

Tuesday, 1 July 2025



Mr Scott Young
Rio Tinto Copper Winu
Central Park, 152-158 St Georges Terrace,
Perth, WA, 6000, Australia
Via email to: Scott.Young@riotinto.com

Re: Memo Summary of findings from Regional Targeted Priority Flora Assessment of the Winu Project, May-June 2025

Dear Scott

Western Botanical is pleased to provide this memo report following the Regional Targeted Priority Flora Assessment (May-June 2025), conducted for Rio Tinto Winu.

1. Background

Rio Tinto Winu Pty Limited (Rio Tinto Winu) plan to develop a new copper-gold mine, referred to as the Winu Project. The Winu Project is located approximately 320 km east of Port Hedland and 300 km south of Broome within the northern Pilbara region of Western Australia, extending across both the Nyangumarta and Martu People's Native Title Determination Areas (Figure 1).

The Project's Development Envelope (DE) is 23,649.02 ha in size, consisting of three components:

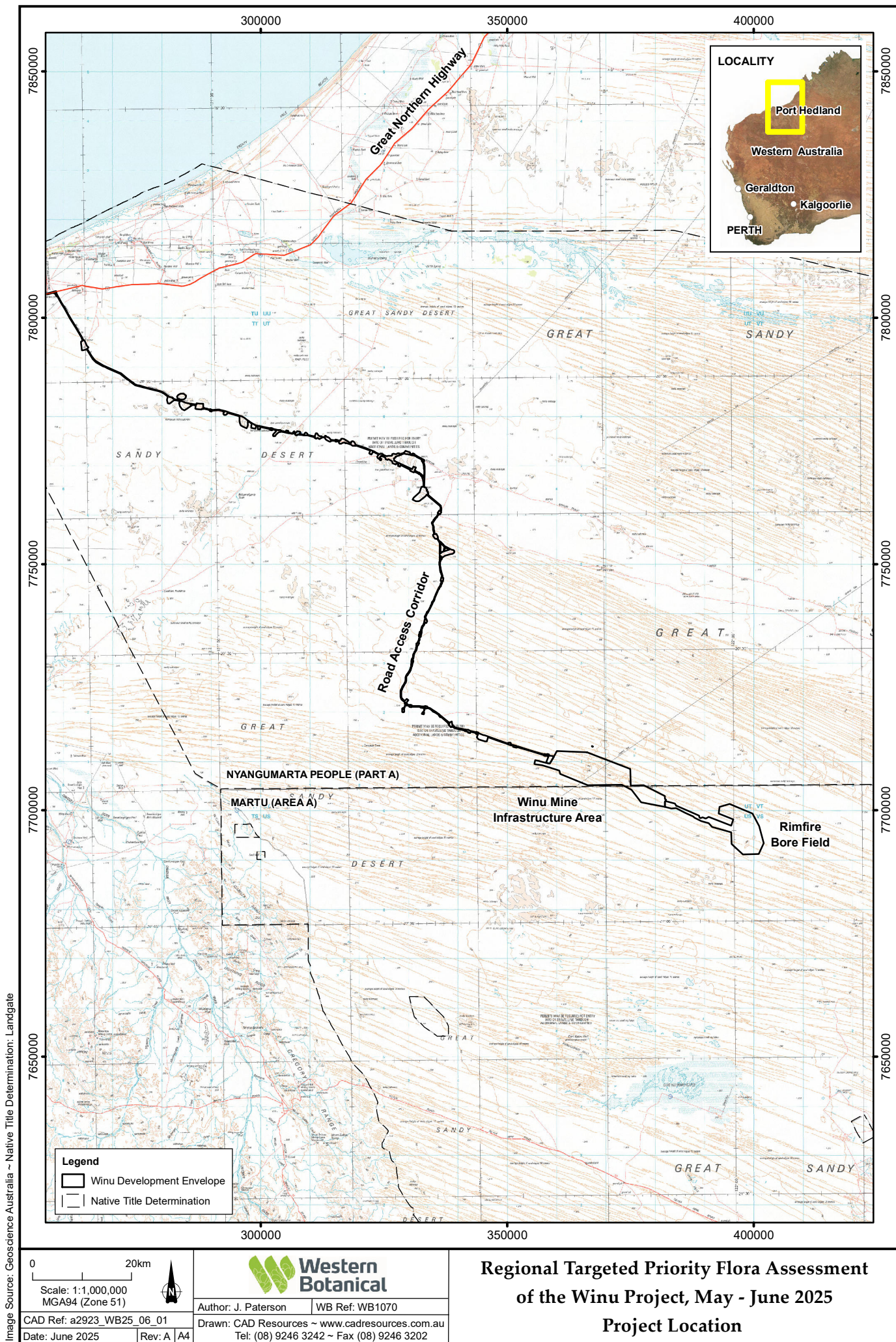
- Mine Infrastructure Area (MIA): area containing the mineralised deposit and related infrastructure; includes monitoring bores north of mine area (10,181.48 ha);
- Road Access Corridor (RAC): existing access road linking Great Northern Highway to the Winu Project Area (6,647.25 ha);
- Rimfire Bore Field (Rimfire): regional bore field located 31 km east of the MIA. Includes a linkage corridor to the MIA (6,820.34 ha);

