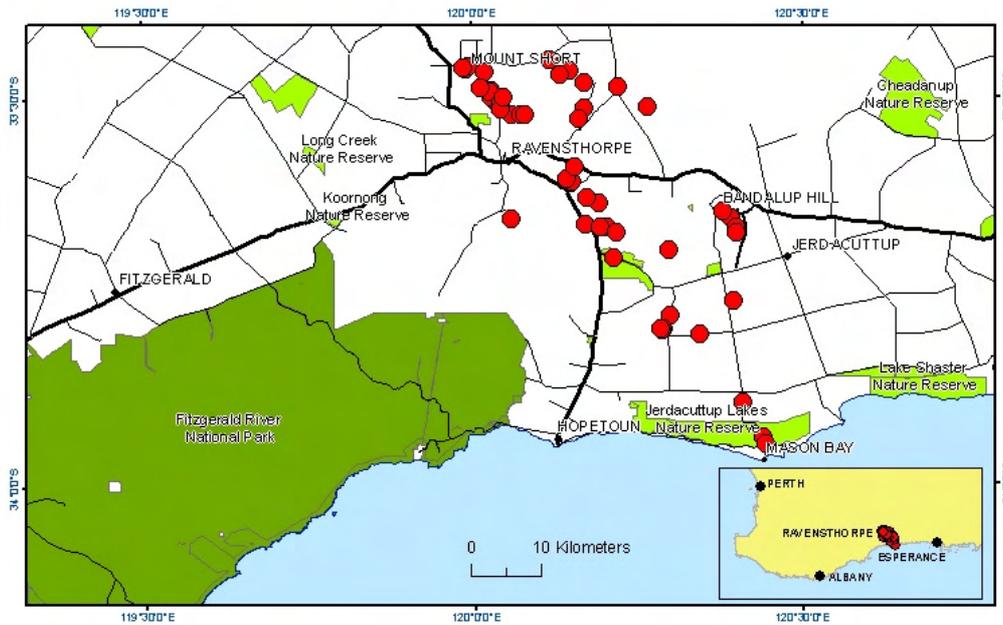
Landforms: Most frequently recorded from the mid and upper slopes of the Ravensthorpe Range. Occasionally recorded from disturbed sites (i.e. gravel pits, quarries) adjacent to the Range.

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

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Mature	Seedlings	Condition
	Nindibillup Rd	UCL	21/08/2006	20		Healthy
	Kundip	Other Reserve	01/05/2006			Unknown
	Mason Bay Rd	Shire Rd Verge	22/07/2005			Unknown
	Mason Bay Rd	Shire Rd Verge	06/06/2005			Unknown
	Jerdacuttup	Unmanaged Reserve	06/06/2005			Unknown
	Bandalup Hill	Mining Lease	05/06/2005	36		Unknown
	Bandalup Hill	Mining Lease	24/05/2007			Unknown
	Bandalup Hill	Mining Lease	25/05/2007			Unknown
	Ravensthorpe	Water Reserve	22/10/2005	16		Unknown
	Bandalup Hill	Mining Lease	25/05/2005			Unknown
	Hopetoun- Ravensthorpe Rd	Shire Rd Verge	11/02/2005	2		Unknown
	Jerdacuttup	Private Property	03/06/2005			Unknown
	Jerdacuttup	Private Property	03/06/2005			Unknown
	Jerdacuttup	Private Property	03/06/2005			Unknown
	Jerdacuttup	Private Property	03/06/2005			Unknown
	Mt Short	Gravel Reserve	14/03/2007			Unknown
	Mt Short	UCL	15/03/2007			Unknown
	Ravensthorpe	UCL	17/03/2007			Unknown
	Ravensthorpe	UCL	22/03/2007			Unknown
	Ravensthorpe	UCL	22/03/2007			Unknown

