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19<sup>th</sup> August 2011

Dear Belinda,

Golden West Resources (GWR) are proposing to develop a gold mine at their Golden Monarch prospect which is situated within the Wiluna West Banded Ironstone Formation (BIF) ranges.

From the 2<sup>nd</sup> of August to the 3<sup>rd</sup> of August 2018, Native Vegetation Solutions (NVS) was commissioned by GWR via Clark Lindbeck and Associates (CLA) to complete a Targeted Threatened Flora survey at the GWR Golden Monarch prospect. *Sida picklesiana* (P3) was identified as the only Threatened Flora within the survey boundary.

GPS locations of proposed pits and waste dump areas were provided to NVS by CLA. A total survey area of approximately 92.87ha was traversed on foot. Previously known locations were identified in several reports: JSWT (2006), KLA (2010), Markey and Dillon (2009), Read (2010) and NVS (2010 & 2011). The GPS coordinates of these locations were visited in the field and population numbers counted on foot. Population boundaries were loosely followed with ±10 metre buffers. Depending on the density of plants observed at each site, lots of 5, 10, 20, 30, 50 or 100 plants were individually counted and marked with a GPS location as the population boundary was walked.

Survey efforts were concentrated in areas of suitable habitat for Priority Flora, particularly on ridges and the sloping plains below them, whereas unsuitable habitat was surveyed less intensively.

Priority Flora encountered was marked with a GPS and a tally of the plant numbers was conducted. The locations of Priority Flora are included in Appendices attached.

In order to calculate the percentage of plants potentially to be destroyed amongst the wider local population as well as the regional population of *Sida picklesiana* (P3), NVS was commissioned again from 5<sup>th</sup> to 7<sup>th</sup> September 2018 by GWR. The purpose was to tally plant numbers of previously known local populations outside of the Golden Monarch survey area, within an 8 km radius.

Results of these percentages can be seen in Table 1 below.

Approximately twenty percent (6,382 of 31,312) of known locally (within 8km of the Golden Monarch prospect) (Table 1). This calculation is based on survey results conducted by NVS in August 2018 and September 2018.

Less than 18.89% of known population numbers of *Sida picklesiana* (P3) will be impacted regionally (Table 1). Regional population numbers in Table 1 below are based on the regional survey by KLA (2010) in conjunction with other previously mentioned reports and the Western Australian Herbarium (WAHERB). The estimate of the regional population size of *Sida picklesiana* (P3) is very conservative as this species has not been intensely regionally surveyed. The current regional distribution of known populations of *Sida picklesiana* (P3) is approximately 160km north, 70km south, 67km east and 180km west of the Golden Monarch prospect area. Habitats that the *Sida* are known to occur on are, Banded Ironstone Formation, Ironstone/quartz gravels and Sandstone. Most of the populations found have been on open plains with ironstone and/or quartz gravels, and records of this taxon on these different substrates show that it is not a habitat specialist. It is therefore reasonable to assume that its distribution is greater than originally thought as these three habitat types are widespread and common throughout the Murchison.

Table 1: Priority Flora encountered within the proposed disturbance area.

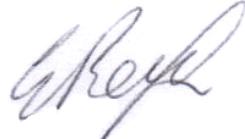
Number of plants counted within the Golden Monarch survey area	Wider Local population counts (based on NVS surveys conducted in August and September 2018)	Percentage of plants affected locally	Regional population counts based on all previous surveys	Percentage of plants affected regionally
6,382	31,312	20.38%	>33,780	<18.89%

The wider regional population records presented here have been collected mostly by following existing tracks and roads in the region. This limited form of searching has yielded significant results for the amount of time expended, which is perhaps an indication of the potential greater distribution and abundance of this taxon.

Although removal of the plants within the survey area is likely to have a low/medium impact on this species locally, the regional implications are considered insignificant.

If you have any queries regarding this work completed, please do not hesitate to contact me on the above-mentioned contact details.

Kind Regards



**Eren Reid**  
Director/Botanist

## References

JSWT, (2006). *Flora and Vegetation of the Wiluna West Banded Ironstone Formations*. Unpublished report prepared for Golden West Resources Ltd, September 2006.