Since 2017, numerous botanical surveys have been conducted across the Winu Project, including various Targeted and Detailed Flora and Vegetation Surveys within and outside the DE. A detailed list of previous survey work is presented in Western Botanical 2024 (Ref: WB1051).

As part of a previous (2022-2024) works package, Western Botanical were commissioned by Rio Tinto Winu to consolidate all botanical survey data.

Figure 1. Location of the Winu Project.





Results of the consolidated reporting included a total of 11 Conservation significant flora species being recorded across the Winu Project, including the following:

Table 1. Priority Flora Encountered Across the Winu Project (Western Botanical 2024, Ref: WB151).

Taxon	Consolidated Abundances		
	Inside DE	Outside DE	Total
<i>Cynodon anisocarpus</i> (P1)	63,587	367,469	431,056
<i>Goodenia hartiana</i> (P2)	292,462	219,849	512,311
<i>Bonamia oblongifolia</i> (P3)	1	1,250	1,251
<i>Comesperma sabulosum</i> (P3)	42	87	129
<i>Corynotheca asperata</i> (P3)	1,142	1,891	3,033
<i>Dasymalla chorisepala</i> (P3)	31	5	36
<i>Indigofera ammobia</i> (P3)	9,890	18,067	27,957
<i>Polymeria</i> sp. Broome (K.F. Kenneally 9759) (P3)	0	73	73
<i>Synostemon arenosus</i> (P3)	921	1,724	2,645
<i>Terminalia kumpaja</i> (P3)	2	83	85
<i>Tribulopsis marliesiae</i> (P3)	152	266	418

The Winu Project has been referred to the Environmental Protection Authority (EPA) for assessment under section 38 of the Environmental Protection Act 1986 (EP Act). In preparation for the upcoming submission of their Environmental Review Document (ERD), Rio Tinto Winu commissioned Western Botanical to conduct additional targeted Priority flora searches, both regionally and across the DE (Figure 2), in order to provide additional context on Priority flora species populations and their distributions across the Winu Project.

