

23 August 2023

Sarah Dagleish

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Re: OSMOND VALLEY TARGETED FLORA SURVEY (JULY 2023)

Dear Sarah,

The targeted conservation significant flora survey of the Osmond Valley survey area (Map 1), including two proposed camp areas, was conducted by *ecologia* principal botanist Dr Andrew Craigie) on 26 July 2023. The survey was completed in accordance with the Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (EPA 2016), by undertaking targeted searches for significant plant species along traverses within potentially suitable habitat within the survey area. Seasonal conditions were adequate for a targeted flora survey in the Kimberley region, and the survey area was able to be fully surveyed on foot. There no significant constraints identified.

A likelihood of occurrence assessment prior to the survey indicated that 36 significant species, that have been recorded within approximately 40 km of the survey area previously, potentially occurred within the survey area based on the potential presence of suitable habitat (Table 1). Twenty-four species were thought unlikely to occur due to the probable absence of suitable habitat (Table 1).

Searches for all significant plant species identified from the pre-field assessment were made along traverses across the entirety of the survey area (Map 1). The survey area consisted entirely of low rocky hills and undulating plains with occasional minor outcrops and minor creeks and drainage channels. There were no steep slopes, gorges, claypans, sandplains, dunes, major creeks, or waterholes present. Vegetation within most of the survey area was in 'Excellent' condition according to the EPA (2016) condition scale, but vegetation within the western proposed camp area was 'Degraded' having been cleared previously and containing significant weed infestation (primarily *Aerva javanica* and *Stylosanthes hamata*).

There were no DBCA listed Priority species and no EPBC Act or BC Act listed Threatened species recorded within the survey area. A post-survey likelihood of occurrence assessment, based on survey adequacy and the presence of suitable habitat, shows that the presence of any significant plant species within the survey area is unlikely (Table 1).