	Ravensthorpe	UCL	22/03/2007			Unknown
	Mt Desmond	Other Reserve	19/04/2007			Unknown
	Ravensthorpe	UCL	20/04/2007			Unknown
	Bandalup Hill	Mining Lease	29/05/2007			Unknown
	Kundip	Other Reserve	05/09/2007			Unknown
	Mt Short	UCL	06/09/2007			Unknown
	Mt Short	UCL	06/09/2007			Unknown
	Mt Short	UCL	12/09/2007			Unknown
	Mt Short	UCL	12/09/2007			Unknown
	Mt Short	UCL	12/09/2007			Unknown
	Kundip	Other Reserve	25/09/2007			Unknown
	Mt Short	Water Reserve	26/09/2007			Unknown
	Mt Short	UCL	26/09/2007			Unknown
	Mt Short	UCL	26/09/2007			Unknown
	Ravensthorpe	UCL	02/10/2007			Unknown
	Mt Desmond	Other Reserve	03/10/2007			Unknown
	Mt Desmond	Other Reserve	04/10/2007			Unknown
	Ravensthorpe	UCL	11/10/2007			Unknown
	Mt Desmond	Other Reserve	15/02/2007			Unknown
	Mason Bay Rd	Shire Rd Verge	05/07/2005	1		Unknown
	Middle Rd	Shire Rd Verge	12/06/2005	6		Unknown
	Ravensthorpe	Shire Rd Verge	12/06/2005	117		Unknown
	Ravensthorpe	UCL	22/10/2005	2		Unknown
	Kundip	Nature Reserve	12/06/2005	6		Unknown
	Ravensthorpe	UCL	22/10/2005	8		Unknown
	Ravensthorpe	UCL	22/10/2005	7		Unknown
	Ravensthorpe	UCL	22/10/2005	22		Unknown
	Ravensthorpe	UCL	22/10/2005	1		Unknown
	Ravensthorpe	UCL	22/10/2005	5		Unknown
	Ravensthorpe	UCL	22/10/2005	1		Unknown
	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: Ray Cranfield provided a draft description for what he considers a new variety (2009).

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

Family:	PITTOSPORACEAE
Common Name:	Hairy-fruited Billardiera. Previously <i>Billardiera mollis</i> E.M.Benn.
Conservation Status:	Declared Rare Flora
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 *M. sp.* Bremer (N. Gibson & M. Lyons 1776) 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 sp.* Bremer (N. Gibson & M. Lyons 1776) 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 *mollis*, meaning soft, in reference to the soft hairs covering this plant.

Distribution. Largely restricted to the Ravensthorpe Range and an area *c.* 20 km north-east 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*.

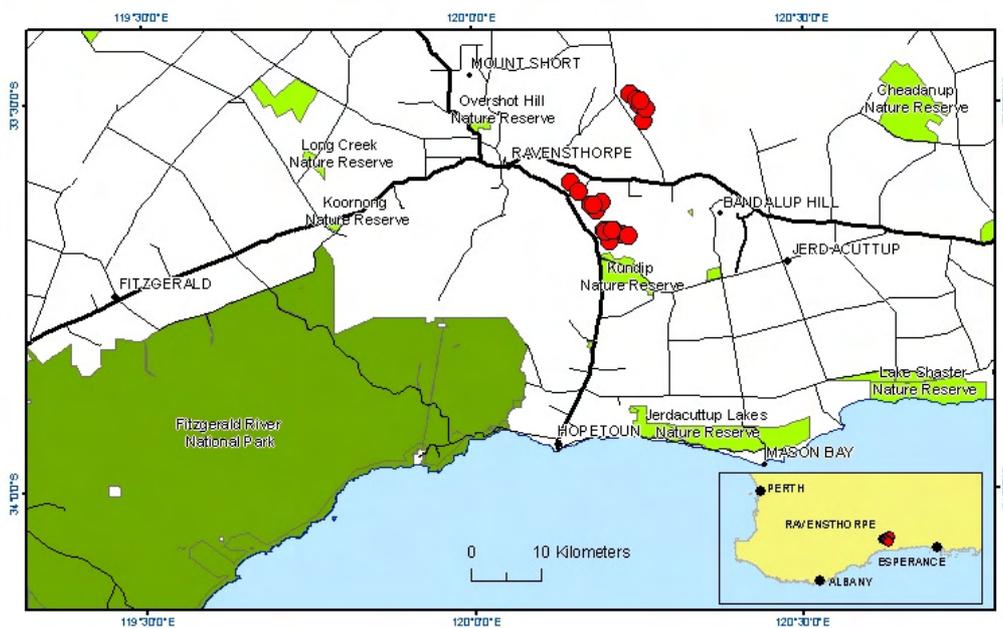
Biology:

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	Mature	Seedlings	Condition
01a	Carlingup	UCL	16/11/2004	35000		Unknown
01b	Carlingup	UCL	16/11/2004	50		Unknown
01c	Carlingup	UCL	09/12/1988	1		Unknown
01d	Carlingup	UCL	16/11/2004	2500		Unknown
01e	Carlingup	UCL	26/09/1981	20		Unknown
01f	Carlingup	UCL	26/11/1981	20		Unknown
02-	Mt Desmond	Other Reserve	01/01/1982	50		Unknown
03a	Ravensthorpe	UCL	10/02/2004	300		Unknown
03b	Kundip	Other Reserve	10/02/2004	700		Unknown
04a	Mt Desmond	Other Reserve	13/02/2007	100		Unknown
04b	Mt Desmond	Other Reserve	15/11/2004	15		Unknown
04c	Mt Desmond	Other Reserve	06/02/2004	500		Unknown
04d	Mt Desmond	Other Reserve	09/09/1999	30		Unknown

04e	Mt Desmond	Other Reserve	26/07/2005	30		Unknown
04f	Mt Desmond	Other Reserve	26/07/2005	2000		Unknown
05a	Ravensthorpe	UCL	01/11/2007			Unknown
05b	Kundip	Other Reserve	01/11/2007			Unknown
06-	Mt Desmond	Other Reserve	21/09/2005	2000		Unknown
	Ravensthorpe	UCL	25/09/2007			Unknown
	Ravensthorpe	UCL	25/09/2007			Unknown
	Ravensthorpe	UCL	27/09/2007			Unknown
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 Two under DEC Conservation Codes for Western Australian Flora.

Flowering period: Recorded in November, January and February

Information date: 24/06/2008



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 *M. 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 *M. coccinea* and *M. eximia* 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.

Distribution. Occurs in the Fitzgerald River to Ravensthorpe district.

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

Habitat Requirements:

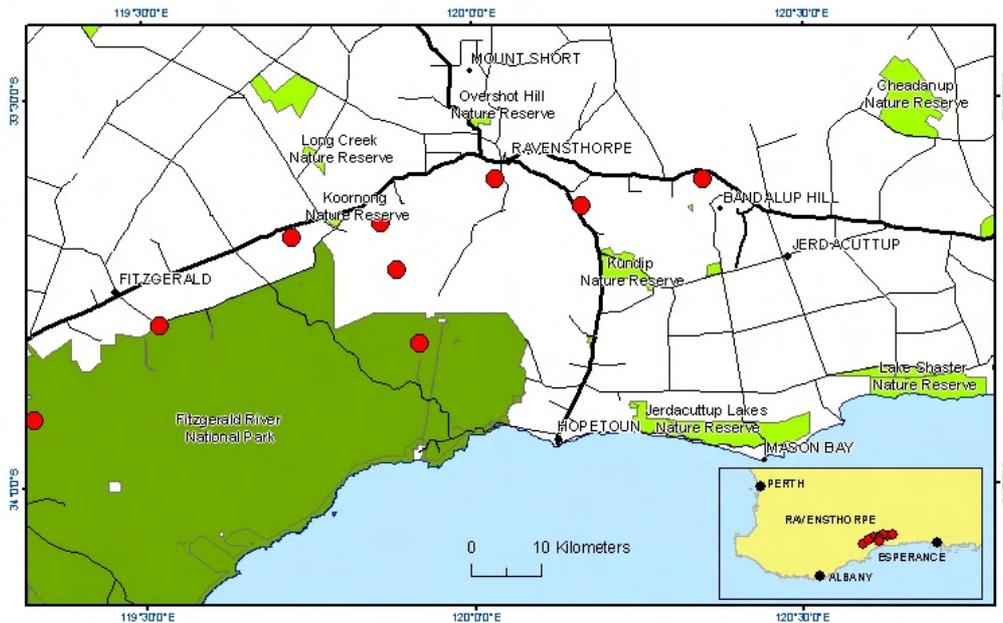
Soils: Found on grey or brown sands and sandy loams, frequently associated with granitic rock, and occasionally with magnesite or silcrete.

