

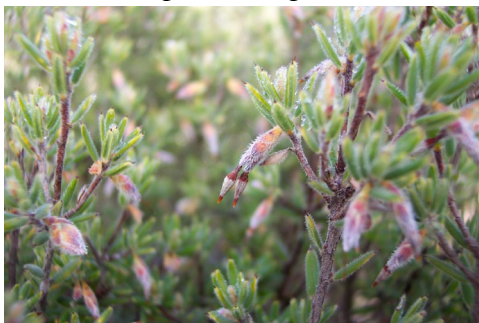
Reports on Priority Taxa Surveyed during March/April 2003

Check on the status of several Priority One Taxa in the
Esperance District

Ryan Butler – Conservation Officer (Flora)



Eremophila compressa



Conostephium marchantiorum



Eucalyptus varia subsp. salsuginosa



Eucalyptus foliosa

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Summary

In March and April 2003 surveys were carried out for four Priority One taxa endemic to the Esperance District. The surveys were to determine if Priority 1 status assigned to the taxa was relevant. The taxa were chosen for the following reasons:

- All the taxa only occurred in the Esperance District.
- Most had not had full surveys carried out for at least 3-5 years, some over 10 years.
- Most population sites occurred on roadsides in the agricultural zone to the north of Esperance, therefore are at risk of further decline due to clearing and roadworks.
- There were very few population sites known.
- Records showed that these plants flowered at this time of year, in the case of the Eucalypts they would at least have fruit on them. This allowed for easier field and Herbarium identification.

The surveys included checking nearly all known collection sites for *Eucalyptus varia ssp. salsuginosa*, *Eucalyptus foliosa* and *Eremophila compressa*. Time was the only that reason most of the *Conostephium marchantiorum* populations weren't checked, and it was also why populations on private property (PP) were not checked.

- During the survey 6 new sites were found for *Eucalyptus varia ssp. salsuginosa* and a total of approx 200 plants counted from 14 sites.
- During the survey 3 new sites were found for *Eucalyptus foliosa* and a total of approx 93 plants counted from 12 sites.
- During the survey 3 'new' sites were found for *Eremophila compressa* and a total of approx 535 plants counted from the 3 sites. Included in these new sites was population 58 which ended up incorporating populations 52 and 53. This population ran for several km and included about 500 plants. Total number of populations is still 5.
- During the survey no new sites were found for *Conostephium marchantiorum* and a total of approx 350 plants were counted from 7 sites. Counts from the other sites surveyed in recent years adds up to another ~600 plants.
- While looking for populations of *E. foliosa*, samples of another *Eucalypt* were made near known existing populations of *E. foliosa*. These eucalypts were identified by Malcolm French as *Eucalyptus merrickiae* (DRF-Vuln). These populations occur approximately 20km south of the current known range (WA Herbarium RB49 & RB50).

These surveys were quick and there was not enough time to determine accurate geographical extents for any of the species.

Further surveys with a hypothesis and set survey structure will ensure a correct status for each of these species can be determined.

After this report was prepared there has been another population of *Eucalyptus varia ssp. salsuginosa* found (RB79 – unconfirmed) and another possible population ~50km ENE of the known locations (no collection made). Also a new site for *Eucalyptus foliosa* and *Conostephium marchantiorum* was found in uncleared bush south of *E. foliosa* pops 55, 63 & 64 (RB81, RB82 & RB84). A new site of *Eremophila compressa* has been found on Salmon Gums Rd. West.

NOTE

So as not to get confused with population numbers assigned to DEFL populations (official CALM Wildlife database) all the collection sites that have been checked that are not represented on DEFL have had population numbers assigned starting from 50. This due to it being unlikely that any rare plants will have more than 50 populations.

Any numbers shown in this report with the letters 'RB' before the number (eg RB47) are herbarium voucher reference numbers.

Eucalyptus varia subsp. salsuginosa (P1)

Introduction

Eucalyptus varia subsp. salsuginosa is a Priority 1 species found only in the Esperance District. This species was chosen for the survey for the following reasons. District and Herbarium records (Florabase) showed that there were only a total of 8 sites, suggesting that survey for this species has been mainly opportunistic or accidental (collected with other plants). The distribution of the 8 sites of this species suggested that it had a limited range within the Esperance District. Being a eucalypt it was likely to have buds, flowers or fruit which would help with the identification.

Habitat

Records suggest that *E. varia subsp. salsuginosa* seems to grow upslope of saline drainage lines and after mapping existing populations onto the 1:250,000 AUSLIG map series (Figure 2), saw that all the sites were located either on or very close to the drainage lines (creeks) where they crossed the roads. The reason for being just away from the drainage lines is most likely due to the position that the point was taken using the GPS.

The positioning of the populations was backed up by previous site descriptions that suggest preference for white sandy soils close to saline drainage lines. This was confirmed during the surveys with most populations occurring within 10-100m either side of a saline drainage line. These soils were often damp and with white grey sand over grey/brown sandy clay.

Plant description¹

Mallee to 4 m tall. Forming a lignotuber. Bark rough, thick, fibrous, greyish for up to 1.5 m of trunk, smooth above, grey-brown and pinkish. Adult leaves alternate, blade narrowly lanceolate, 5-8.3 cm long, 0.5-1.5 cm wide, concolorous, dull and bluish green maturing slightly glossy and green inside the crown. Flower colour lemon (Figure 1). Buds 9 or 11, pedicellate, long-fusiform and slightly curved, scar present, operculum horn-shaped, three times the length of the hypanthium and equal to it in width at the join. Fruit barrel-shaped to cylindrical, 0.5-0.6 cm wide.



Figure 1. *Eucalyptus varia subsp. salsuginosa*

Survey details

The survey was set up to check the known sites first to view the species and then to check other sites with a similar habitat. During the survey 6 new sites were found and a total of approx 200 plants counted from 14 sites (Table 1).

Almost all vouchers sent to the WA Herbarium (RB38 – RB48 & RB51) have been identified and confirmed by Malcolm French as *Eucalyptus varia subsp. salsuginosa*.

One site (EVS-58) was checked with the result of no plants found. This site was last checked in 1989 and is an outlier to all the other sites.

There was no planned technique or method for determining which sites to check. It was a process based on checking any saline drainage area that was seen while driving through the area.

Observations

There are more areas ‘downstream’ of the current populations that could be possible population sites. The potential area for *E. varia subsp. salsuginosa* may be extensive but due to the restricted zone in which they seem to grow, there is likely to be limited numbers at each site. There is the chance that areas of uncleared bush along the drainage lines (creeks) on private property may contain larger populations of *E. varia subsp. salsuginosa* but most of these areas in this agricultural zone have been extensively cleared or grazed/disturbed.

Currently its geographical extent is found in an area of up to 44km east to west and 13km north to south.

Conclusions

Despite more than doubling the number of known populations of *E. varia subsp. salsuginosa* the results of this quick survey suggest that the species may be uncommon. Putting the information gathered from the surveys onto a GIS map and comparing with several other landscape features such as soils, drainage and remnant vegetation a clearer picture of the condition of the species can be determined.

Using this GIS information (Figure 3), it shows that the geographical extent of the species has still not been absolutely determined. With similar soils types along drainage lines both east and west of the current population sites there is still more area that can be surveyed. An example of this is the outlying population 58. There is a ‘natural divide’ to the east of Bandy Creek where most of the drainage lines are ‘inward’ draining. This is where the creek lines start draining into salt lakes rather than into the larger creeks/river that run into the ocean. This may cause different processes that affect the development of the landscape in turn possibly affecting the extent of *E. varia subsp. salsuginosa*. The only other restricting factor would be the amount of native vegetation left in the district that occurs in the same soil type with similar hydrological features. There are few areas under conservation reserve that may provide safe habitat for the species but most sites are likely to be found in road reserves and remnant bush on private property. The difficulty of getting access to some private property further restricts survey work.

There is a need for more and better survey work to be carried out to determine the true status of this species. Though it appears to be restricted in both its habitat and geographical extent not all possible areas have been checked. A more thorough survey using a hypothesis would better assist to determine the species range and status.