KLA (2010), *Sida picklesiana* (A. Markey and S. Dillon 4126) P1- REGIONAL FLORA SURVEY, Unpublished report by Keith Lindbeck and Associates produced for Golden West Resources Ltd.

Markey A. S. and Dillon S. J., (2009), *Flora and vegetation of the banded iron formations of the Yilgarn Craton: Herbert Lukin Ridge (Wiluna)*, Conservation Science W. Aust. 7 (2): 391-412

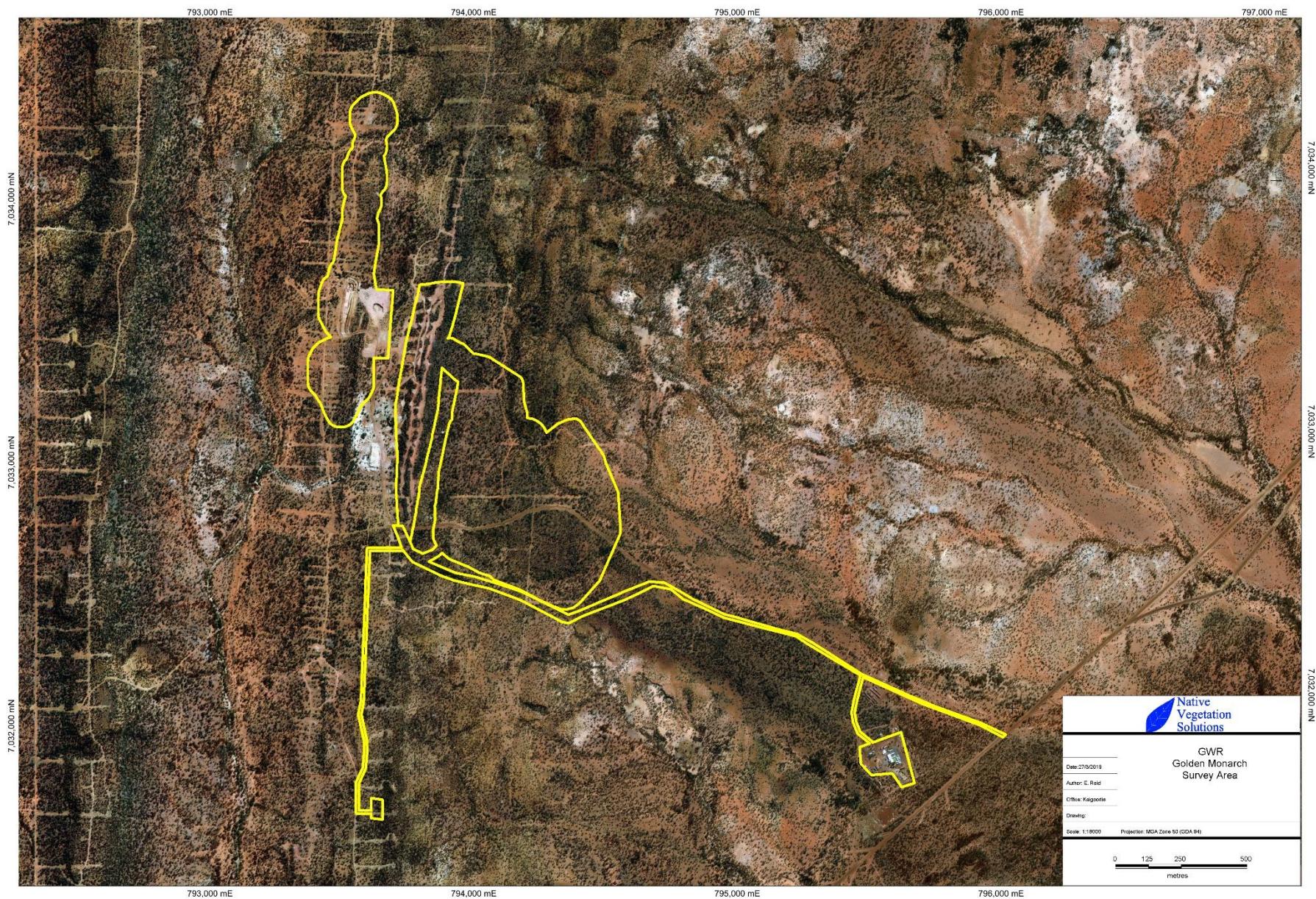
NVS, (2010), *Targeted Threatened Flora Survey of exploration targets within the C1, C3 and Joyner's Find areas of the Wiluna West Project*, December 2010, Unpublished report prepared for Golden West Resources Ltd

