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Living in the Pilbara

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Reference: vla107_lrRev0_160523

16th May 2023

Horizon Power

Attention:

Dear

TARGETED PEC SURVEY, HORIZON POWER CORRIDOR – BURRUP PENINSULA

Background

Horizon Power recently engaged GHD to conduct a vegetation and flora survey over a small area associated with the North West Interconnected System (NWIS) on the Burrup Peninsula. The results of the GHD survey have been queried by DWER. As a result, Horizon Power engaged Vicki Long & Associates (VLA) to re-survey the area and identify any locations of Burrup Rockpile PECs within the development envelope.

Scope of Work

The scope is to conduct a targeted survey for any Burrup Rockpile PECs on a small area as indicated on Figure 1 and produce a brief letter report including the locations (lat and longs) and areas of any PECs found.

Methods

The entire site was walked over with the intention of locating Burrup Rockpile PECs. PECs were identified based on the criteria established by VLA (2013) as advised by DBCA. PECs and Priority 3 *Terminalia supranitifolia*, often associated with the PECs were located and recorded with a hand held GPS.

Vegetation descriptions were made based on dominant species as areas were walked. This task was not in the scope but became necessary because it was considered the GHD vegetation mapping, which consisted of just one vegetation type for the entire area, was inaccurate. VLA identified six different vegetation types over the area. Because this was not part of the scope, vegetation descriptions were based on dominant strata and abundance of species only. This is discussed below.

Limitations

There were no major limitations to the survey. Although the Burrup Peninsula has had well below average rainfall for 2023 to date, the small amount (97.8 mm Karratha Aero Id 4083) received since January 2023, followed the very high rainfall (310 mm) received in May 2022, which meant that perennials were still healthy. Annuals had emerged but were dying off, however they were still identifiable. The vegetation described was based on perennial vegetation and this was still relatively healthy (although in some cases defoliation was obvious). Aerial photography was used in the field both as hard copy and on a Samsung tablet and adequate time was available to the field botanist.

Experience of Field Botanist

The field survey was conducted by Vicki Long, Principal botanist of VLA on 8th May 2023. Vicki is very experienced having conducted botanical surveys on the Burrup Peninsula since 1987. Vicki was one of the principal botanists for the Trudgen (2002) survey which covered the entire Burrup Peninsula and some Dampier Archipelago islands. Since the early 1990s Vicki has conducted - and continues to do so - botanical and weed surveys for Woodside Energy (including Pluto), Pilbara Ports Authority, Yara Fertilisers, Rio Tinto/Dampier Salt, DBCA, Water Corporation, Horizon Power (originally for Astron Environmental and more recently as VLA subconsultant). She conducted the full botanical survey for the Conzinc Tourist Precinct and access road (on behalf of RPS 2020), extension areas to the original Conzinc alignment (as VLA) for DBCA and Murujuga Aboriginal Corporation (2023), a transmission corridor for Woodside Solar project (2022) and a pipeline corridor for Water Corporation (2022). Vicki also sits on the DBCA TECSC committee which assesses then advises the Minister for the Environment on TECs (Threatened Ecological Communities) and PECs (Priority Ecological Communities) in Western Australia. Vicki has written a book on the flora and vegetation of the Burrup (Along the Burrup – Nature and Habitats of the Burrup Peninsula (2016) and wrote Living Knowledge – the Plants of Murujuga (2021) based on the information supplied by the Murujuga Elders. She has a sound knowledge of the flora and vegetation of the Burrup Peninsula.

Results and Discussion

Vegetation

Six distinct vegetation types were identified, one of which is a weed dominated vegetation type and accounts for one-third of the survey area. Describing the vegetation was not a part of this scope, but the actual vegetation present was at such a significant variance to that reported in GHD (2022) that the author could not but correct this. The six vegetation types were described based on strata and dominance of the key species in each. The vegetation described is presented in Table 1 below along with their Condition based on Trudgen 1988 as approved by EPA 2016. Vegetation types are shown in Figure 1 and Condition in Figure 2.

Table 1: Vegetation Types Recorded by VLA 2023 on survey area.

Code	Description	Condition (EPA 2016)	Comment
GpAcTe	<i>Grevillea pyramidalis</i> , <i>Acacia coriacea</i> tall shrubland over <i>Acacia bivenosa</i> , <i>A. morrisonii</i> , <i>Hakea loreus</i> subsp <i>loreus</i> open shrubland over <i>Triodia epactia</i> hummock grassland with patchy <i>Triodia angusta</i> and <i>*Cenchrus ciliaris</i> .	Good	This occurred on the eastern portion of the survey area, east of Burrup road. This stony areas tapers into a broad creekline. The weed <i>*Cenchrus ciliaris</i> (buffel grass) is patchy, but is dense along the immediate road verge. Not PEC vegetation.
*AjSa*Cc	<i>*Aerva javancia</i> low shrubland, with <i>Salsola australis</i> over <i>*Cenchrus ciliaris</i> tussock grassland with patchy <i>Cymbopogon ambiguous</i> .	Very Poor	This area occurs adjacent and north of the service corridor and occupied approximately 30% of the entire survey area. The area has been significantly disturbed in the past. Not PEC vegetation
TcTaTe	<i>Terminalia circumulata</i> low woodland over <i>Indigofera monophylla</i> low scattered shrubs over <i>Triodia angusta</i> and <i>Triodia epactia</i> hummock grassland.	Very Good	This vegetation of low woodland occurs in a creek line that intercepts a small area on the northern boundary of the survey area. It should not be disturbed. Not PEC vegetation