Hypothesis – Eucalyptus varia subsp. salsuginosa grows amongst open tree mallee over low scrub on white-grey sandy to light brown sandy-loam soils only upslope of natural saline drainage lines (creeks) to a distance no greater than 150m.

References

- ¹ Brooker, Ian (2002). *EUCLID: Eucalypts of Southern Australia 2nd Ed. (CDROM)*. CSIRO.

Figure 2. *Eucalyptus varia* ssp. *salsuginosa* population sites



R. Butler – Priority surveys

Table 1. *Eucalyptus varia subsp. salsuginosa* population details

Pop'n	Land Details	LGA and District	Location	Position	Surveyed	Population size	Condition
50-	Rd Verge SHIRE Dalyup Rd	Esperance Esperance (South)	E and W sides of Dalyup Road, Esperance Plains, NW of Esperance. Both sides of saline drainage line.	33 ° 32 ' 44. " 121 ° 35 ' 2.3 "	27/03/2003	~20 Mature 0 Seedlings	Healthy
51-	Rd Verge Shire Campbells Rd	Esperance Esperance (South)	Campbells Road, N of Esperance, between Fleming Grove and Freebairns Roads. ~1.3km S of Fleming Grove Rd. In PP along drainage line.	33 ° 34 ' 59. " 121 ° 53 ' 57. "	28/03/2003	2 Mature 0 Seedlings	Healthy
52-	Rd Verge SHIRE Speddingup Rd. West	Esperance Esperance (South)	3.9 km W of highway on Speddingup West Road, Esperance Plains,	33 ° 30 ' 58. " 121 ° 40 ' 28. "	27/03/2003	~20 Mature 0 Seedlings	Healthy
53-	Rail reserve Kalgoorlie Esperance Rail Line	Esperance Esperance (South)	~2 km N of Gibson along railway line. 2 plants beside railway on the edge of a small depression. 7 plants ~270m S of GPS location in a small depression (drain) on both sides of the railway line.	33 ° 37 ' 53. " 121 ° 48 ' 23. "	28/03/2003	9 Mature 0 Seedlings	Healthy
54-	Rd Verge Shire Brownings Rd	Esperance Esperance (South)	Brownings Road, 4.0 km W of Coolgardie-Esperance Hwy. E and W sides of drainage line. Could extend N and S into PP.	33 ° 37 ' 10. " 121 ° 44 ' 52. "	28/03/2003	6 Mature 0 Seedlings	Healthy
55-	Rd Verge Shire Belgian Rd	Esperance Esperance (South)	5.8 km W of junction of Dalyup Rd and Speddingup Rd West.	33 ° 31 ' 2.7 " 121 ° 31 ' 12. "	27/03/2003	10 Mature 0 Seedlings	Healthy
57-	Rd Verge Shire Belgian Rd	Esperance Esperance (South)	NE of Esperance on Dempster Road, ~9.2km S of Speddingup Road. ~200m N of Fleming Grove Rd. Likely to extend E and W along drainage line on PP.	33 ° 34 ' 23. " 121 ° 59 ' 30. "	28/03/2003	17 Mature 0 Seedlings	Healthy
58-	Rd Verge Shire Moonanup Rd	Esperance Esperance (South)	3.8 km S along Moonanup Road [from South Coast Highway, NW of Esperance]	33 ° 44 ' 15. " 121 ° 27 ' 36. "	7/02/1989	0 Mature 0 Seedlings	
59-New	Rd Verge SHIRE Dalyup Rd	Esperance Esperance (South)	~1.3km S from Speddingup Rd West along Dalyup Rd.	33 ° 31 ' 47 " 121 ° 35 ' 2.4 "	27/03/2003	15 Mature 0 Seedlings	Healthy
60-New	Rd Verge Shire Brownings Rd	Esperance Esperance (South)	~580m E of pop 54 on S side of road in roadside drain.	33 ° 37 ' 11 " 121 ° 45 ' 14. "	28/03/2003	18 Mature 0 Seedlings	Healthy
61-New	Rd Verge Shire Brownings Rd	Esperance Esperance (South)	~3.4km W along Brownings Rd from the Esp-Norse Hwy. E and W side of drainage line, possibly extends N onto PP. May be main population associated with pop 60.	33 ° 37 ' 10 " 121 ° 45 ' 28. "	28/03/2003	~30 Mature 0 Seedlings	Healthy
62-New	Rd Verge SHIRE Freebairns Rd.	Esperance Esperance (South)	N side of Freebairns Rd ~5.5km W from Dempster Rd.	33 ° 36 ' 32. " 121 ° 55 ' 51. "	28/03/2003	2 Mature 0 Seedlings	Healthy
63-New	Rd Verge Shire Fleming Grove Rd	Esperance Esperance (South)	~5km from Dempster Rd. along Fleming Grove Rd. Possibly more in PP along saline drainage area.	33 ° 34 ' 11. " 121 ° 56 ' 13. "	28/03/2003	8 Mature 0 Seedlings	

64-New	Rd Verge MRD Coolgardie-Esperance Hwy	Esperance Esperance (South	E and W sides of the Hwy ~100m S of Fleming Grove Rd. intersection. Extends E into uncleared veg on PP (?).	33 ° 34 ' 17. " 2/04/2003 121 ° 45 ' 21. "	~50 Mature 0 Seedlings	Healthy
					Plants	Populations
					Total	Total
					~200	14

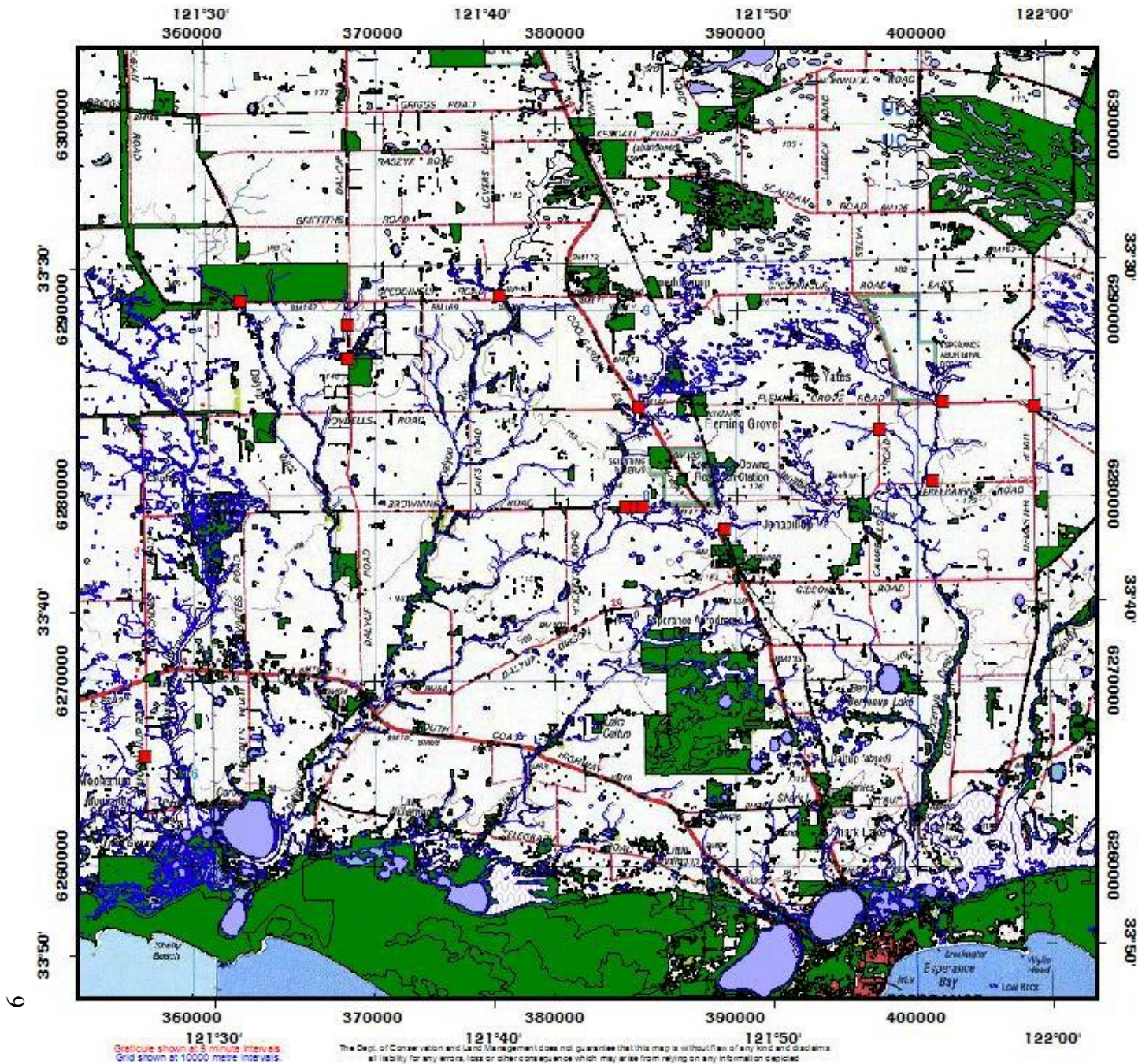
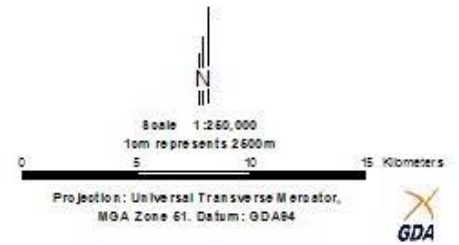