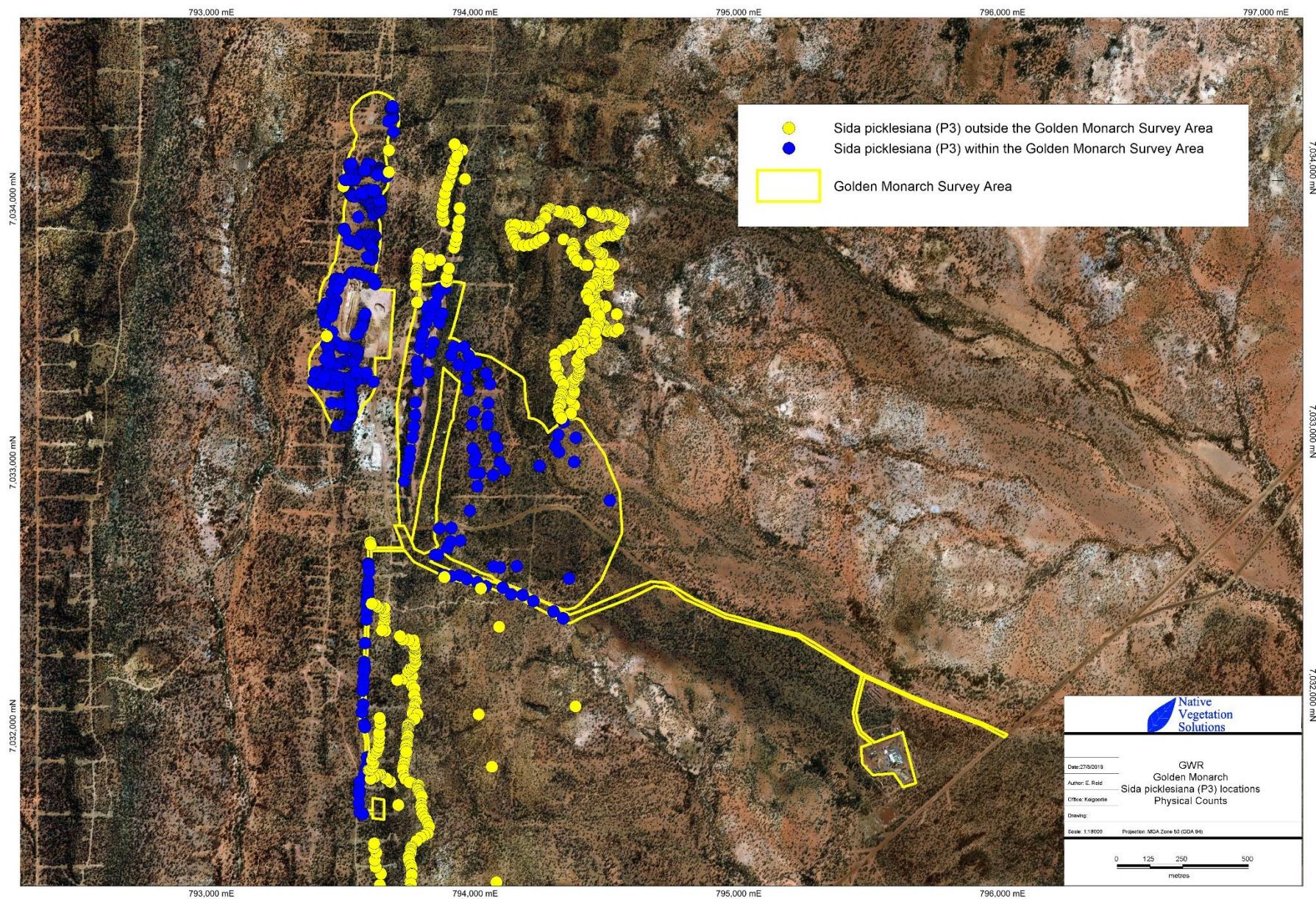
NVS, (2011), *Targeted Threatened Flora Survey of exploration targets within the Golden Monarch, Gold Finch, Iron King, Band 5/6, CJ, C2, South 2 and South 4 areas of the Wiluna West Project, March 2011*, Unpublished report prepared for Golden West Resources Ltd