Code	Description	Condition (EPA 2016)	Comment
GplmTe	<i>Grevillea pyramidalis</i> tall open shrubland over <i>Indigofera monophylla</i> open low shrubland over <i>Triodia epactia</i> hummock grassland.	Very Good	Occurs over about 30% of the survey area on high rocky hill slopes. Not PEC vegetation
Ch+AtTeCc	<i>Corymbia hamersleyana</i> low woodland with scattered <i>Brachychiton acuminatus</i> , <i>Ehretia saligna</i> over + <i>Acacia trachycarpa</i> open shrubland over <i>Triodia epactia</i> and * <i>Cenchrus ciliaris</i> grassland.	Good	This occurs immediately adjacent and on the west side of Burrup Road. Not PEC vegetation
BaTsAcic	<i>Brachychiton acuminatus</i> , <i>Terminalia supranitifolia</i> , <i>Acacia coriacea</i> , <i>Ipomoea costata</i> with scattered <i>Triodia epactia</i> , <i>Cymbopogon ambiguus</i> , / * <i>Cenchrus ciliaris</i> tussocks.	Very Good	PEC vegetation. However all but one of these has been degraded with buffel grass * <i>Cenchrus ciliaris</i>) and therefore no longer a PEC.

*= weed species

+ = species introduced to Burrup but native elsewhere

PEC Vegetation

The following criteria (taken from VLA 2013) were established in collaboration with DBCA for Pilbara Ports Authority in 2013 to assist with the identification of Burrup Rockpile PECs on PPA land.

- Burrup Rockpile PECs must be located on the rockpile, outcrop, ridge or along the immediate base of the rockpile only;
- Burrup Rockpile PECs should have no grass cover or not more than scattered (<2% of pocket); tussocks or hummocks of native grasses, and should not adjoin grassland;
- Vegetation associated with small rockpiles/outcrops on hummock grassland slopes is excluded;
- Single species, despite often covering a large area, are not included as a Burrup Rockpile PEC
- A minimum of four species with attributes according to the PEC description (includes a mixture of Kimberley, Pilbara and fire sensitive species).

Based on this three potential Burrup Rockpile PECs were identified in the survey area, however, two of them were degraded by buffel grass and therefore cannot now be considered a PEC. Other rockpiles harboured single tree species, often large, spreading and covering a large area, but these do not meet the criteria for a Burrup Rockpile PEC.

The only Burrup Rockpile PEC considered to meet the criteria occurs on the very northern edge of the survey area at co-ordinates: 20.61992 E 116.76615 S. This small PEC harboured six species including Kimberley remnant and fire sensitive species (*Brachychiton acuminatus*, *Ehretia saligna*, *Acacia coriacea*, *Ipomoea costata*, *Rhagodia eremea*, *Jasminum didymum* subsp *lineare* with isolated *Cymbopogon ambiguus* and *Triodia epactia* grasses).

Given the above, to nominate the entire survey area as one vegetation type, and that being a PEC, is inaccurate.

Vegetation Condition

The GHD report indicates the Vegetation Condition over the entire survey area was in Very Good condition based on EPA 2016. The vegetation condition recorded by VLA, based on EPA 2016, was variable from Poor to Very Good based on EPA 2016.

Vegetation over the previously disturbed areas was dominated by weed species buffel grass and kapok and to represent this weed dominated vegetation as "Very Good" is inaccurate. The area has been previously disturbed and the vegetation has less than 5% native species cover (and that was dominated by one species, *Cymbopogon ambiguus*).

It should be noted that *+Acacia trachycarpa* was recorded in the drainagle line adjacent Burrup Road in vegetation type Ch+AtTe*Cc. The "+" indicates this species is not native to the Burrup Peninsula but is a native of drainage lines further inland. It was originally planted in landscaping around the Woodside Supply Base and the Woodside Village (Village Road) in the 1990s and has escaped those locations. It is therefore rated the same as a weed species for the Burrup Peninsula.

The remainder of the vegetation is in Good to Very Good condition. This is indicated on Figure 2.

Priority Flora

Terminalia supranitifolia (P3) – this low tree grows on the rockpiles, often in association with the Burrup Rockpile PECs.

Thirteen trees were located on the survey area. This compares to one identified by GHD. This one GHD identification appears to be the creekline dominated by *Terminalia circumalata* – not *Terminalia supranitifolia*.

Table 2: GPS locations for Priority 3 *Terminalia supranitifolia* trees.

Location of <i>Terminalia supranitifolia</i>	Number of Trees	Comment
20.62148 S 116.76812 E	1	Large tree in pocket of rockpile vegetation which would be a PEC but it degraded by buffel grass from adjacent disturbance.
20.62101 S 116.76802 E	1	Single tree on rockpile
20.62026 S 116.76476 E	1	Single tree on rockpile
20.62087 S 116.76557 E	5	Five largish trees over rockpile
20.62190 S 116.76798 E	3	Three in PEC degraded by buffel grass
20.61988 S 116.76349 E	2	On rockpile adjacent disturbed area west end of ara.

Vigna triodiophylla (P3) – this small slender vine was still evident on the site and was relatively abundant, as indicated by GHD.

Rhynchosia bungarensis (P4) was more abundant on the site than indicated by GHD.

Conclusion

Based on the results above, VLA considers the GHD report to be inaccurate and not representative of the vegetation on the survey area, or its condition on site.

One PEC (not degraded by buffel grass) only was recorded but this occurs on the very northern boundary of the area and is unlikely to be impacted.

Thirteen Priority 3 *Terminalia supranitifolia* trees were recorded against one recorded by GHD. These low trees are near endemic to the Burrup Peninsula and removal of them needs to be carefully considered. They should be avoided if possible.

If you have any queries please do not hesitate to contact me.



Yours Sincerely
Vicki Long



