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24 April 2020

Attention: Lauren Evans
Team Leader
Resources Assessment (Coals and Quarreis)
Department of Planning, Industry and Environment

Via email: lauren.evans@planning.nsw.gov.au

Dear Lauren,

Re: Marulan South Limestone Mine Continued Operations Project, Biodiversity Development Assessment Report (BDAR) (SSD-7009) - Request for Additional Information

Niche Environment and Heritage Pty Ltd (Niche) have reviewed the correspondence from the Department of Planning Industry and Environment (DPIE) provided to Boral Limited (Boral) dated 6th May 2021, which is in relation to the assessment of Commonwealth Matters of National Environmental Significance (MNES) associated with the Marulan South Project (the Project).

Specially, we understand that the DPIE requests additional information in relation to the likelihood for the following threatened species listed on the *Commonwealth Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) to occur within the Project's disturbance footprint:

- *Eucalyptus aquatica* - Mountain Swamp Gum
- *Genoplesium plumosum* — Plumed Midge-orchid, Tallong Midge Orchid
- *Haloragis exalata* subsp. *exalata* - Square Raspwort/Wingless Raspwart
- *Pomaderris cotoneaster* – Cotoneaster Pomaderris.

The BDAR provided to DPIE in April 2020 has addressed each of the above species in the Likelihood of occurrence table provided in Appendix 1. The assessment of likelihood of occurrence, concluded that there was a low likelihood for the species to be present within the habitat types to be impacted by the Project. This has been supported by the lack of detection of the threatened flora during extensive field survey, an analysis against historic records, and an analysis of the habitat at the site compared to the preferred habitat for each species. Given the low likelihood for the threatened flora to occur, Assessments of Significance were not required.

To assist with DPIE's request, we have attached the results of the likelihood of occurrence, which should be read in conjunction with the extensive field survey effort and results presented in the BDAR.

We conclude that the subject threatened flora are unlikely to be present, and thus unlikely to be significantly impacted by the Project.

Should you require any additional information, please do not hesitate to contact me.

Regards,

Luke Baker
Ecology Team Leader
Accredited Assessor
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Attachment 1. Likelihood of occurrence for subject threatened flora

Scientific Name	Common Name	BC Act	EPBC Act	Habitat[1]	Likelihood of Occurrence
Eucalyptus aquatica	Mountain Swamp Gum	V	V	Eucalyptus aquatica is found primarily in the Penrose area near Goulburn where all records are either from State forest or private property. There is also one record from within Morton National Park. *Eucalyptus aquatica* is known from Hanging Rock Swamp and Stingray Swamp within Penrose State Forest. The species occurs within swamps and sites of poor drainage and is known to grows in permanently water-logged, peaty soil. Associated species include the following: *Leptospermum juniperinum, L. obovatum, L. myrtifolia, Baeckea utilis, Gymnoschoenus sphaerocephalus* and *Gleichenia dicarpa*.	**Low –** The Eucalyptus aquatica is highly conspicuous and is unlikely to be remain undetected during the extensive field survey within the site. Furthermore, the species has not been recorded during previous field campaigns surrounding the study area for previous approvals for Marulan Mine and Peppertree Quarry. The habitat types present within the study area are also not suitable for the species given the absence of swamp-like habitat types and peaty soil depressions that would be inundated with water. The associated species were also not recorded within the study area.

[1] As described in OEH Threatened Species Profiles (2021). Threatened Species Profiles http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/index.aspx, or Approved Conservation Advice as provided on the Department of Agriculture Water and the Environment threatened species listings.

Scientific Name	Common Name	BC Act	EPBC Act	Habitat[1]	Likelihood of Occurrence
Genoplesium plumosum	Tallong Midge Orchid / Plumbed Midge Orchid	CE	E	The original collection of *Genoplesium plumosum* was from Kurnell in southern Sydney in 1947 but the species has not been observed there for over 80 years. The only currently known populations are in the Tallong-Wingello district on the edge of the Southern and Central Tablelands (Copeland 2008). Several small colonies are known within and close to the village of Tallong. At Tallong location, the species occurs within an area of less than two kilometres north and east of the town centre and the largest population of flowering plants that has been recorded (in 2001) is less than 300 plants. A second population has been recorded to the south-east of Wingello in Morton National Park, the only known occurrence within a conservation reserve. The site in Morton National Park is 8.5 km south-east of the town of Wingello. The Morton National Park site was discovered in 2001 and there were only 10 flowering plants at that time. Surveys have failed to locate any plants there since then. The species is described as occurring exclusively in heathland, generally dominated by common fringe-mytre and parrot-peas (*Kunzea parvifolia, Calytrix tetragona*). Grows on very shallow soils or within mosses on sandstone conglomerate shelves. Plants exist only as a dormant tuber for much of the year, with leaves or fruiting stems dying back in winter. Reproduces by seed and has no mechanism for vegetative reproduction.	**Low** – the species was not recorded during the field survey, nor has been recorded during previous field campaigns surrounding the study area for approvals and offset investigations for the Marulan Mine and Peppertree Quarry. Furthermore, the preferred habitat types (heathland and sandstone shelves/clifflines) are absent from the study area. The associated species are typically sandstone influence flora (ie. Calytrix spp., Kunza parviflora, Pultenaea spp., Dillywynia spp etc.), which were generally absent from study area.