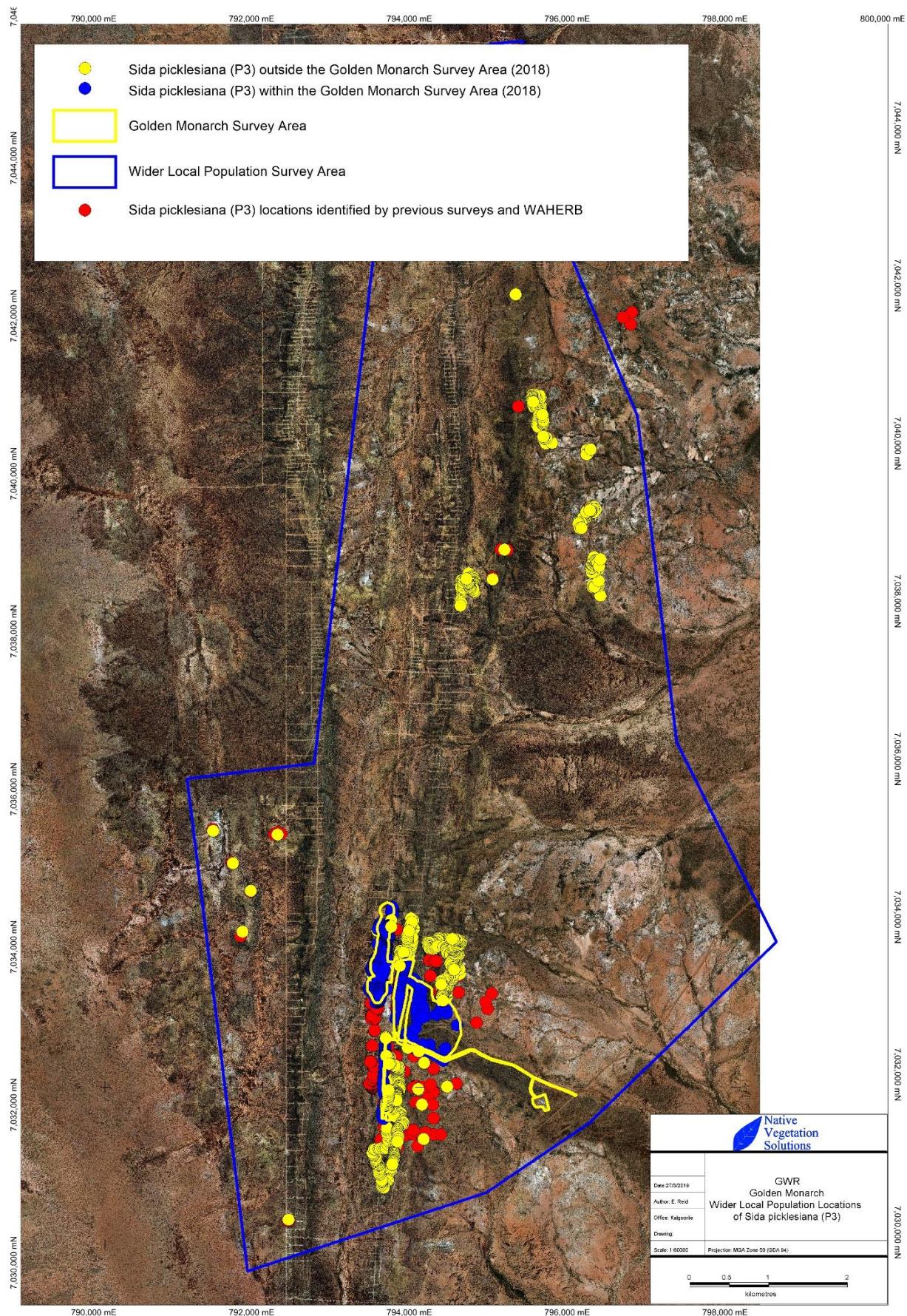
Read, T.J., (2010), *Herbert Lukin Ridge & Surrounds Vegetation Survey*, Unpublished Report prepared for Golden West Resources Ltd by Recon Environmental, May 2010, Report No. GWR01