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	Mature	Seedlings	Condition
01-	Ravensthorpe	UCL	04/04/2002	300		Unknown
02-	Fitzgerald River NP	National Park	10/02/1986			Unknown
03-	Fitzgerald River NP	National Park	02/04/2002	20		Unknown
04a	Bandalup Hill	Mining Lease	17/09/2002	50		Unknown
04b	Bandalup	UCL	17/09/2002	250		Unknown
	Mt Desmond	Other Reserve	16/11/2007			Unknown
	Fitzgerald River NP	National Park	17/09/1979			Unknown
	Ravensthorpe	Private Property	03/02/2003	2	0	Unknown
	Cocanarup	Other Reserve	19/10/2006	6	0	Unknown
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 sp. Kundip (G.F. Craig 6020)

Family: MYRTACEAE

Common name: None

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

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

Information date: 5/08/2008



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* sp. Kundip (G.F.Craig 6020) 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 *M. 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.* sp Kundip (G.F.Craig 6020), 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.* sp Kundip (G.F.Craig 6020) may be a relative of a small group of species of which the coastal *M. thymoides* Labill. is the best known.

Species name. Presently undescribed but the species is the subject of active study by Brendan Lepschi and Lyn Craven.

Distribution. Restricted to the Ravensthorpe Range near Kundip.

Habitat Requirements:

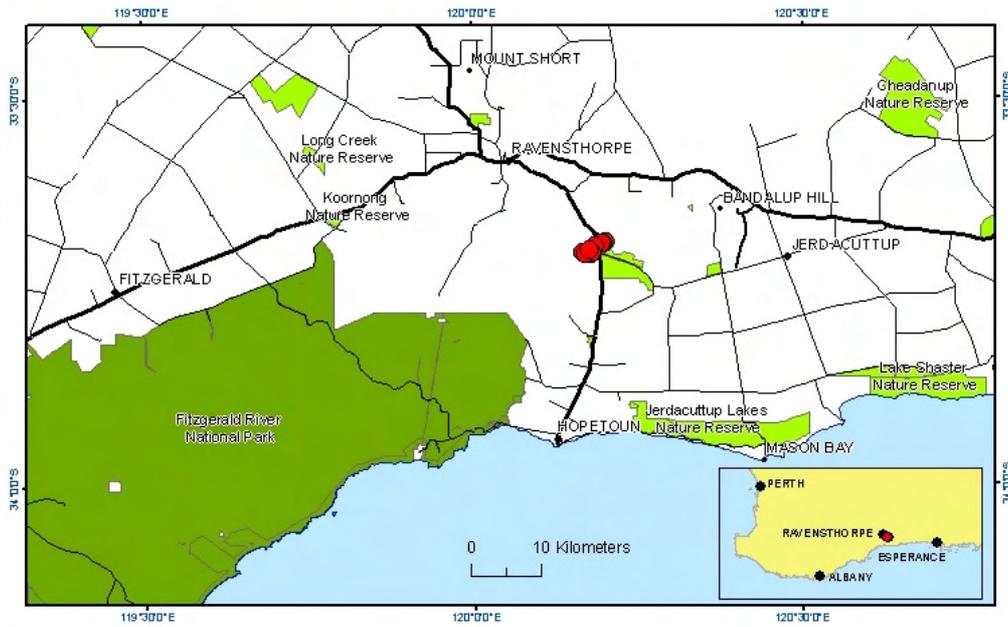
Soils: Pale or grey sandy clay loam with schists pebbles or quartzite rubble.