2. Methods

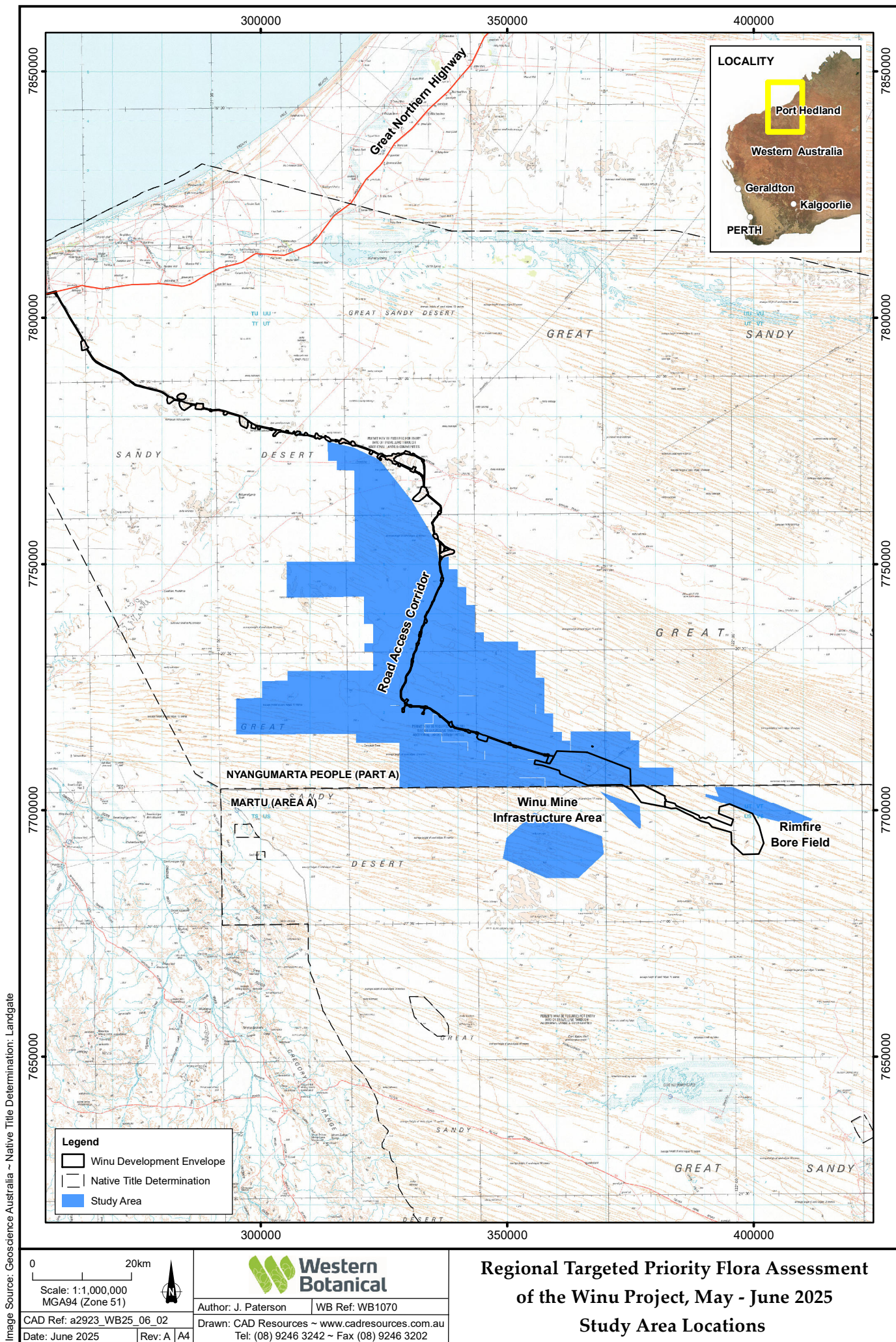
2.1 Field Assessment

The field assessment was conducted by Western Botanical botanists, Jason Paterson and Nicole Dakin, over two mobilisations. The first survey was conducted between the 4th and 8th of May, 2025, while the second survey took place between 29th May and June 4th, 2025.

The first mobilisation survey was conducted within the Martu Native Title Area, targeting Priority flora species, *Corynotheca asperata* (P3), *Synostemon arenosus* (P3), *Goodenia hartiana* (P2) and *Tribulopsis marliesiae* (P3). An aerial survey was implemented to locate sizable populations outside of the DE, followed by foot traverses to accurately record population abundances at these locations. Sand dunes were targeted for *Corynotheca asperata* (P3) and *Synostemon arenosus* (P3), while interdunal sandplains were targeted for *Goodenia hartiana* (P2) and *Tribulopsis marliesiae* (P3).

Figure 2. Regional Survey Area.





The second mobilisation was conducted within the Nyangumarta Native Title Area, targeting Priority flora species, *Dasymalla chorisepala* (P3), *Goodenia hartiana* (P2) and *Tribulopsis marliesiae* (P3). Regional survey areas included the Wilkorr Wilkorr Rd, and the Rio Tinto Exploration track at the western end of Copperhead Road.

This was followed by a systematic Priority flora search within prevailing Interdunal Sandplain Vegetation Associations within the MIA, in order to address gaps from previous survey work and obtain density (abundance / ha) estimates for some of the Priority flora species.

3. Results

3.1. Priority Flora Abundances

The regional surveys yielded additional numbers for eight of the eleven Priority flora species known to the Winu Project. Priority flora species abundances were also recorded during alternative components of additional survey work; i.e., *Bonamia oblongifolia* (P3) (Western Botanical 2025, Ref: WB1068), *Eriachne lanicaulis* (P3) (Western Botanical 2025, Ref: WB1071), and potential novel grass species, *Eragrostis* sp. recurved spikelets (J. Paterson & N. Dakin WB41179) (Western Botanical 2025, Ref: WB1072).

Priority flora species abundances (2025 and consolidated), within and outside of the DE are presented in Table 2. Priority flora locations recorded during the 2025 works are presented in Figure 3. Consolidated Priority flora locations are Presented in Figure 4.

Table 2. 2025 and Consolidated Priority Flora Abundances Inside and Outside of the Development Envelope, Winu Project.