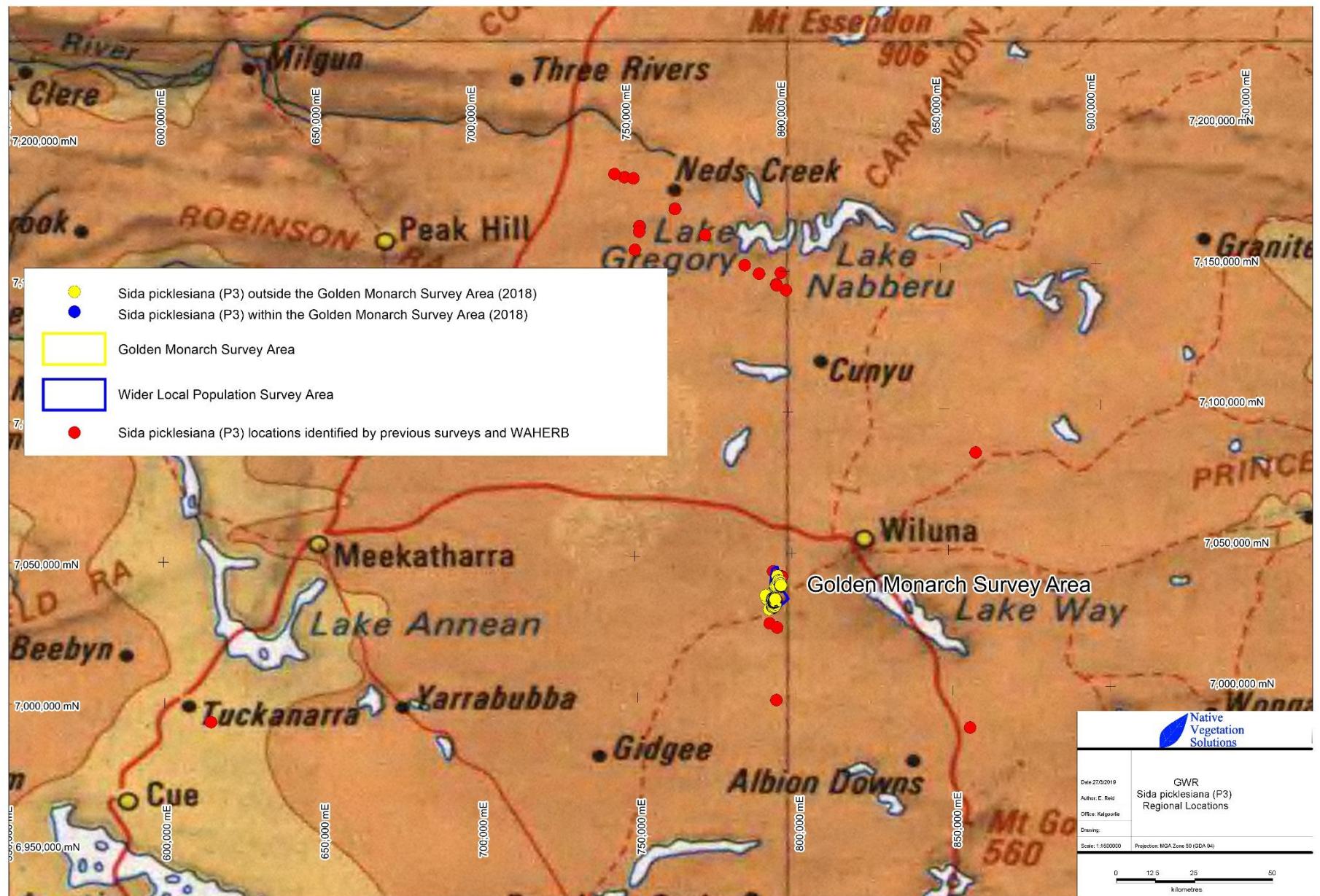
WAHERB, (2018), *Florabase – The Western Australian Flora*, Department of Biodiversity, Conservation and Attractions.  
<http://florabase.dpaw.wa.gov.au/>

