

Memorandum

ATTENTION:	Dylan Asgill-Tucker
DATE:	23 March 2021
FROM:	Astron Environmental Services
REFERENCE	15624-21-BIME-1RevA_210322
SUBJECT:	Life of Mine Vegetation Risk Assessment Response to Comments

The following memo provides responses to two public comments received in relation to the Life of Mine Vegetation Risk Assessment (Astron Environmental Services 2019). The comments relate to the consequence values of specific vegetation types.

Comment 1

Samphire vegetation is related to be of moderate consequence. However, justifications have not been provided for these consequence assessments such as the Guideline: Risk Assessments (PartV, Division 3, Environmental Protection Act 1986) DWER 2017. Based on evidence of the importance of this vegetation for supporting migratory and wetland birds and that the Fortescue Marsh is being considered for classification as a Ramsar wetland (e.g. area of high conservation value) the rating of major may be more appropriate. Please discuss and confirm.

Response

Consistent with the guidance provided by the Department of Environmental Regulation (2017), the moderate consequence ratings for Samphire Marsh and Samphire Fringe vegetation types were assigned after considering the value of these vegetation types individually and as a collective asset of the Fortescue Marsh Priority Ecological Community (PEC). The assigned rating of Moderate for Samphire Marsh and Samphire Fringe vegetation types, the equal highest rating in the risk model, is equivalent to the consequence rating of Riparian vegetation, which includes *Eucalyptus camaldulensis*, a species that provides a vital refuge and resources for birds, mammals, reptiles, invertebrates and people in an otherwise dry landscape (Colloff 2014). Furthermore, the risk model was set to elevate the consequence level when a vegetation polygon intersected a PEC. Approximately 80% of the area classified as Samphire Fringe and 86% of the area classified as Samphire Marsh intersected the Fortescue Marsh PEC, thereby elevating the consequence value from Moderate to Major. In light of this, and in the context of the model attributes, the risk rating of Moderate for Samphire Fringe and Samphire Marsh vegetation types is considered appropriate.

Comment 2

Hummock grasslands (i.e., *Triodia* and spinifex sandplain) are related to be of slight consequence. However, this habitat is critical for the Greater Bilby as confirmed in section 7.5.3.5.1 of the ERD. Therefore, the Department suggests that the consequences to this vegetation type is re-classified as moderate. Please discuss and confirm.

Response

It is acknowledged that Hummock grassland does form important habitat for the Greater Bilby. However, in the specific context of the Life of Mine Vegetation Risk Assessment (Astron Environmental

Services 2019), resource availability, substrate type and adequate vegetation mapping are relevant caveats that influenced the consequence rating of the Grassland/bare vegetation type (a collective of Hummock grassland, Tussock grassland and Bare soil). Spatial and temporal variability in landscape variables such as fire and rainfall will influence the availability of resources for the Greater Bilby (Southgate and Carthew 2006). Thus, although the presence of Hummock grassland is indicative of Greater Bilby habitat, the prevalence of the species will also vary according to the spatial and temporal dynamics of resource availability. These dynamics are largely unknown across the assessment area, making predictive modelling of prevalence impossible. Substrate type is especially relevant for the distribution of burrowing mammals such as the Greater Bilby (Cramer et al. 2017). Characteristic landscape types occupied by the Greater Bilby include sand, sandy clay, sandy loam and alluvial and calcareous areas, as well as red earthy and sandy soils (Cramer et al. 2017). The Grassland/bare soil vegetation type of the Life of Mine Risk Assessment (Astron Environmental Services 2019) falls within the Fortescue Valley Soil-Landscape zone, which is characterised by alluvial plains, hardpan wash plains and sandplains (with stony plains, floodplains and some salt lakes) on alluvial deposits over sedimentary rocks of the Hamersley Basin (Tille 2006). Although this substrate would not preclude Greater Bilby burrowing, it does not represent an optimal soil type for the species. In the context of the Life of Mine Vegetation Risk Assessment, Hummock grassland could not be distinguished from Tussock grassland and bare soil across much of the assessment area. This is because vegetation mapping does not cover large areas of the southern part of the assessment area (distant from mining activities). As a result, vegetation mapping was based on satellite or aerial imagery, which could not specifically identify Hummock grassland. Based on these observations of variable resource availability, sub-optimal substrate for burrowing and uncertainty in the actual distribution of Hummock grassland across the assessment area, the original consequence level of Slight is considered appropriate. Note that, like Samphire Fringe and Samphire Marsh vegetation types, where the Grassland/bare soil vegetation type intersected a PEC, the consequence level was elevated from Slight to Minor.

This memo was prepared by Senior Scientist Dr Paul Drake and reviewed by Principal Scientist Dr Robert Archibald.

Yours sincerely

ASTRON ENVIRONMENTAL SERVICES



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References

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