Taxon	2025			Consolidated		
	Inside DE	Outside DE	Total	Inside DE	Outside DE	Total
<i>Cynodon anisocarpus</i> (P1)	24,274	506	24,780	63,587	367,972	431,559
<i>Tephrosia rosea</i> var. Port Hedland (A.S. George 1114) (P1)	0	1	1	0	1	1
<i>Goodenia hartiana</i> (P2)	89,686	116,416	206,102	325,577	333,851	659,428
<i>Bonamia oblongifolia</i> (P3)	2	1	3	3	1,251	1,254
<i>Comesperma sabulosum</i> (P3)	0	12	12	42	87	129
<i>Corynotheca asperata</i> (P3)	238	4,093	4,331	1,380	5,961	7,341
<i>Dasymalla chorisepala</i> (P3)	63	254	317	94	259	353
<i>Eragrostis lanicaulis</i> (P3)	0	1	1	0	1	1
<i>Indigofera ammobia</i> (P3)	164	1,241	1,405	10,054	19,217	29,271
<i>Polymeria</i> ?sp. Broome (K.F. Kenneally 9759) (P3)	0	0	0	0	73	73
<i>Synostemon arenosus</i> (P3)	148	781	929	1,072	2,505	3,577
<i>Terminalia kumpaja</i> (P3)	0	0	0	2	83	85
<i>Tribulopsis marliesiae</i> (P3)	254	547	801	403	808	1,211

Figure 3. 2025 Regional Targeted Priority Flora Locations.