Best Regards,

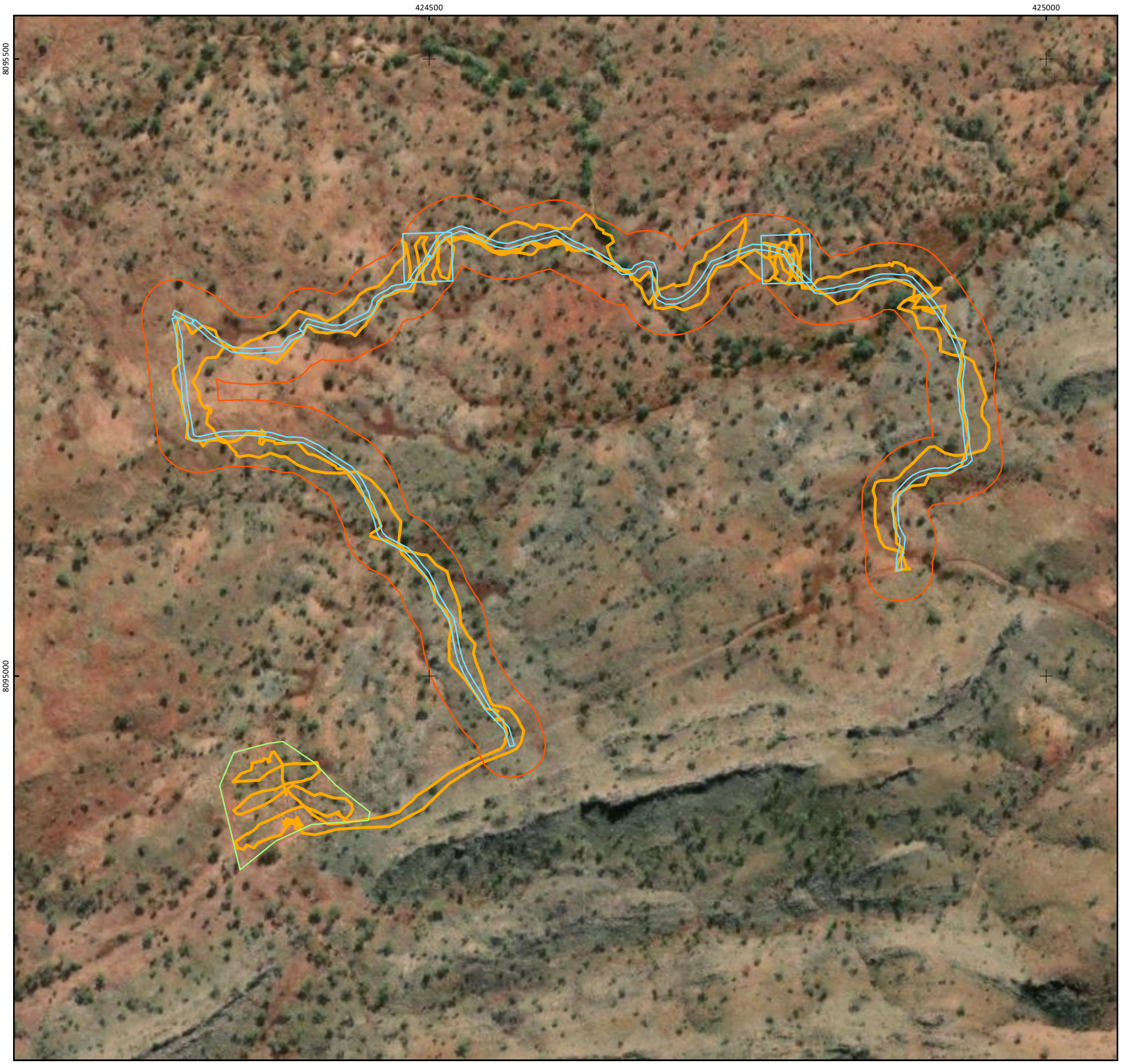


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- IGO_Exploration_Osmond_Valley_Proposed_Clearing_NVCP_Submission
- IGO_Exploration_Osmond_Valley_Proposed_Clearing_NVCP_Submission_Buffer
- Proposed Camps
- Survey transect

Map 1: Osmond Valley survey area and targeted survey traverses.

Table 1: Significant plant species recorded within 40 km and their likelihood of occurrence within the survey area.