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	Mature	Seedlings	Condition
01a	Kundip	Other Reserve	17/12/2003			Unknown
01b	Kundip	Other Reserve	05/11/2004	100		Unknown
01c	Kundip	Other Reserve	10/11/2004	1000		Unknown
02-	Kundip	Other Reserve	21/09/2005	1000		Unknown
	Kundip	UCL	04/11/2008	30000		Healthy
	Kundip	Other Reserve	04/11/2008	8000		Healthy
	Kundip	Other Reserve	19/02/2009	5000		Healthy
	Kundip	Other Reserve	19/02/2009	500		Healthy
	Kundip	UCL	04/11/2008	20		Healthy
Total:				45620		



References:

Note: Description reviewed by Lyn Craven and Brenden Lepschi who consider this a distinct species (2009).

Melaleuca stramentosa Craven

Family: MYRTACEAE

Common name: None

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

Flowering period: Recorded as flowering 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 *M. plumea* Craven and *M. 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 *stramentum* (straw or thatch), referring to the matted indumentum of hairs that is characteristic of this species.

Distribution. Known only from the Ravensthorpe area.

Habitat Requirements:

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

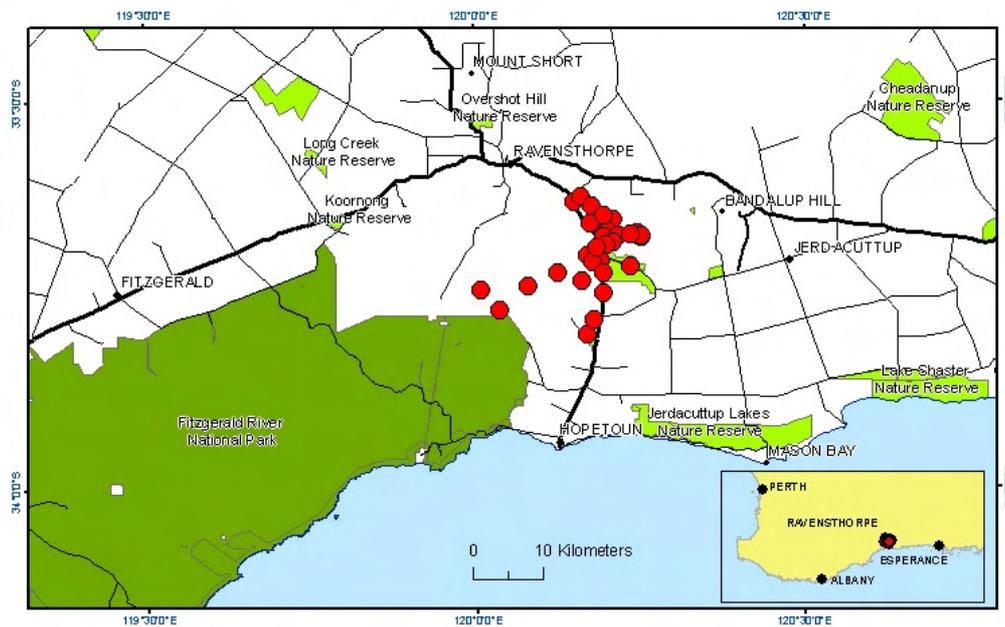
Landforms: Usually found on lower and mid slopes of undulating terrain.