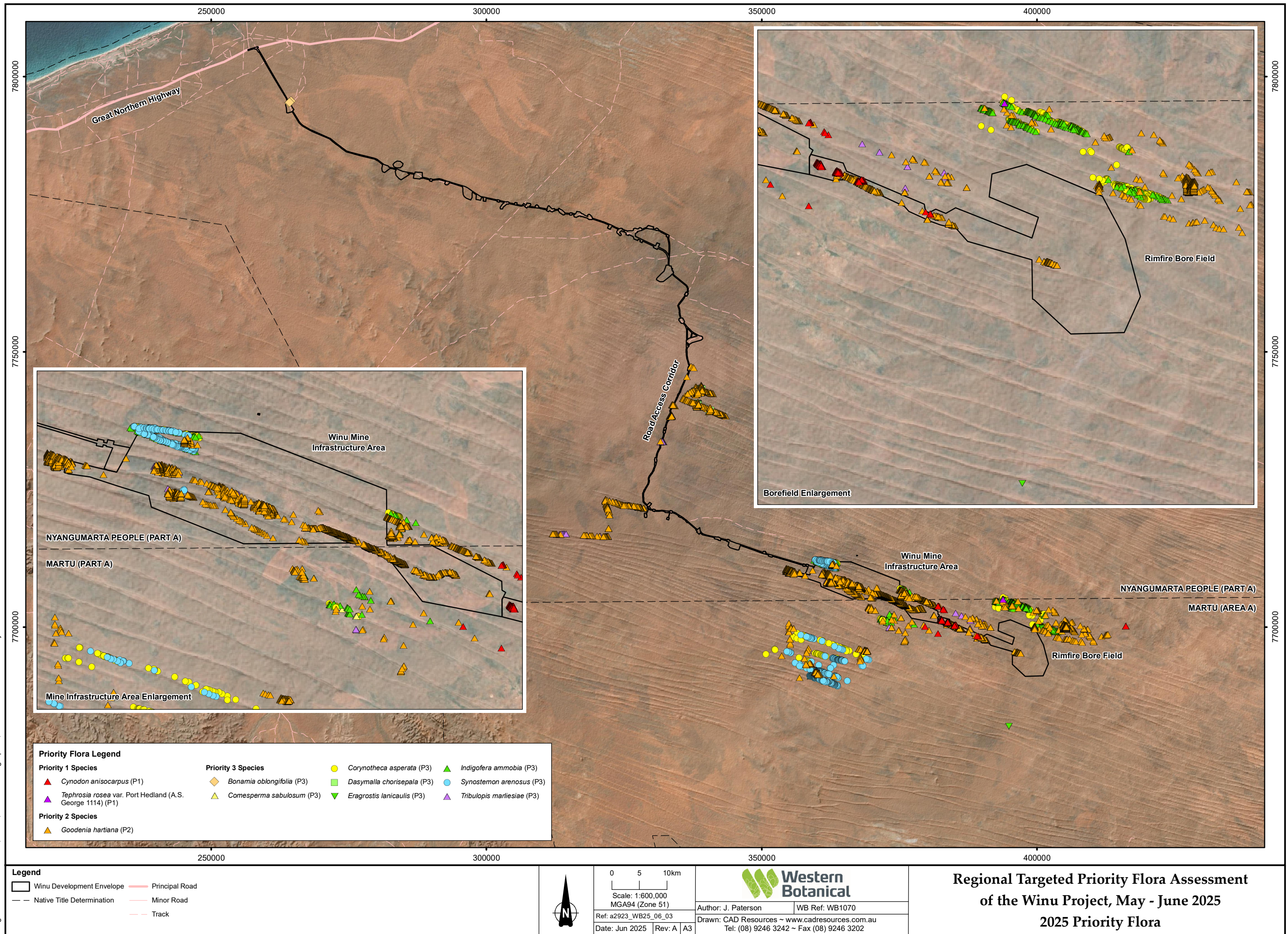
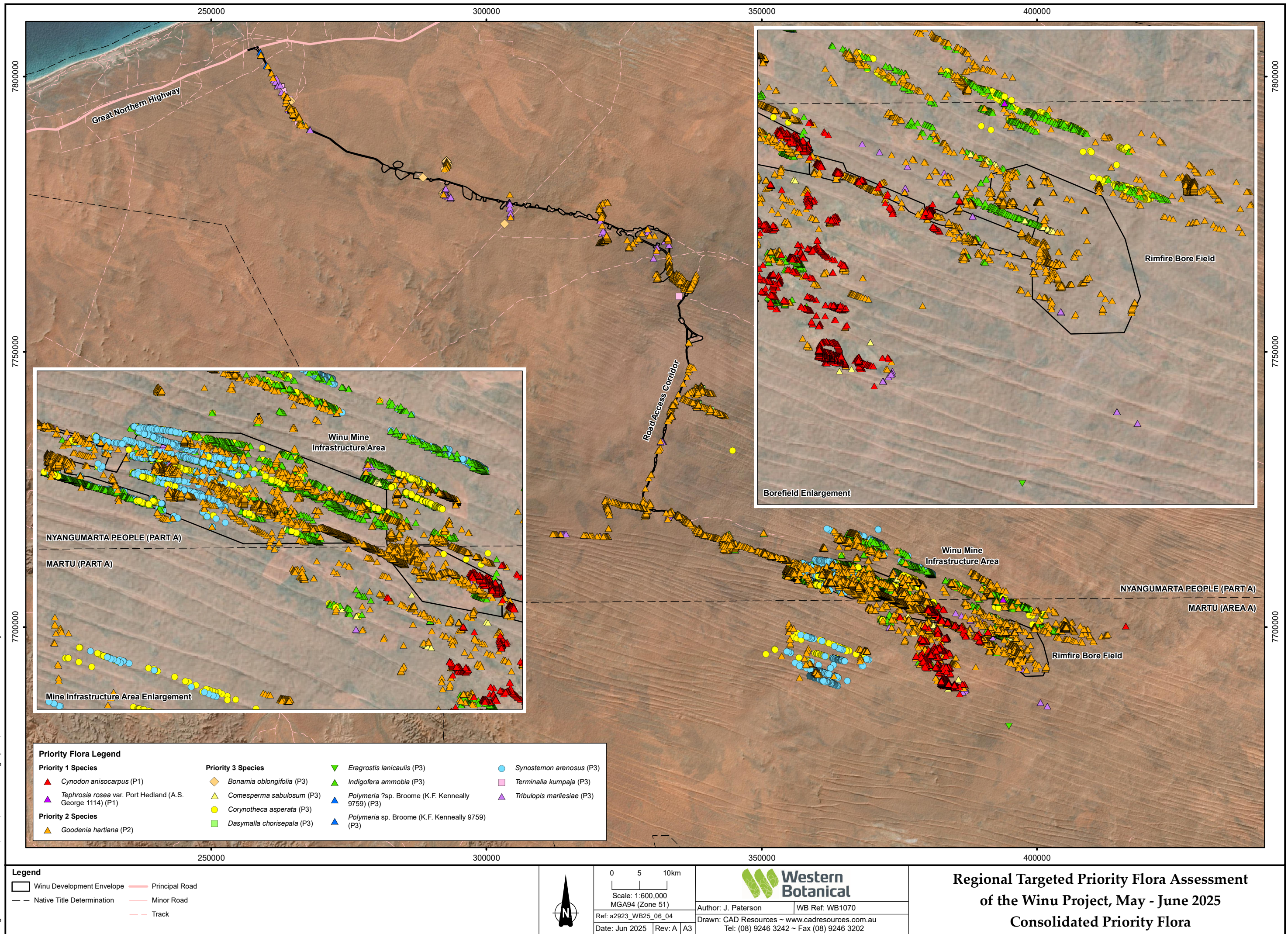


Figure 4. Consolidated Priority Flora Locations across the Winu Project.