**Appendix 1: Maps of *Sida picklesiana* (P3) locations**









**Appendix 2: GPS locations and population counts of *Sida picklesiana* (P3)**















Species	Site Name	Abundance	Conservation Code	Date of Observation	Author	Comments	Longitude	Latitude
Sida picklesiana	wpt471	1	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952697	-26.797894
Sida picklesiana	wpt472	15	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952726	-26.798073
Sida picklesiana	wpt473	5	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952706	-26.798429
Sida picklesiana	wpt474	5	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952698	-26.798539
Sida picklesiana	wpt475	5	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952685	-26.798666
Sida picklesiana	wpt476	5	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952685	-26.798770
Sida picklesiana	wpt477	5	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952690	-26.798844
Sida picklesiana	wpt478	5	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952691	-26.798921
Sida picklesiana	wpt479	5	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952682	-26.799002
Sida picklesiana	wpt480	5	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952664	-26.799103
Sida picklesiana	wpt481	5	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952673	-26.799187
Sida picklesiana	wpt482	5	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952696	-26.799373
Sida picklesiana	wpt483	5	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952667	-26.799467
Sida picklesiana	wpt484	5	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952668	-26.799713
Sida picklesiana	wpt485	5	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952639	-26.800522
Sida picklesiana	wpt486	5	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952625	-26.801173
Sida picklesiana	wpt487	5	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952634	-26.801314
Sida picklesiana	wpt488	5	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952628	-26.801371
Sida picklesiana	wpt489	5	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952608	-26.801532
Sida picklesiana	wpt490	5	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952610	-26.801804
Sida picklesiana	wpt491	5	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952604	-26.801986
Sida picklesiana	wpt492	5	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952587	-26.802144
Sida picklesiana	wpt493	5	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952616	-26.802629
Sida picklesiana	wpt494	5	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952578	-26.802885
Sida picklesiana	wpt495	5	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952675	-26.803298
Sida picklesiana	wpt496	20	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952695	-26.803393
Sida picklesiana	wpt499	20	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952811	-26.804428
Sida picklesiana	wpt500	20	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952793	-26.804744
Sida picklesiana	wpt501	20	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952722	-26.804994
Sida picklesiana	wpt502	5	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952554	-26.805265
Sida picklesiana	wpt503	10	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952546	-26.805545
Sida picklesiana	wpt504	10	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952546	-26.805681
Sida picklesiana	wpt505	10	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952543	-26.805996
Sida picklesiana	wpt506	10	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952583	-26.806310
Sida picklesiana	wpt507	10	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.952710	-26.806363
Sida picklesiana	wpt508	50	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.955827	-26.796509
Sida picklesiana	wpt510	2	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.955220	-26.797450
Sida picklesiana	wpt511	5	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.955323	-26.797450
Sida picklesiana	wpt512	5	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.955683	-26.797193
Sida picklesiana	wpt513	0	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.955801	-26.796981
Sida picklesiana	wpt514	50	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.956168	-26.796947
Sida picklesiana	wpt515	10	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.955367	-26.796540
Sida picklesiana	wpt516	20	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.955588	-26.798128
Sida picklesiana	wpt517	20	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.955601	-26.798208
Sida picklesiana	wpt518	15	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.955866	-26.798164
Sida picklesiana	wpt519	15	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.956177	-26.798130
Sida picklesiana	wpt520	30	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.956459	-26.798249
Sida picklesiana	wpt521	10	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.956863	-26.798353
Sida picklesiana	wpt522	50	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.956999	-26.798564
Sida picklesiana	wpt523	30	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.957181	-26.798483
Sida picklesiana	wpt524	30	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.957839	-26.798520
Sida picklesiana	wpt525	50	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.958164	-26.798735
Sida picklesiana	wpt526	50	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.958605	-26.798755
Sida picklesiana	wpt527	30	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.959012	-26.798947
Sida picklesiana	wpt528	20	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.959789	-26.799291
Sida picklesiana	wpt529	10	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.960165	-26.799525
Sida picklesiana	wpt531	20	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.960352	-26.798152
Sida picklesiana	wpt532	100	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.958345	-26.797773
Sida picklesiana	wpt533	5	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.957711	-26.797835
Sida picklesiana	wpt534	50	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.957464	-26.797802
Sida picklesiana	wpt535	15	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.956516	-26.795912
Sida picklesiana	wpt536	30	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.956773	-26.795073
Sida picklesiana	wpt537	40	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.956855	-26.794618
Sida picklesiana	wpt538	15	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.956653	-26.794611
Sida picklesiana	wpt539	30	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.956642	-26.794200
Sida picklesiana	wpt540	50	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.956687	-26.794018
Sida picklesiana	wpt541	50	P3	2/08/2018	Native Vegetation Solutions	Actual Physical Count	119.956566	-26.793794





