Taxon	Status	Habitat	Pre-survey likelihood of occurrence within the survey area	Post-survey assessment	Post-survey likelihood of occurrence within the survey area
<i>Acacia smeringa</i>	P1	Shallow rock soils.	Possible	Potentially suitable habitat present, but species not recorded.	Unlikely
<i>Blumea pungens</i>	P2	Sandstone hills & plateaus.	Possible	Potentially suitable habitat present, but species not recorded.	Unlikely
<i>Boronia jucunda</i>	P1	Quartzite. Rocky areas in open eucalypt woodland.	Possible	Potentially suitable habitat present, but species not recorded.	Unlikely
<i>Dendrophthoe odontocalyx</i>	P3	Aerial shrub, hemiparasitic on <i>Melaleuca</i> .	Possible	Potentially suitable habitat present, but species not recorded.	Unlikely
<i>Heliotropium cupressinum</i>	P1	Stony sandy soils, sandstone.	Possible	Potentially suitable habitat present, but species not recorded.	Unlikely
<i>Heliotropium foveolatum</i>	P1	In grey soil near creek (PERTH04536401)	Possible	Potentially suitable habitat present, but species not recorded.	Unlikely
<i>Heliotropium uniflorum</i>	P1	Sandstone, quartzite. Stony slopes, undulating rocky plateaus.	Possible	Potentially suitable habitat present, but species not recorded.	Unlikely
<i>Hibiscus squarulosus</i>	P1	Sand, sandstone. Beside watercourses, creek banks.	Possible	Potentially suitable habitat present, but species not recorded.	Unlikely
<i>Iseilema trichopus</i>	P1	Sandy loam.	Possible	Potentially suitable habitat present, but species not recorded.	Unlikely
<i>Jacksonia remota</i>	P2	In shrubland or woodland on sandstone, quartz, kaolinite or laterite.	Possible	Potentially suitable habitat present, but species not recorded.	Unlikely
<i>Jacquemontia</i> sp. Keep River (J.L. Egan 5015)	P1	Slopes.	Possible	Potentially suitable habitat present, but species not recorded.	Unlikely
<i>Kohautia australiensis</i>	P2	Unknown	Possible	Potentially suitable habitat present, but species not recorded.	Unlikely
<i>Pentalepis trichodesmoides</i> subsp. <i>incana</i>	P1	Skeletal soils, sand, loam. Stony grounds, along watercourses.	Possible	Potentially suitable habitat present, but species not recorded.	Unlikely
<i>Rhynchospora brownii</i>	P3	Unknown	Possible	Potentially suitable habitat present, but species not recorded.	Unlikely
<i>Stephania japonica</i> var. <i>japonica</i>	P2	Sandy soils. Limestone outcrops, stony creek beds.	Possible	Potentially suitable habitat present, but species not recorded.	Unlikely
<i>Tephrosia</i> sp. Mistake Creek (A.C. Beaglehole 54424)	P3	Alluvial flats, rocky steam beds.	Possible	Potentially suitable habitat present, but species not recorded.	Unlikely
<i>Trachymene dusenii</i>	P3	Slopes amongst and alluvial flats.	Possible	Potentially suitable habitat present, but species not recorded.	Unlikely
<i>Triodia roscida</i>	P1	Stony alluvium. Rocky slopes of ranges, creeks.	Possible	Potentially suitable habitat present, but species not recorded.	Unlikely
<i>Grevillea miniata</i>	P4	Cliffs or rocky slopes, sometimes along watercourses.	Possible	Potentially suitable habitat present, but species not recorded.	Unlikely
<i>Acacia capillaris</i>	P2	Clay. Along creek, steep rocky slope.	Possible	Suitable habitat not present	Unlikely
<i>Acacia claviseta</i>	P3	Grows on top of sandstone ridges, on sand flats and shallow sand lenses among sandstone.	Possible	Suitable habitat not present	Unlikely
<i>Acacia zatrichota</i>	P2	Grows in dissected sandstone, with open woodland or shrubland usually with <i>Triodia</i> .	Possible	Suitable habitat not present	Unlikely
<i>Corymbia cadophora</i> subsp. <i>polychroma</i>	P1	Found on sandstone and shaley slopes and outcrops, stony rises, sandy rises and sometimes on deeper loamy soils on rising ground. Banded ironstone.	Possible	Suitable habitat not present	Unlikely
<i>Eucalyptus ordiana</i>	P2	Skeletal soils over sandstone or quartzite. Steep rocky outcrops.	Possible	Suitable habitat not present	Unlikely
<i>Haemodorum basalticum</i>	P2	Basalt soils over laterite or massive basalt sheets Mitchell Plateau to Theda Station.	Possible	Suitable habitat not present	Unlikely
<i>Sorghum plumosum</i> var. <i>teretifolium</i>	P1	Sand, clay, loam, alluvium. Swamps, claypans, watercourses, waterholes, valleys.	Possible	Suitable habitat not present	Unlikely
<i>Cucumis</i> sp. Bastion Range (A.A. Mitchell et al. AAM 10710)	P1	Base of limestone cliffs and top of limestone scree.	Possible	Suitable habitat not present	Unlikely
<i>Grevillea psilantha</i>	P2	Skeletal soils on sandstone. In rock crevices on the walls of gorges.	Possible	Suitable habitat not present	Unlikely
<i>Kunzea petrophila</i>	P1	Sand in sheltered crevices on sandstone cliffs.	Possible	Suitable habitat not present	Unlikely
<i>Lindernia eremophiloides</i>	P2	Sandstone. In damp crevices on shaded cliff faces.	Possible	Suitable habitat not present	Unlikely
<i>Micraira</i> sp. Purnululu (M.D. Barrett & R.L. Barrett 1507)	P1	On banded ironstone/sandstone pavements.	Possible	Suitable habitat not present	Unlikely
<i>Taenitis pinnata</i>	P2	Sandstone cliffs/cliff faces.	Possible	Suitable habitat not present	Unlikely
<i>Trachymene oleracea</i> subsp. <i>sedimenta</i>	P1	Limestone or sandstone on inland ranges.	Possible	Suitable habitat not present	Unlikely
<i>Triodia bunglensis</i>	P2	Sandstone. Cliffs, gorges & domes, often in fissures & cracks.	Possible	Suitable habitat not present	Unlikely
<i>Triodia racemigera</i>	P1	Sandstone. Steep rocky slopes, crevices, cliffs & ridges.	Possible	Suitable habitat not present	Unlikely
<i>Triumfetta rupestris</i>	P1	Sandstone. Steep rocky slopes. Only one record in WA.	Possible	Suitable habitat not present	Unlikely
<i>Acacia camptocarpa</i>	P1	Grows in sandy loam on gentle sandstone slopes in open woodland adjacent to massive banded ironstone outcrops.	Unlikely	Suitable habitat not present	Unlikely
<i>Adiantum hispidulum</i> var. <i>hispidulum</i>	P2	Crevices in lateritic rocks.	Unlikely	Suitable habitat not present	Unlikely
<i>Apowollastonia verbesinoides</i>	P1	Sandy skeletal soil. Upper slopes of sandstone ranges	Unlikely	Suitable habitat not present	Unlikely
<i>Boronia minutipinna</i>	P2	Sand. Amongst boulders on plateau.	Unlikely	Suitable habitat not present	Unlikely
<i>Colocasia esculenta</i> var. <i>aquatilis</i>	P3	Black sand. Creeks, seepage areas.	Unlikely	Suitable habitat not present	Unlikely
<i>Doodia caudata</i>	P2	Rocky soil. In cracks in cliffs, near waterfalls.	Unlikely	Suitable habitat not present	Unlikely
<i>Echinochloa kimberleyensis</i>	P1	Black soils. Swamps.	Unlikely	Suitable habitat not present	Unlikely
<i>Eragrostis confertiflora</i>	P3	Black cracking clay. Edges of waterholes.	Unlikely	Suitable habitat not present	Unlikely
<i>Eriachne imbricata</i>	P2	Sandstone gorges, in sheltered rock overhangs & crevices.	Unlikely	Suitable habitat not present	Unlikely
<i>Euphorbia inappendiculata</i> var. <i>queenslandica</i>	P2	Cracking clay soils on plains or gently undulating terrain	Unlikely	Suitable habitat not present	Unlikely
<i>Fimbristylis sieberiana</i>	P3	Riverine forests and vine thickets or on the edges of pools in gorges.	Unlikely	Suitable habitat not present	Unlikely
<i>Fuirena incrassata</i>	P3	Swamps, creek beds, claypans, semi-saline lakes.	Unlikely	Suitable habitat not present	Unlikely
<i>Glycine falcata</i>	P3	Black clayey sand. Along drainage depressions in crabhole plains on river floodplains.	Unlikely	Suitable habitat not present	Unlikely
<i>Glycine pullenii</i>	P3	Sand. On sand plain in open woodland.	Unlikely	Suitable habitat not present	Unlikely
<i>Goodenia crenata</i>	P3	Fine red earth, red clay. Flat sandplains, sandstone outcrops.	Unlikely	Suitable habitat not present	Unlikely