3.2. Priority Flora Density

Mean ($\pm$ SE) density (abundance / ha) estimates were obtained for *Goodenia hartiana* (P2) within the P1, P2 and P3 Vegetation Associations (Table 3). The P1 Vegetation Association was found to contain *Goodenia hartiana* (P2) at a density of approx. 85 plants/ ha; the P2 contained it at approx. 200 plants/ ha. and the P3 contained approx. 102 plants/ ha. Considering the moderately-sized Standard Errors, these results offer reasonable accuracy if applied to areas of the listed vegetation associations with the DE. An example of applied results is presented in Table 4.

Table 3. Mean *Goodenia hartiana* (P2) density (abundance / ha) estimates within the P1, P2 and P3 Vegetation Associations.

Vegetation Association	# Replicate	Sub-plots (n=)	<i>Goodenia hartiana</i> density/ha (mean $\pm$ SE)
P1	1	7	80.91 $\pm$ 28.46
	2	10	90.43 $\pm$ 53.27
P2	1	9	128.42 $\pm$ 31.83
	2	6	271.60 $\pm$ 63.80
P3	1	11	97.38 $\pm$ 22.81
	2	12	107.67 $\pm$ 22.84

Table 4. Predicted *Goodenia hartiana* (P2) abundance within the P1, P2 and P3 Vegetation Associations across the Development Envelope.

Vegetation Association	Total Extent across DE (ha)	<i>Goodenia hartiana</i> (P2) density / ha	Predicted abundance across DE
P1	6823.30	85	579,980
P2	1,978.02	200	395,604
P3	1,352.72	102	137,977

4. Discussion

Figures 3 and 4 demonstrate the extent of Priority flora across the Winu Project, providing some regional context for many of the species occurring within the Development Envelope. As discussed in the consolidated report (Western Botanical 2025; Ref: WB1051), *Comesperma sabulosum* (P3), *Corynotheca asperata* (P3), *Indigofera ammobia* (P3) and *Synostemon arenosus* (P3) are predominately supported by Sand Dunes and Associated Swale Vegetation Associations, D1, D2 and D3; *Cynodon anisocarpus* (P1) is predominately supported by Claypans and Low-Lying Clay Flats Associations, C2 and C3, and Stony Rises and Gentle Outcropping Associations, R1 and R2; and *Dasymalla chorisepala* (P3) is predominately

supported by Interdunal Sand Plain Association, P1. *Tribulopsis marliesiae* (P3) occurs across 16 of the 31 Interdunal Sand Plain Associations including, P1, P2, P3, P4, P6, P8, P9, P10a, P10b, P10c, P11, P14, P18, P19, P20 and P2; while *Goodenia hartiana* (P2) occurs in 32 of the 51 described Vegetation Associations, including all Sand Dune Associations, all Interdunal Sand Plain Associations, except P7, P19 and P21, P23 (a, b, c, d), as well as Claypans and Low-Lying Clay Flats Associations, C1, C2 and C3) and Stony Rises and Gentle Outcropping Associations, R1, R2 and R3). Other Priority flora species typically occur in low numbers across the DE i.e., *Bonamia oblongifolia* (P3); or do not occurring inside the DE at all, i.e., *Tephrosia rosea* var. Port Hedland (A.S. George 1114) (P1), *Eragrostis lanicaulis* (P3), *Polymeria* ?sp. Broome (K.F. Kenneally 9759) (P3) and *Terminalia kumpaja* (P3).

Considering the current survey effort conducted across the Development Envelope (Appendix 1 & 2), most of these are predicted to occur in greater numbers. The ‘Total Area Surveyed’, calculated by applying a 25m buffer around all tracklogs occurring within the DE, suggest that an average of 25% of the DE has been systematically surveyed. While this is a good level of coverage for baseline survey work, it does highlight a gap in the understanding of Priority flora abundances across the DE which may need to be addressed in the future. The recent records of *Dasymalla chorisepala* (P3) with the MIA reiterate this.

Assessment of current survey effort (i.e., consolidated tracklogs) against the proposed Disturbance Footprint suggests further work may be required across multiple infrastructure locations including the Tailings Storage Facility, Waste Rock Landform, Solar Farm, various Wind Turbines, Pit, Processing Plant, various associated Stockpiles, the new Aerodrome and associated Borrow areas. These areas within the MIA, predominantly contain Vegetation Associations that support *Goodenia hartiana* (P2) and *Tribulopsis marliesiae* (P3); however, several sand dunes still remain unsurveyed.