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

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Mature	Seedlings	Condition
01a	Hopetoun-Ravensthorpe Rd	Shire Rd Verge	01/10/2002	10	0	Unknown
01b	Mt Desmond	Other Reserve	01/10/2002	1	0	Unknown
02a	Hopetoun-Ravensthorpe Rd	Shire Rd Verge	20/10/2002	1	0	Unknown
02b	Kundip	Other Reserve	20/10/2002	22	0	Unknown
02c	Kundip	Other Reserve	20/10/2002			Unknown
02d	Kundip	UCL	20/10/2002			Unknown
02e	Kundip	UCL	20/10/2002			Unknown
03-	Ravensthorpe	Shire Rd Verge	18/10/1983			Unknown
04a	Kundip	UCL	09/11/2002	20	0	Unknown
04b	Kundip	Other Reserve	09/11/2002			Unknown
05-	Hopetoun-Ravensthorpe Rd	Shire Rd Verge	17/10/2002	2	0	Unknown
	Kundip	Other Reserve	08/12/2003	1000		Unknown
	Kundip	Other Reserve	07/10/2005	“occasional”		Unknown
	Mt Desmond	Other Reserve	26/04/2007			Unknown
	Mt Desmond	Other Reserve	26/04/2007			Unknown
	Kundip	Other Reserve	05/09/2007			Unknown
	Mt Desmond	Other Reserve	07/09/2007			Unknown
	Ravensthorpe	UCL	27/09/2007			Unknown
	Ravensthorpe	UCL	01/10/2007			Unknown
	Ravensthorpe	UCL	01/10/2007			Unknown
	Ravensthorpe	UCL	01/10/2007			Unknown
	Ravensthorpe	UCL	27/09/2007			Unknown
	Kundip	Other Reserve	03/10/2007			Unknown
	Kundip	Other Reserve	05/11/2004	100000		Unknown
	Kundip	UCL	05/11/2008	1		Healthy
	Kundip	UCL	05/11/2008	2		Healthy
	Kundip	UCL	05/11/2008	10000		Healthy

	Kundip	UCL	05/11/2008	400		Healthy
	Kundip	UCL	05/11/2008	20		Healthy
	Kundip	Nature Reserve	05/11/2008	5000		Healthy
	Kundip	UCL	05/11/2008	1		Healthy
	Kundip	UCL	05/11/2008	5000		Healthy
	Kundip	Other Reserve	05/11/2008	70		Healthy
	Kundip	UCL	05/11/2008	300		Healthy
	Kundip	Other Reserve	04/11/2008	400		Healthy
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.

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

Micromyrtus navicularis Rye

Family: MYRTACEAE

Other name: *Micromyrtus racemosa* var. *carinata* J.W.Green ms

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

Flowering period: 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 long *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 *M. 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 *navicularis* (boat-shaped), referring to the leaves.

Distribution. Restricted to the Ravensthorpe area.

Habitat Requirements:

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

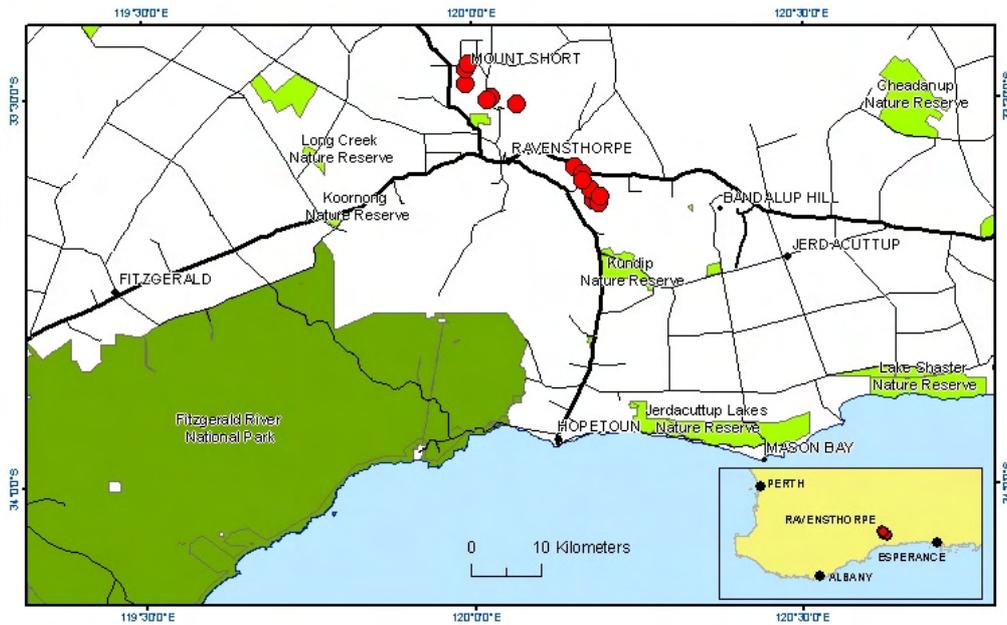
Landforms: Known mainly from the mid and upper slopes of the Ravensthorpe Range.