Scientific Name	Common Name	BC Act	EPBC Act	Habitat[1]	Likelihood of Occurrence
Haloragis exalata subsp. *exalata*	Square Raspwart	V	V	*Haloragis exalata* subsp. *exalata var. exalata* has been historically recorded from a single location in the Hunter Valley (Moonan Brook near Scone in 1886), the Nepean River near Sydney, Clifton near Wollongong and the South Coast (Tilba Tilba in 1880 and Mt Dromedary in 1889). Populations were also recorded in 2001 on the on the South Coast and in the Geehi Dam area of Kosciuszko National Park. In 2004 records were made of *Haloragis exalata* subsp. *exalata var*. *exalata* in the bed of Bungonia Creek (NGH Environmental 2005), however these records were confirmed in 2006 to be *Haloragis serra*[2]. Its habitat has been described as "damp riparian habitat" (Jeanes 1996) and "damp places near watercourses". On the South Coast *Haloragis exalata* subsp. *exalata* occurs on the margins of coastal water bodies, such as lakes and lagoons, primarily those which are closed to the sea for lengthy periods. The plants occur along the shoreline in low-lying areas that are subject to occasional flooding, but have also been observed further from the shoreline in canopy gaps created by fallen trees. *Haloragis exalata* subsp. *exalata* can also be found along small creeks, both in the salt or brackish sections where these enter lakes, and upstream in the creek bed and on banks in areas subject to flooding.	**Low** – not detected during field survey. Haloragis exalata subsp. exalata var. exalata and *Haloragis serra* are relatively conspicuous and are likely to have been detected during the field survey if present. For the most part, the study area does not contain habitat suitable for the species (located away from riparian areas). The inundation area to the north does fit the habitat description, but the field survey confirmed absence of the species. The habitat in this area has also been heavily impacted by agricultural practices which may also not present ideal conditions for the species to occupy.

[2] Miles, J and Cameron, S (2007) Observations on the ecology and conservation status of Haloragis exalata subsp. exalata (Haloragaceae) in southern New South Wales, Cunninghamia (2007) 10(2): 263–272

Scientific Name	Common Name	BC Act	EPBC Act	Habitat[1]	Likelihood of Occurrence
Pomaderris cotoneaster	Cotoneaster Pomaderris	E	E	The species has been recorded from five reserves: South East Forests National Park (three populations); Morton National Park (two populations); Kosciuszko National Park (one population), Bungonia State Conservation Area (two populations); Coopracambra National Park (one population). Cotoneaster Pomaderris has been recorded in a range of habitats in predominantly forested country. The habitats include forest with deep, friable soil, amongst rock beside a creek, on rocky forested slopes and in steep gullies between sandstone cliffs. Habitat notes from specimens include: 'base of cliff, tall open forest (*E. fastigata*)'; 'alluvial terrace with tall open forest (*E. cypellocarpa*)'; 'alluvial terrace with tall open forest (*E. muelleriana*)'; 'rocky riparian site amongst tall open eucalypt forest (*E. viminalis*)'; 'rocky river bed'; 'Growing on dry south-westerly facing slope above river. Associated with *Westringia* sp. aff. Longifolia, *Grevillea lanigera, Prostanthera* sp. nov., *Eucalyptus radiata, Olearia sp., Kunzea ericoides* and *Acacia pravissima'*; 'Growing in shrubby woodland of *Eucalyptus maidenii* & *E. elata*. South-facing slope with loamy soil on metasiltstone'.	**Low** – Whilst *Pomaderris contoneaster* can occupy a wide range of habitat types, the extensive field survey which occurred over numerous years/months, did not detected the species. Further, the surveys completed by Niche that occur outside of the study area (eg. Peppertree Modification 4, and numerous biodiversity offsetting surveys and rehabilitation surveys) did not record the species. Historical biodiversity surveys for Peppertree Quarry and Marulan Mine have also not detected presence. The closest record is within 1 kilometre to the south of the study area towards Bungonia Gorge. This known record would not be impacted by the Project. The species is relatively conspicuous and unlikely to remain undetected during field survey regardless of flowering time for the species. Furthermore, much of the study area does not fit the preferred habitat for Pomaderris cotoneaster – that being close proximity to rocky sandstone slopes near riparian areas.