The current *Goodenia hartiana* (P2) abundance figures suggest a relatively even split between records within and outside of the DE. Considering the limited regional work conducted on this taxon, and the distribution of known records across the Great Sandy Desert bioregion, as well as the overall uniformity of landforms and Vegetation Associations in the region, this, and many other Priority flora species occurring within the DE likely have drastically larger populations. Western Botanical would support a downgrading of significance for *Goodenia hartiana* (P2); however, this can only be carried out with incorporation of both population data in conjunction with vouchered collections (so the Western Australian Herbarium can verify the data appropriately).

Yours sincerely,

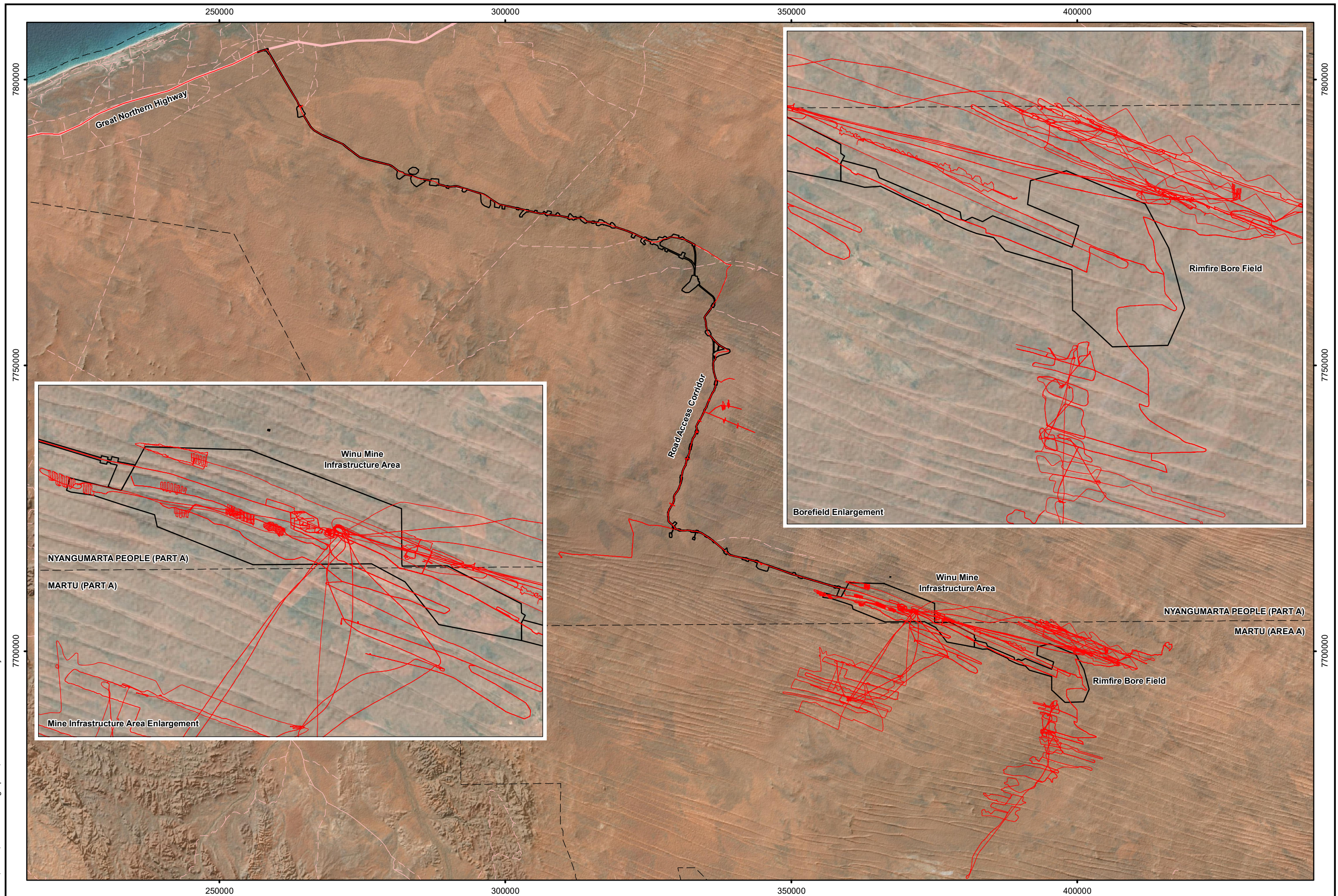
Jason Paterson
Project Manager, Senior Botanist
Western Botanical



Appendix 1. 2025 Tracklogs.