Figure 3. *Euc. varia* ssp. *salsuginosa*

- Legend
- *Euc. varia* ssp. *salsuginosa*
 - Remnant Veg (SLP)
 - Creeks



Produced Under the Direction of
Kerren Midnamore Executive Director
Department of Conservation & Land Management.

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Eucalyptus foliosa (P1)

Introduction

Eucalyptus foliosa is a Priority 1 species found only in the Esperance District. This species was chosen for the survey for the following reasons. District and Herbarium records (Florabase) showed that there were only a total of 11 sites, suggesting that survey for this species has been mainly opportunistic or accidental (collected with other plants). The distribution of the 11 sites of this species suggested that it had a limited range within the Esperance District. Being a eucalypt it was likely to have buds, flowers or fruit which would help with the identification.

Habitat

Records suggest that *E. foliosa* seems to grow near saline depressions (lakes) and after mapping existing populations onto the 1:250,000 AUSLIG map series (Figure 5), saw that all the sites were either on or very close to the drainage lines (creeks) where they crossed the roads or on the sandplain above saline depressions.

The positioning of the populations was backed up by previous site descriptions that suggest preference for white sandy soils close to saline areas. This was confirmed during the surveys with most populations occurring on the sandplains surrounding saline depressions.

Plant description²

Mallee to 3 m tall, with foliage to ground level. Forming a lignotuber. Bark wholly smooth, grey, grey brown, rusty brown and greenish grey, ribbons sometimes present. Branchlets lacking oil glands in the pith. Adult leaves held erect, alternate, blade narrowly oblong-elliptic to narrowly lanceolate or linear, 4.5-7.5 cm long, 0.5-1.1 cm wide, concolorous, dull bluish green at first but soon maturing glossy green, side-veins greater than 45° to midrib. Buds 7 or 9, pedicellate, ovoid (egg-in-eggcup), scar present, operculum usually rounded. Flowers white. Fruit sessile or shortly pedicellate, flattened-hemispherical to obconical and swollen, 0.6-0.7 cm wide, disc level, valves 3, near rim level.



Figure 4. *Eucalyptus foliosa*.

Survey details

The survey was set up to check the known sites first to view the species and then to check other sites with a similar habitat. During the May surveys 3 new sites were found and a total of approx 56 plants counted from 12 sites. There could be up to 200 plants from the 12 sites checked. Accurate plant counts of the other populations have not been recorded.

All vouchers sent to the WA Herbarium (RB52 – RB58 & RB62) have been identified and confirmed by Malcolm French as *Eucalyptus foliosa*.

There are now a total of 14 recorded sites (Table 2). Populations on private property (PP) were not checked during these surveys. Populations 52 and 60 could not be found and population 55 may be part of population 63 or 64 (Figure 5).

There was no planned technique or method for determining which sites to check. It was a process based on checking any saline depression that was easy to access from the road.

Observations

Most of the survey was conducted south of Scadden in the area from which *E. foliosa* had already been collected. This area does not take into account the large extent of salt lakes further to the north. Much more of the landscape (soils and topography) that suits *E. foliosa* occurs around Truslove, in Truslove NR and even further north and east of there (Figure 6).

The western geographical extent of the species is yet to be fully checked. There have only been 3 collections recorded west of the Coolgardie-Esperance Hwy and these are no more than 3km west of the Hwy.

A couple of *E. foliosa* sites also had *Eucalyptus merrickiae* (DRF). This could suggest that these plants enjoy a similar habitat and range to *E. foliosa*. Another factor suggesting the range could be more extensive to the north. Currently the range is found in an area of up to 35km east to west and 20 km north to south.

Conclusions

The survey only added another 3 new sites, which while seeming to suggest that the *E. foliosa* is quite uncommon, it also shows how little an area has been covered while looking for this species. Putting the information gathered from the surveys onto a GIS map and comparing with several other landscape features such as soils, drainage and remnant vegetation a clearer picture of the condition of the species can be determined.

Using this GIS information (Figure 6), it shows that the geographical extent of the species has still not been absolutely determined. With similar soils types and more remnant native vegetation north of the current population sites there is still more area that can be surveyed.

The biggest restricting factor would be the amount of native vegetation left in the district that occurs in the same soil type with similar hydrological features. It is likely that most of the small saline areas have been cleared on farmland causing water levels to rise around these depressions probably killing any vegetation nearby. The major area under conservation reserve that may provide safe habitat for the species is Truslove NR to the north, but most sites are likely to be found in road reserves, remnant bush on private property and possibly the large area of UCL to the northeast of the current populations. The difficulty of getting access to some private property further restricts survey work in suitable areas.

There is a need for more and better survey work to be carried out to determine the true status of this species. Though it appears to be restricted in both its habitat and geographical extent not all areas have been checked. A more thorough survey using a hypothesis would better assist to determine the species range and status.

Hypothesis – *Eucalyptus foliosa* grows amongst open tree mallee over low heath on white-grey sandy soils around natural saline depressions, drainage lines or on saline flats.

References

² Brooker, Ian (2002). *EUCLID: Eucalypts of Southern Australia 2nd Ed. (CDROM)*. CSIRO.