Taxon	Status	Habitat	Pre-survey likelihood of occurrence within the survey area	Post-survey assessment	Post-survey likelihood of occurrence within the survey area
<i>Goodenia durackiana</i>	P1	Black clay. Grassland.	Unlikely	Suitable habitat not present	Unlikely
<i>Goodenia malvina</i>	P1	Cracking black clay. Seasonally wet areas.	Unlikely	Suitable habitat not present	Unlikely
<i>Indigofera ammobia</i>	P3	Red sand. Sand dunes.	Unlikely	Suitable habitat not present	Unlikely
<i>Ipomoea gracilis</i>	P4	Black cracking clay or black sand. Irrigated areas.	Unlikely	Suitable habitat not present	Unlikely
<i>Ipomoea tolmerana</i> subsp. <i>occidentalis</i>	P1	Eucalypt savannah woodland (PERTH06406386).	Unlikely	Suitable habitat not present	Unlikely
<i>Leptospermum madidum</i> subsp. <i>sativum</i>	P3	Sandy soils. Along watercourses, sandstone gorges.	Unlikely	Suitable habitat not present	Unlikely
<i>Solanum carduiforme</i>	P2	Clayey sand or sandstone. Gorges.	Unlikely	Suitable habitat not present	Unlikely
<i>Triumfetta aspera</i>	P2	At base of massif (i.e, a geologically distinct mass of rock). Only known from type from Bungle Bungle Ranges.	Unlikely	Suitable habitat not present	Unlikely
<i>Triumfetta saccata</i>	P1	Wet grey clay on the edge of a seasonal creek, at the base of the Edgar ranges in rangeland. Only known from type.	Unlikely	Suitable habitat not present	Unlikely