Species	Site Name	Abundance	Conservation Code	Date of Observation	Author	Comments	Longitude	Latitude
Sida picklesiana	wpt850	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.960171	-26.786952
Sida picklesiana	wpt851	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.960270	-26.787139
Sida picklesiana	wpt852	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.960386	-26.787282
Sida picklesiana	wpt853	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.960674	-26.787425
Sida picklesiana	wpt854	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.960775	-26.787419
Sida picklesiana	wpt855	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.961192	-26.787684
Sida picklesiana	wpt856	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.961159	-26.787882
Sida picklesiana	wpt857	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.961162	-26.787986
Sida picklesiana	wpt858	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.961101	-26.788026
Sida picklesiana	wpt859	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.960971	-26.788092
Sida picklesiana	wpt860	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.960872	-26.788181
Sida picklesiana	wpt861	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.960764	-26.788407
Sida picklesiana	wpt862	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.960848	-26.788590
Sida picklesiana	wpt863	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.961095	-26.788903
Sida picklesiana	wpt864	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.961174	-26.789074
Sida picklesiana	wpt865	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.961265	-26.789130
Sida picklesiana	wpt866	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.961300	-26.789245
Sida picklesiana	wpt867	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.961231	-26.789450
Sida picklesiana	wpt868	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.961180	-26.789605
Sida picklesiana	wpt869	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.961122	-26.789718
Sida picklesiana	wpt870	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.960715	-26.789642
Sida picklesiana	wpt871	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.960649	-26.789814
Sida picklesiana	wpt872	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.960679	-26.789920
Sida picklesiana	wpt873	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.960669	-26.790034
Sida picklesiana	wpt874	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.960438	-26.790031
Sida picklesiana	wpt875	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.960303	-26.790149
Sida picklesiana	wpt876	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.960105	-26.790157
Sida picklesiana	wpt877	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.960058	-26.790223
Sida picklesiana	wpt878	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.959897	-26.790341
Sida picklesiana	wpt879	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.959631	-26.790498
Sida picklesiana	wpt880	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.959622	-26.790734
Sida picklesiana	wpt881	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.959648	-26.790874
Sida picklesiana	wpt882	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.959738	-26.791021
Sida picklesiana	wpt883	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.959681	-26.791156
Sida picklesiana	wpt884	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.959743	-26.791261
Sida picklesiana	wpt885	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.959874	-26.791395
Sida picklesiana	wpt886	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.959971	-26.791524
Sida picklesiana	wpt887	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.959912	-26.791797
Sida picklesiana	wpt888	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.959888	-26.791854
Sida picklesiana	wpt889	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.959863	-26.791948
Sida picklesiana	wpt890	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.959826	-26.792060
Sida picklesiana	wpt891	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.959822	-26.792125
Sida picklesiana	wpt892	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.959884	-26.792200
Sida picklesiana	wpt893	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.959849	-26.792243
Sida picklesiana	wpt894	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.959785	-26.792363
Sida picklesiana	wpt895	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.959827	-26.792528
Sida picklesiana	wpt896	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.959910	-26.792676
Sida picklesiana	wpt897	30	P3	7/09/2018	Native Vegetation Solutions	Actual Physical Count	119.960008	-26.792806