Figure 5. *Eucalyptus foliosa* population sites

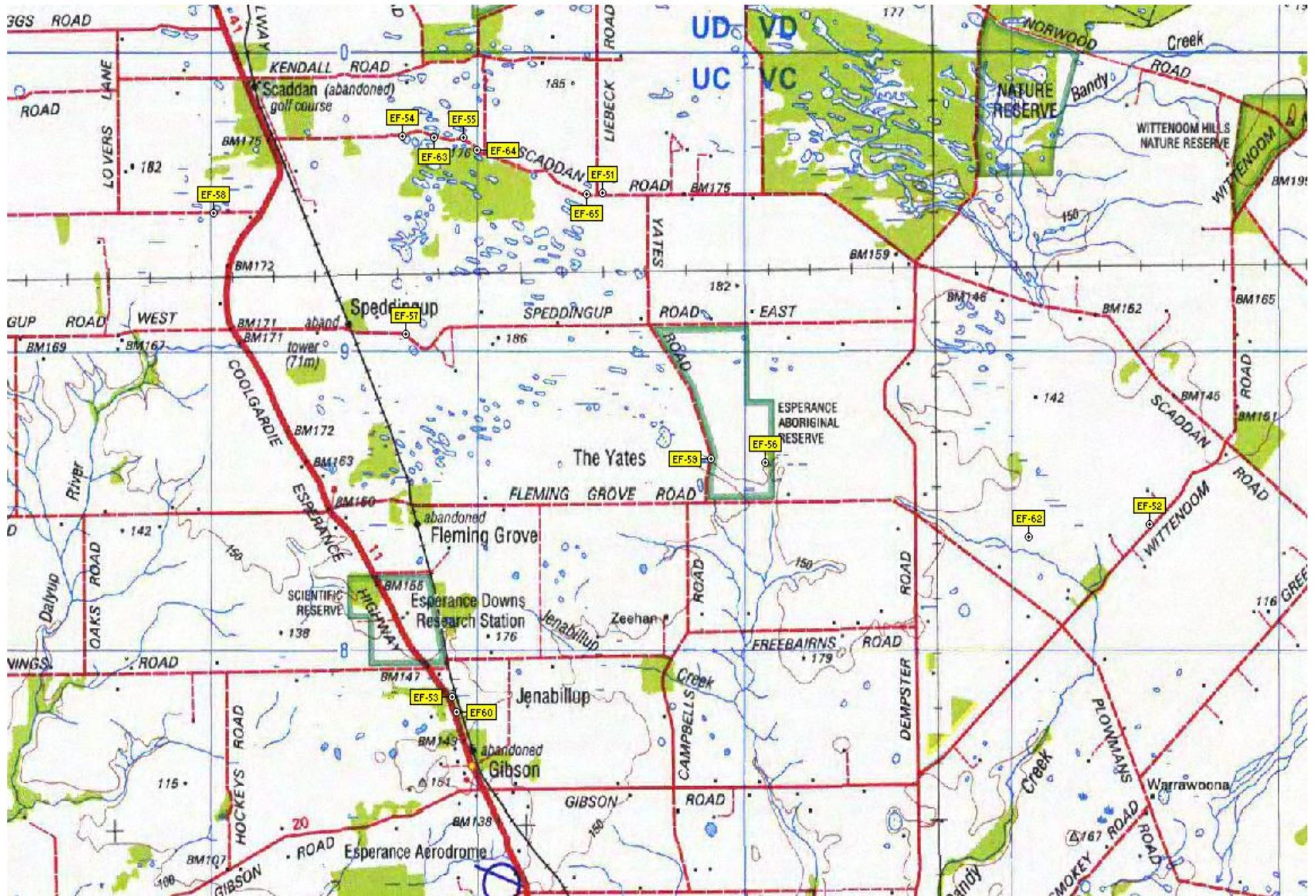
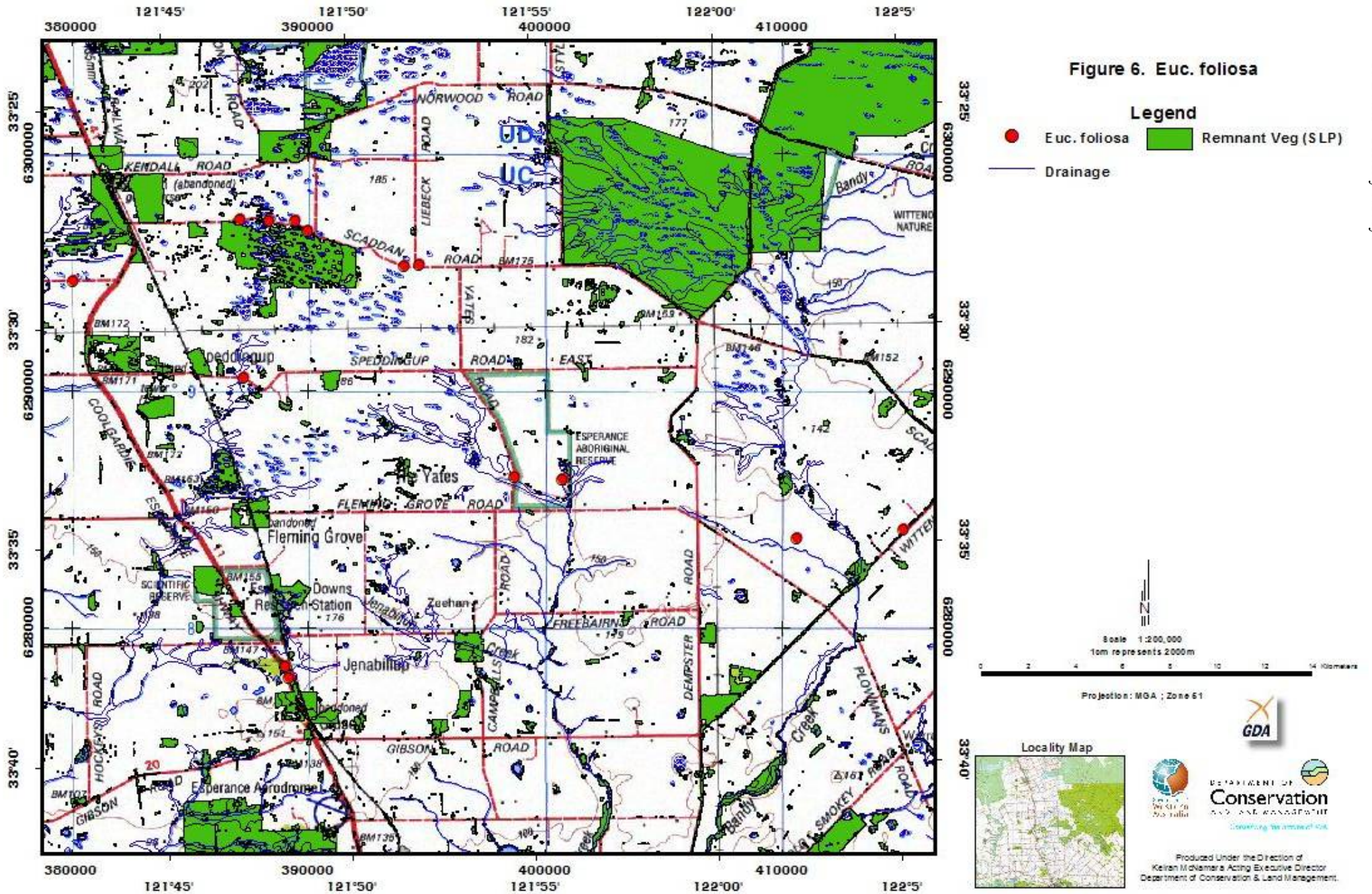


Table 2. *Eucalyptus foliosa* population details

Pop'n	Land Details	LGA and District	Location	Position	Surveyed	Population size	Condition
51-	Rd Verge Shire Scadden Rd	Esperance Esperance (South)	200 metres E of Liebeck Rd on Scadden Rd.	33 ° 28 ' 39. " 121 ° 51 ' 59. "	2/04/2003	36 Mature 0 Seedlings	Healthy
52-	Rd Verge Shire Wittenoom Rd	Esperance Esperance (South)	Wittenoom Road, NE Esperance	33 ° 34 ' 45. " 122 ° 5 ' 8.0 "	18/03/1998	0 Mature 0 Seedlings	
53-	Rd Verge MRD Coolgardie-Esperance Hwy	Esperance Esperance (South)	~2.7 km N of Gibson Pub/Hotel. Mainly on W side but a few on the E side of the Hwy.	33 ° 37 ' 44. " 121 ° 48 ' 12. "	9/04/2003	10+ Mature 0 Seedlings	Healthy
54-	Rd Verge Shire Scadden Rd	Esperance Esperance (South)	~4.8km E of Hwy on Scadden Road. NW of saline lake/depression.	33 ° 27 ' 32. " 121 ° 47 ' 8.1 "	2/04/2003	6 Mature 0 Seedlings	Healthy
55-	Rd Verge MRD Coolgardie-Esperance Hwy	Esperance Esperance (South)	7 km E of highway on Scadden Road	33 ° 57 ' 0 " 121 ° 48 ' 0 "	17/01/1985	0 Mature 0 Seedlings	
56-	Other Reserve Res 26329	Esperance Esperance (South)	Witts Lease, E of Yates Road, edge of Coronup Creek, between Speddingup and Fleming Grove Roads, N of Esperance,	33 ° 33 ' 33. " 121 ° 55 ' 50. "	14/04/1998	0 Mature 0 Seedlings	
57-	Rd Verge Shire Speddingup Rd. East	Esperance Esperance (South)	Speddingup Rd. East. ~6.4 km E of highway, ~2 km E of rail crossing. S side of the road.	33 ° 31 ' 7.6 " 121 ° 47 ' 11 "	9/04/2003	2 Mature 0 Seedlings	
58-	Rd Verge SHIRE Griffiths Road	Esperance Esperance (South)	~2 km W of highway on Griffiths Rd. Co-ordinates estimate only None on road reserve only PP to the N.	33 ° 28 ' 50. " 121 ° 42 ' 15. "	9/04/2003	5 Mature 0 Seedlings	Healthy
59-	Rd Verge Shire Yates Rd	Esperance Esperance (South)	~1.4km N of Fleming Grove Rd on Yates Rd. Some on PP on W side of the road.	33 ° 33 ' 28. " 121 ° 54 ' 31. "	9/04/2003	10-40 Mature 0 Seedlings	Healthy
60-	Rd Verge MRD Coolgardie-Esperance Hwy	Esperance Esperance (South)	N end of truck bay 1.1 km N of Gibson on Coolgardie - Esperance Highway	33 ° 38 ' 0.5 " 121 ° 48 ' 18. "	9/10/1985	0 Mature 0 Seedlings	
62-	Private property NERIDUP LOCATION 230	Esperance Esperance (South)	On 'Bakaara' farm, on creekline ca 2 km NW of Wittenoom Road,	33 ° 34 ' 56. " 122 ° 2 ' 12. "	16/11/1999	0 Mature 0 Seedlings	
63-New	Rd Verge Shire Scadden Rd	Esperance Esperance (South)	~6.0km E from Hwy along Scadden Rd. S side.	33 ° 27 ' 33. " 121 ° 47 ' 55. "	2/04/2003	3 Mature 0 Seedlings	Healthy
64-New	Rd Verge Shire Scadden Rd	Esperance Esperance (South)	~8.1km E of Hwy along Scadden Rd.	33 ° 27 ' 48. " 121 ° 48 ' 57. "	2/04/2003	5 Mature 0 Seedlings	Healthy
65-New	Rd Verge Shire Scadden Rd	Esperance Esperance (South)	~400m W of Liebeck Rd along Scadden Rd. S side.	33 ° 28 ' 37. " 121 ° 51 ' 34. "	2/04/2003	16 Mature 0 Seedlings	Healthy
						Plants	Populations
Total						93+	Total 14