Vegetation: Recorded from mallee heath and thicket communities.

Assoc. Species: *Eucalyptus falcata* subsp. *falcata*, *Eucalyptus pleurocarpa*, *Hakea subsulcata*.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Mature	Seedlings	Condition
	Mt Desmond	Other Reserve	24/04/2007			Unknown
	Mt Desmond	Other Reserve	24/04/2007			Unknown
	Mt Desmond	Other Reserve	25/05/2007			Unknown
	Mt Desmond	Other Reserve	31/05/2007			Unknown
	Mt Desmond	Other Reserve	07/09/2007			Unknown
	Mt Short	UCL	12/09/2007			Unknown
	Mt Short	UCL	26/09/2007			Unknown
	Mt Desmond	Other Reserve	04/10/2007			Unknown
	Mt Short	UCL	05/10/2007			Unknown
	Elverdton Rd	Shire Rd Verge	30/09/1999	“occasional”		Unknown
	Mt Short Rd	Shire Rd Verge	08/12/2003			Unknown
	Ravensthorpe	UCL	19/11/2008			Unknown
	Ravensthorpe	UCL	11/12/2008			Unknown
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 craigiana C.F.Wilkins, Orthia & Crisp

Family: FABACEAE

Other names: *Pultenaea* sp. Kundip (G.F. Craig 6008)

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

Flowering time: August to November; fruiting 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 *P. 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. It is known only from the northern area of the range and in the vicinity of the old Kundip township, in the Kundip mining lease.

Habitat Requirements:

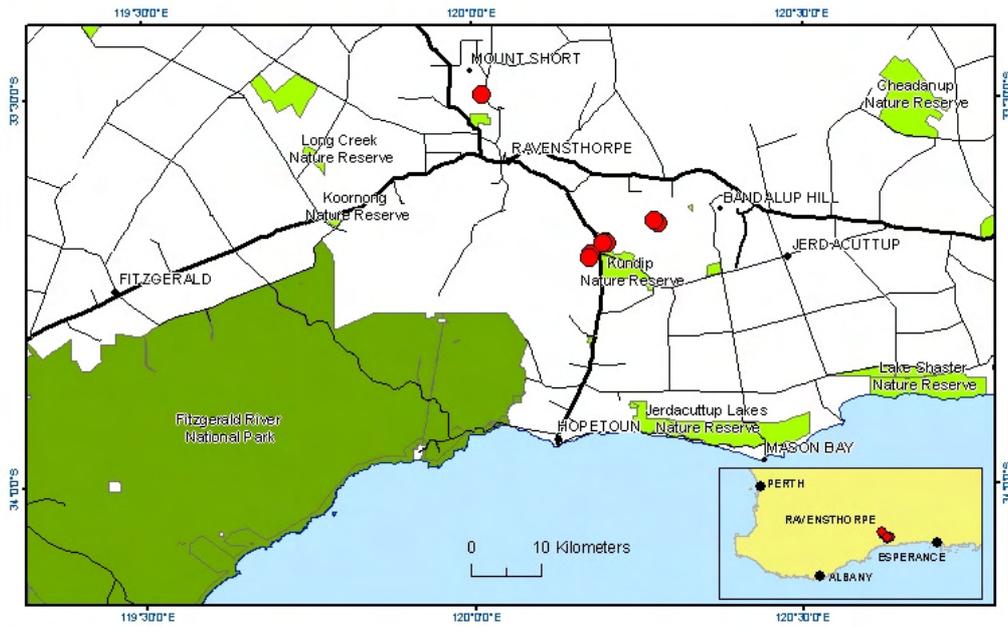
Soils: Usually recorded from grey or brown clay loams, with stone fragments on the surface.