Image Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



Legend

- Winu Development Envelope
- Native Title Determination
- Survey Track Log
- Principal Road
- Minor Road
- Track



0 5 10km
Scale: 1:600,000
MGA94 (Zone 51)
Ref: a2923_WB25_06_05
Date: Jun 2025 | Rev: A | A3

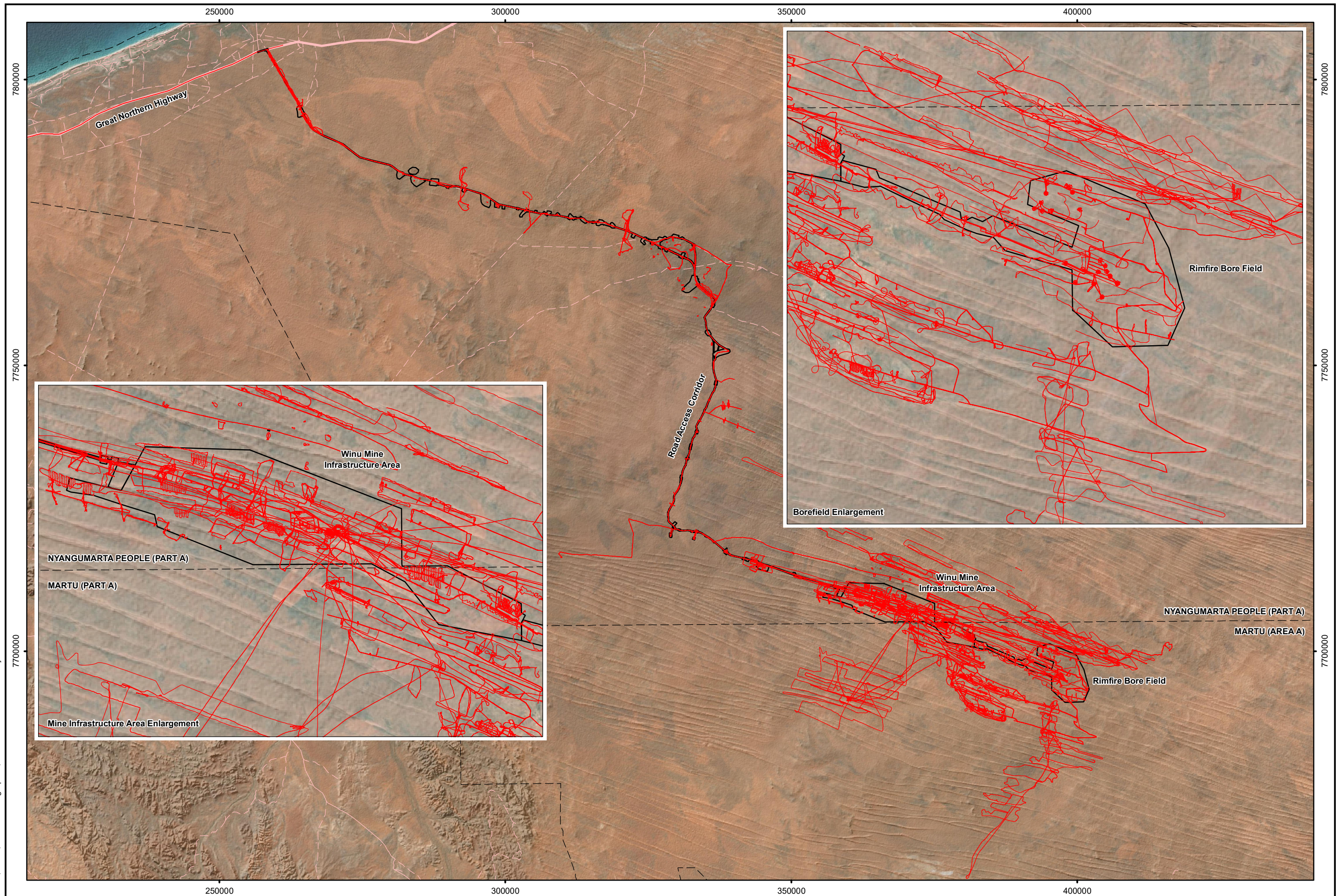


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**Regional Targeted Priority Flora Assessment
of the Winu Project, May - June 2025
2025 Track Logs**

Appendix 2. Consolidated Tracklogs across the Winu Project.





Legend

Winu Development Envelope	Principal Road
Native Title Determination	Minor Road
Survey Track Log	Track



0 5 10km
Scale: 1:600,000
MGA94 (Zone 51)
Ref: a2923_WB25_06_06
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