Figure 6. *Euc. foliosa*



Grid shown at 5 minute intervals
Grid shown at 10000 metre intervals.

caveat: The data used is assumed to be correct as received from the custodians.

July 17, 2003

Eremophila compressa (P1)

Introduction

Eremophila compressa is a Priority 1 species found only in the Esperance District. This species was chosen for the survey for the following reasons. District and Herbarium records (Florabase) showed that there were only a total of 5 sites, suggesting that survey for this species has been mainly opportunistic or accidental (collected with other plants). The distribution of the 5 sites of this species suggested that it had a limited range within the Esperance District. Herbarium records show that it had been recorded flowering at that time of year (March).

Habitat

Records of the collections for *E. compressa* and other local *Eremophilas* seemed to suggest that it grows in disturbed sites mainly roadsides. Its preferred soil type is red/brown loams/loamy clay. All sites that were checked were roadside populations. Population 58 which extended for several km has most of the plants growing within 5m of the roadside, with many in the area likely to be disturbed when maintenance of the road and drains takes place (Figure 7).



*Eremophila
compressa*

Figure 7. *Eremophila compressa*

Plant description³

Erect, often spindly shrub; 0.7 – 2m tall; flowers white, cream; flowering Oct-Dec/Mar.

Survey details

The survey was set up to check the known sites first to view the species and then to check other sites with a similar habitat. During the May surveys 3 ‘new’ sites were found and a total of approx 535 plants counted from the 3 sites. Included in these new sites was population 58 which ended on incorporating populations 52 and 53 (Table 3). This population runs for several km and includes about 500 plants. Total populations are still 5 (Figure 8). Population 56 could be part of, or the same as population 55. This was north of Salmon Gums with only about 600m between the sites. Recent verbal communication with Paul Armstrong (botanist) suggests that this population may actually extend for about 2km along the Coolgardie-Esperance Hwy. All vouchers sent to the WA Herbarium (RB66 – RB70) are yet to be identified and confirmed. Only two sites were unchecked one being inaccessible due to wet weather and the other was a population that occurred on PP. Both these sites supposedly have large healthy populations (pop 54 >1000 plants).

Observations

All of the sites were roadside populations in areas that are likely to be highly disturbed every few years or so. Population 58 was probably the best example of how this species reacts to disturbance. It extends for a total of 9km along a stretch of road. This population is not completely continuous but the largest gap between plants is only about 300-400m. These plants all grow within 5m of the roadside except for corners where vegetation had been slashed. The population also extends west along Machens Rd. On these corners *E. compressa* was growing right up to where the unslashed vegetation started. This species looks and behaves very similar to *Eremophila lactea* (DRF), which grows just to the south of the *E. compressa* sites. If the two plants weren't flowering it would be very difficult to tell them apart at a casual inspection, with the most notable difference being that *E. compressa* has white flowers and *E. lactea* has purple flowers.

Conclusions

Using GIS information (Figure 9), it shows that the geographical extent of the species has still not been absolutely determined. With similar soils types and more remnant native surrounding the current population sites and further east in the UCL there is still more area that can be surveyed. Like most of the species in this district, the biggest restricting factor that affects the distribution would be the amount of native vegetation (roadside and remnant patches) with similar soil types. For *E. compressa* there should be enough to support more populations. The only problem with *E. compressa* is that like most *Eremophilas* unless there has been some sort of disturbance such as mechanical (clearing, roadworks etc), animal tracks or even fire, then it is unlikely to be seen.

There is a need for more and better survey work to be carried out to determine the true status of this species. Even though *E. compressa* grows only in the Esperance District and appears to be restricted in both its habitat and geographical extent, however not all areas have been checked. A more thorough survey using a hypothesis would better assist to determine the species range and status.

Hypothesis – *Eremophila compressa* grows amongst open tree mallee over dwarf scrub on red-brown loamy soils in areas that have had some sort of disturbance (usually roadside).

References

³ Paczkowska, G. and Chapman, A.R. (2000). *The Western Australian Flora: a descriptive catalogue*. Wildflower Society of Western Australia (Inc.), Western Australian Herbarium, CALM and the Botanic Gardens and Parks Authority, Perth.