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	Mature	Seedlings	Condition
01a	Kundip	Other Reserve	01/10/2004			Unknown
01b	Kundip	Other Reserve	05/11/2004			Unknown
01c	Kundip	Other Reserve	13/12/2004	100		Unknown
02a	Kundip	Other Reserve	21/09/2005	100		Unknown
02b	Kundip	Other Reserve	21/09/2005	20		Unknown
03a	Ravensthorpe	UCL	30/09/2007			Unknown
03b	Ravensthorpe	UCL	30/09/2007			Unknown
04-	Ravensthorpe	UCL	28/05/2007			Unknown
05-	Ravensthorpe	UCL	21/08/2007			Unknown
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

Tetratheca applanate R.Butcher

Family: ELAEOCARPACEAE (formerly Tremandraceae)

Common name: None

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

Flowering period: 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. *Fruits* and *seeds* not seen.

Distinctive Features. *Tetratheca applanata* is most similar to *T. nuda* Lindl. (Darling Scarp: North Dandalup–Avon Valley National Park) and *T. spartea* (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. spartea* 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. spartea* 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 *T. 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, *T. applanata* is most similar to the Declared Rare *T. aphylla* F.Muell. subsp. *megacarpa* R.Butcher, as each of 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 stamens, in which the base of the anther body and the filament are distinctly elongate and flattened (*L. applanata* = ‘horizontally flattened’).

Distribution. *Tetratheca applanata* is known only from three disjunct locations in Western Australia: near Dardadine, from east of Broomehill and from two populations in the Ravensthorpe area, including one in the Ravensthorpe Range.

Habitat Requirements:

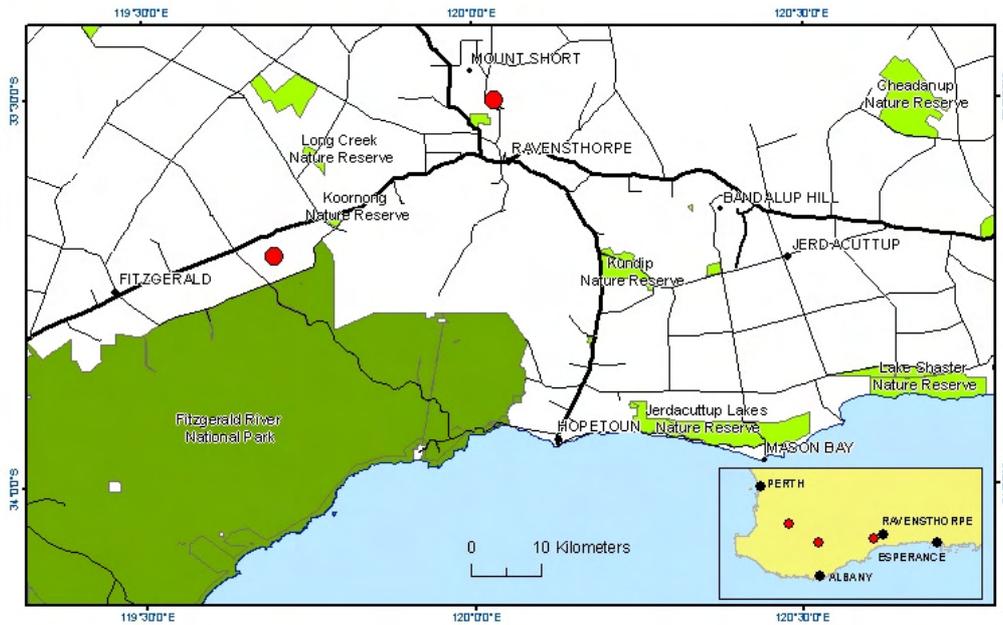
Soils: Sand, brown gravelly clay and sandy loams with lateritic and stony fragments at the surface.

Landforms: Hillcrests and undulating sandplains.

Vegetation: Mallee shrublands.

Summary of population information

Pop'ns	Locality	Land Type	Surveyed	Mature	Seedlings	Condition
01-	Dardadine	Private Property	09/08/1997			Unknown
02-	Ravensthorpe	UCL	07/10/2007	20	0	Unknown
	West River	Unknown	17/08/1977	1	0	Unknown
Total:				21		



References:

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

Note: This description has been reviewed by Ryonen Butcher (2009).