Figure 8. *Eremophila compressa* population sites

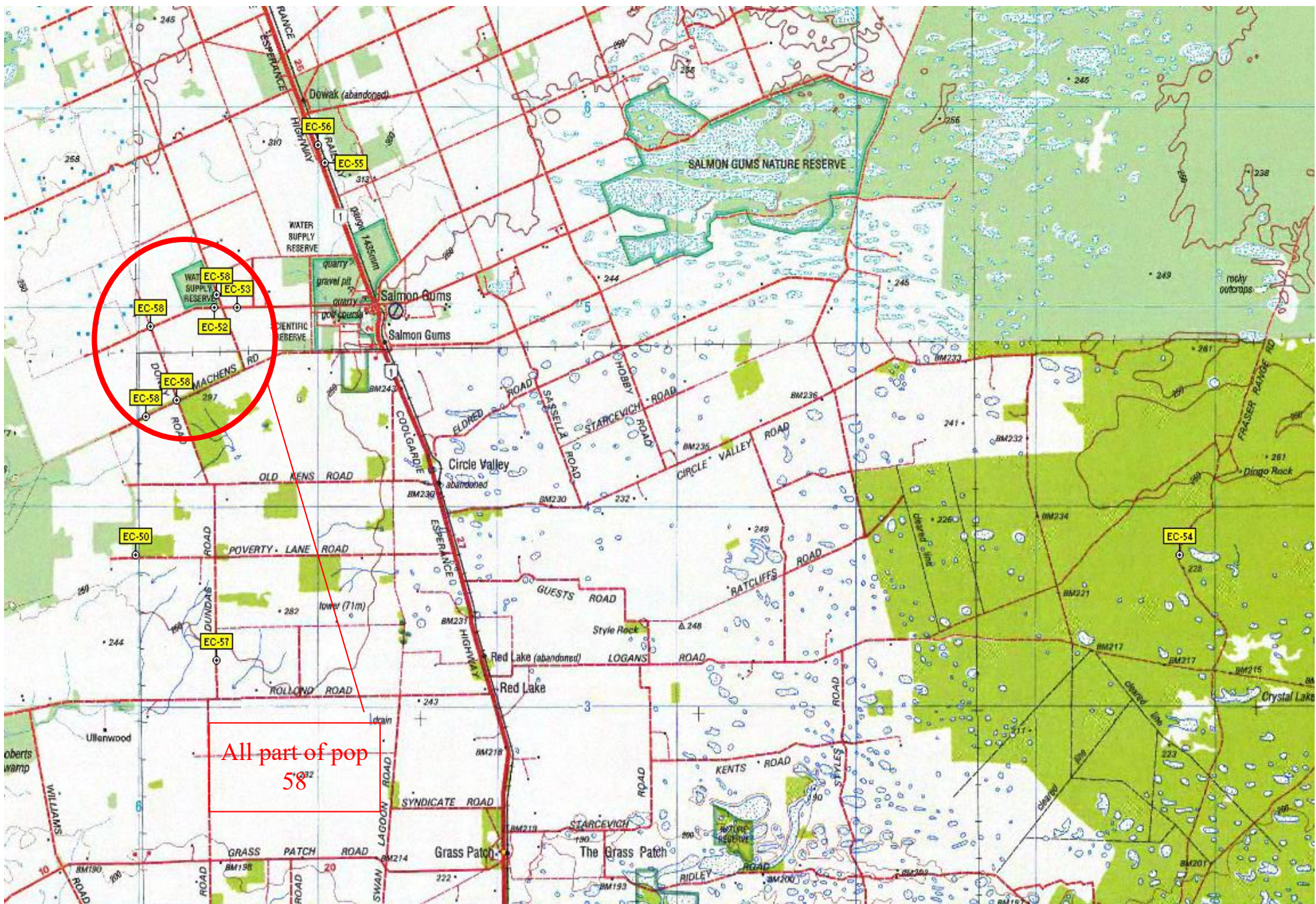
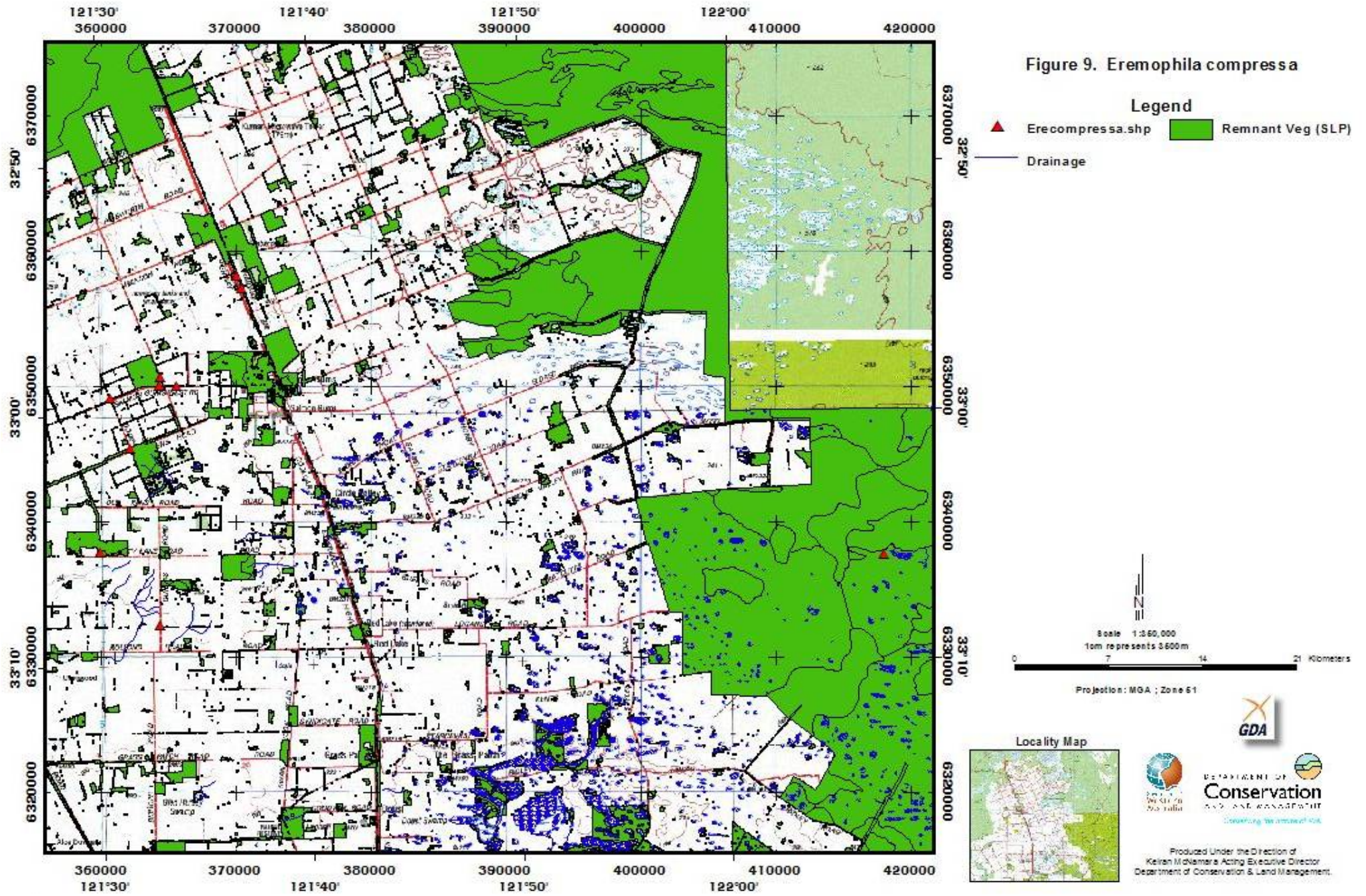


Table 3. *Eremophila compressa* population details

Pop'n	Land Details	LGA and District	Location	Position	Surveyed	Population size	Condition
50-	UCL Unknown	Unknown Esperance (South)	Farm off Poverty Lane, 105 km NW of Esperance	33 ° 5 ' 27. " 121 ° 29 ' 53. "	28/09/1997	>100(??) Mature 0 Seedlings	
52-	Rd Verge Shire Gimlet Rd	Esperance Esperance (South)	Salmon Gums area, between Esperance and Norseman, 8.8 km W of Salmon Gums along Salmon Gums West Road then 0.5 km N along Gimlet Road. Roe District. Incorporated into population 58	0 ° 0 ' 0 " 116 ° 0 ' 0 "	15/04/2003	0 Mature 0 Seedlings	
53-	Rd Verge Shire Salmon Gums West Rd	Esperance Esperance (South)	7.8 km W of Salmon Gums on Salmon Gums West Road. Incorporated into population 58.	0 ° 0 ' 0 " 116 ° 0 ' 0 "	15/04/2003	0 Mature 0 Seedlings	
54-	UCL UCL, Esperance Shire	Esperance Esperance (South)	22.5 km due N of Mount Ridley	33 ° 4 ' 59. " 122 ° 7 ' 0.0 "	20/10/1990	>100(??) Mature 0 Seedlings	
55-	Rd Verge MRD Coolgardie-Esperance Hwy	Esperance Esperance (South)	7.9 km N of Salmon Gums on Coolgardie - Esperance Highway, 42 km E of Peak Charles Possibly part of population 56	32 ° 54 ' 56. " 121 ° 36 ' 49. "	5/12/1980	0 Mature 0 Seedlings	
56-New	Rd Verge MRD Coolgardie-Esperance Hwy	Esperance Esperance (South)	~8.5 km N of Salmon Gums on E side of the Hwy.	32 ° 54 ' 24. " 121 ° 36 ' 36. "	15/04/2003	15 Mature 0 Seedlings	Healthy
57-New	Rd Verge SHIRE Dundas Rd.	Esperance Esperance (South)	~1.9km N of Rollonds Rd. along Dundas Rd. Extends N for ~700m. Mainly on E side of the road.	33 ° 8 ' 22. " 121 ° 32 ' 43. "	15/04/2003	~20 Mature 0 Seedlings	Healthy
58-New	Rd Verge SHIRE Doney Rd.	Esperance Esperance (South)	Extends N from the intersection of Doney Rd and Machens Rd to the intersection of Doney Rd and Salmon Gums Rd West. Then extends E along Salmon Gums Rd to population 53. Also extends N along Gimlet Rd for 700m (off Salmon Gums Rd West).	33 ° 1 ' 18. " 121 ° 31 ' 25. "	15/04/2003	~500 Mature 0 Seedlings	Healthy
						Plants	Populations
						Total +1535	Total 6



Gridlines shown at 10 minute intervals
Grid shown at 10000 metre intervals.

Caution: The data used is assumed to be correct as received from the custodians.

July 17, 2003

Conostephium marchantiorum (P1)

Introduction

Conostephium marchantiorum is a Priority 1 species found only in the Esperance District. This species was chosen for the survey for the following reasons. District and Herbarium records (Florabase) showed that there were a total of 13 sites, suggesting that surveys for this species have been mainly opportunistic or accidental (collected with other plants). The distribution of the 13 sites of this species suggested that it had a limited range within the Esperance District.

Habitat

Records of the collections for *C. marchantiorum* seem to suggest that it grows in sandy areas on flats near saline depressions (Figure 10). Its preferred soil type is white/grey sandy soils around natural saline depressions, drainage lines or on sandy flats above salt lakes¹. All sites that were checked are roadside populations with a couple of the sites extending part way into Truslove NR.



Figure 10. *C. marchantiorum* pop 50.

Plant description⁴

Erect, much-branched shrub; 0.4 – 1.8m tall; flowers red, purple, brown, yellow; flowering Mar/Jul/Nov.

Survey details

During the surveys no new sites were found and a total of approx 350 plants were counted from 9 sites. Counts from the other sites surveyed in recent years add up to another ~600 plants. These other sites were not checked due to time constraints. No plants were found at populations 6, 7 and 11.

Verbal communications with Barbara Archer has provided details of another large population of *Conostephium marchantiorum* not far from pop 9 (see pop 50 in Table 4). This site was confirmed 25/7/03. It may possibly be associated with population 9.

All vouchers sent to the WA Herbarium (RB37, RB59 – RB61) have been confirmed.

Observations

The size of population 10 suggests that *C. marchantiorum* may in fact be quite extensive through the entire Truslove NR. This backed up by population 4 on the Coolgardie-Esperance Hwy, which also falls on the outskirts of the reserve. Even though *C. marchantiorum* prefers these sandy areas it appears that it may have a large spread over much of the southern part of the district as it does not seem to prefer a particular vegetation type. Population 12 is rather scrubby

mallee and heath whereas population 4 is in a more open woodland sort of vegetation. The only thing about these areas is that they are on white-grey sand and close to saline depressions.

Conclusions

Using GIS information (Figure 12), it shows that the geographical extent of the species has still not been absolutely determined. There appears to be quite a large range but the area in between and beyond the outer extents (populations 1 and 13) has yet to be thoroughly surveyed. The difficulty of accessing these areas is restricting factor as there are very few tracks (marked) that move through the large areas of UCL that *C. marchantiorum* may be found in.

There is a need for more and better survey work to be carried out to determine the true status of this species. Even though *C. marchantiorum* grows only in the Esperance District and due to so few surveys appears to be restricted in geographical extent, however not all possible areas have been checked. A more thorough survey using a hypothesis ‘*Conostephium marchantiorum* grows on white-grey sandy soils near saline/water gathering areas’ would better assist to determine the species range and status.

Hypothesis – Conostephium marchantiorum grows on white-grey sandy soils near saline/water gathering areas.

References

⁴ Paczkowska, G. and Chapman, A.R. (2000). *The Western Australian Flora: a descriptive catalogue*. Wildflower Society of Western Australia (Inc.), Western Australian Herbarium, CALM and the Botanic Gardens and Parks Authority, Perth.

Figure 11. *Conostephium marchantiorum* population sites

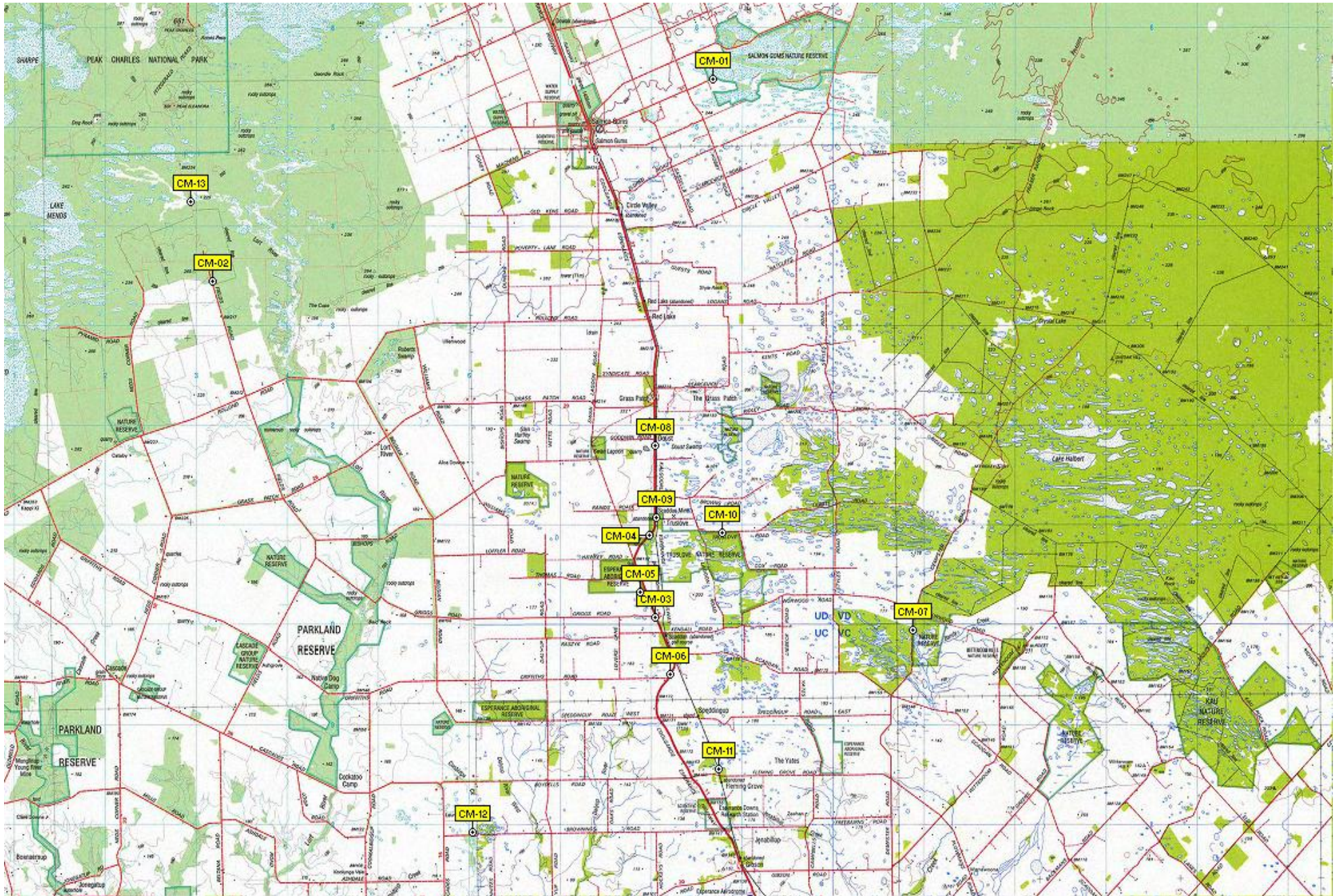
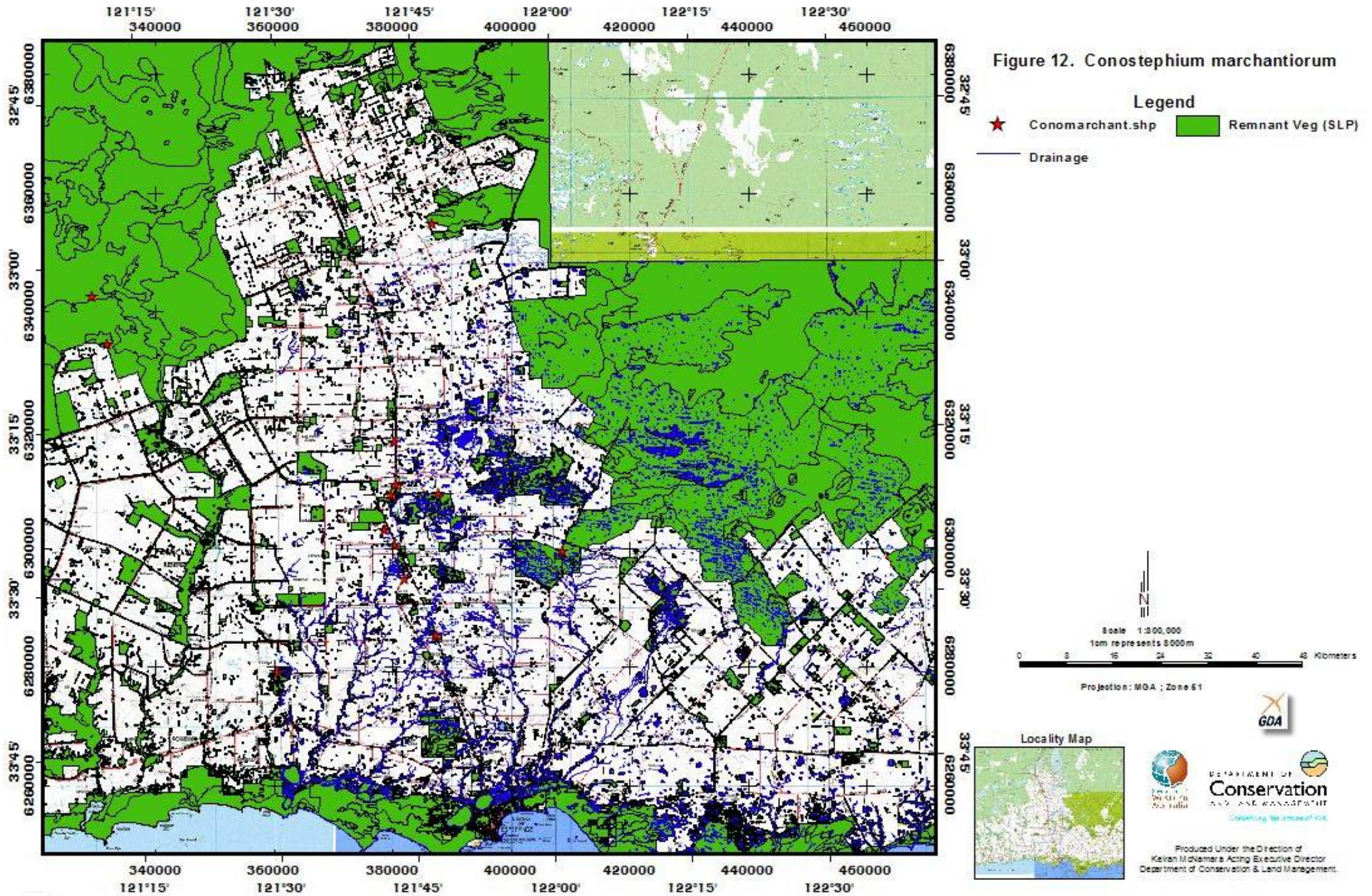


Table 4. *Conostephium marchantiorum* population details

Pop'n	Land Details	LGA and District	Location	Position	Surveyed	Population size	Condition
01-	Nature Reserve Res 33113	Esperance Esperance (South)	Salmon Gums East Rd. 2.6km E of Hobby Rd intersection to the SW corner of the reserve, the E along boundary fence for 600m	32 ° 56 ' 20 " 121 ° 47 ' 18 "	21/05/2002	3 Mature 0 Seedlings	
02-	Rd Verge SHIRE Fields Rd	Esperance Esperance (South)	12.1km N of Rollonds Rd. on Fields Rd. Plants grow up to 100m E of road.	33 ° 6 ' 54. " 121 ° 11 ' 51. "	17/05/2002	~20 Mature 0 Seedlings	
03-	Rd Verge Shire Griggs Rd	Esperance Esperance (South)	100m W of Coolgardie-Esperance Hwy on Griggs Rd.	33 ° 25 ' 35 " 121 ° 42 ' 47 "	17/05/2002	10 Mature 0 Seedlings	
04-	Rd Verge MRD Coolgardie-Esperance Hwy	Esperance Esperance (South)	~10.8 km N of Scaddan on Esperance - Coolgardie Highway, both E and W road verges. Could be more extensive in the Truslove NR.	33 ° 21 ' 9.9 " 121 ° 42 ' 23. "	9/04/2003	100+ Mature 0 Seedlings	Healthy
05-	Other Reserve Res 24952	Esperance Esperance (South)	SE corner Reserve 24952, ca 300 m from Highway, Quadrat 8, No.9,	33 ° 24 ' 12. " 121 ° 41 ' 47. "	7/10/1998	0 Mature 0 Seedlings	
06-	Rd Verge MRD Coolgardie-Esperance Hwy	Esperance Esperance (South)	4 km S of Scaddan along Esperance-Coolgardie Highway	33 ° 28 ' 43. " 121 ° 43 ' 48. "	22/08/2002	0 Mature 0 Seedlings	
07-	Nature Reserve Res 27386, Mount Ridley Nature Reserve	Esperance Esperance (South)	2 km S from Norwoods road on Dempster road, Reserve 27386	33 ° 25 ' 58. " 122 ° 2 ' 27. "	9/04/2003	0 Mature 0 Seedlings	Unknown
08-	Rd Verge MRD Coolgardie-Esperance Hwy	Esperance Esperance (South)	7.1 km N of Truslove Road on Coolgardie-Esperance Highway (ca 5 km S of Grass Patch); Parking Bay on W side of road	33 ° 16 ' 22. " 121 ° 42 ' 58. "	22/08/2002	59 Mature 0 Seedlings	Healthy
09-	Rd Verge MRD Coolgardie-Esperance Hwy	Esperance Esperance (South)	~200m N of Truslove road on Coolgardie - Esperance Highway.	33 ° 20 ' 6.2 " 121 ° 42 ' 57. "	9/04/2003	1 Mature 0 Seedlings	Healthy
10-	Rd Verge SHIRE Truslove Road	Esperance Esperance (South)	~1.8km E of Cox Rd on Truslove Rd, Truslove Nature Reserve.	33 ° 20 ' 56. " 121 ° 47 ' 39. "	9/04/2003	100+ Mature 0 Seedlings	Healthy
11-	Rail reserve Kalgoorlie Esperance Rail Line	Dundas Esperance (South)	400 m N from railway line from Fleming road near edge of lake, c. 10 km N of Gibson	33 ° 33 ' 54. " 121 ° 47 ' 15. "	5/09/1995	1 Mature 0 Seedlings	
12-	Rd Verge Shire Brownings Rd	Esperance Esperance (South)	N side of Brownings Road c. 3.5 km E of Cascades - Browning Road junction, Coolbidge Creek catchment c. 40 km W of Esperance	33 ° 37 ' 12. " 121 ° 29 ' 39. "	27/03/2003	50 Mature 0 Seedlings	Healthy
13-	Rd Verge SHIRE Fields Rd	Esperance Esperance (South)	13.6 km S of Peak Charles Rd on Fields Rd (20.4 km N of Rollonds Rd); SW of Peak Eleanor, Lort River crossing	33 ° 2 ' 33. " 121 ° 10 ' 23. "	19/09/1993	500+ Mature 0 Seedlings	Healthy
50-New	Rd Verge MRD Coolgardie-Esperance Hwy	Esperance Esperance (South)	Parking area with a cactus S of Truslove Rd. W side of the Hwy. To ~400m down track.	33 ° 20 ' 27 " 121 ° 42 ' 40. "	25/02/2003	100+ Mature 0 Seedlings	Healthy
						Plants	Populations
Total						944	Total 14



Grid shown at 30 minute intervals
Grid shown at 20000 metre intervals.

caveat: The data used is assumed to be correct as received from the custodians.

July 17, 2003