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**Australian Bauxite Limited**

ATTENTION: Tamara Coyte (Project Geologist)  
Level 2 131 Macquarie Street  
Sydney NSW 2000

18 March 2016

Dear Tamara

**RE: Nile project area  
Threatened flora surveys**

***Preamble***

Environmental Consulting Options Tasmania (ECOtas, Mark Wapstra) was engaged by Australian Bauxite Limited to provide advice in relation to the management of threatened flora, primarily *Stackhousia subterranea* (grassland candles), at the Nile project site.

Two statements had been previously provided (*Review of Previous Ecological Assessment of the Nile Road Project Area & Review of Conservation Status of Stackhousia subterranea (Grassland Candles) and Implications for Australian Bauxite's Nile Road Project*), which recommended co

The following recommendations were made for further surveys:

- undertake targeted botanical surveys in mid-October, mid- to late-November and mid-January to target the suite of species potentially present;
- target surveys to the most likely ore body extraction sites but also include anticipated infrastructure elements of the project (access roads and tracks, processing areas, office site, maintenance areas, etc.) and ensure a minimum 50 m buffer is surveyed around each disturbance area (this meets the Tasmanian devil survey guidelines but also would reveal the broader distribution of threatened flora beyond areas likely to be disturbed); and
- ensure the most likely potential habitat for EPBCA-listed threatened orchids (open grasslands areas, rockplate grassland areas and grassy/heathy woodland parts of the forested area that are herb-rich i.e. not heavily browsed) are surveyed in a higher level of detail.

It was agreed that as a minimum, ECOtas would undertake confirmation and extension surveys for *Stackhousia subterranea* based on the previous assessments by Philip Milner.

***Methods***

The Nile project area was assessed on 20 October 2015 and 6 November 2016 by Mark Wapstra and Lorilee Yeates, which coincided with the peak flowering of *Stackhousia subterranea* in other parts of the Midlands (confirmed during the course of other assessments).

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Field maps were produced based on the Milner data and earlier surveys by myself. The patches of *Stackhousia subterranea* indicated by Milner data were assessed by defining the limits of the patch using survey pins and/or flagging tape (most should still be present at field sites for future reference). Approximate abundance counts were made by counting flowering and non-flowering stems in an as systematic manner as possible.

A similar approach was used for patches of *Triptilodiscus pygmaeus* and *Scleranthus fasciculatus* mapped by Milner.

Where novel sites of threatened flora were detected, the same approach was taken as above, except for individuals of *Caesia calliantha* and *Arthropodium strictum*, which were both widespread.

## ***Findings***

### Data management

At this stage, data has not been manipulated to produce maps. Discussions with Tamara Coyte indicated that this will wait until a later date, pending progress of the project. Therefore, the findings related below are preliminary and indicative only.

### *Stackhousia subterranea*

Almost all of the Milner patches were re-located (one patch was not found). Our area of occupancy and patch abundance data suggest that the 2015 was a boom year for the species, with most patches being of greater extent and density than indicated by Milner. This species appears to fluctuate in flowering so this is not too surprising. The data collected will allow an assessment of the relative impact of the proposed operation on the species and guide design of access, extraction and processing sites.

For the record, due to problems with estimating abundance of this species due to the rhizomatous growth habit, we took the opportunity (under a specific permit issued by DPIPW) to collect five excavated sods of soil supporting the species and processed these to determine the difference between field counts and actual plant numbers. We have prepared a short scientific paper on this, which I attach here for your information (due to be submitted to a relevant journal soon).

### *Triptilodiscus pygmaeus*

The patches of Milner were found to be greater in extent and abundance than originally indicated and a small number of additional sites were located.

### *Caesia calliantha* & *Arthropodium strictum*

Both species were widespread and locally common. Several GPS waypoints were collected.

### *Scleranthus fasciculatus*

The single site of Milner was assessed, the population extent estimated and number of patches counted. The species was also detected in nearby areas in similar habitat.

### *Ranunculus sessiliflorus* var. *sessiliflorus*

A small patch of this species was found associated with the Milner site for *Scleranthus fasciculatus*. There are no significant implications as the species is in the process of being de-listed.

### *Glycine latrobeana*

This species was found to be locally common around the main central ridgeline ore body, where it occurred in the open grassland and adjacent grassy woodland. It was also located at several other sites nearby. This species is both TSPA- and EPBCA-listed and there are some potentially significant implications under both Acts if the majority of the extent of the population cannot be appropriately managed.

### Other species

The site remains as potential habitat for other threatened flora and fauna species. The surveys for species such as *Caladenia anthracina* and *Pterostylis commutata* have not been adequate to date (for the former, surveys have occurred at the peak flowering period but have not been detailed enough to satisfy EPBCA guidelines; for the latter, the surveys have not occurred during the flowering period). Other ephemeral herbs (e.g. *Aphelia pumilio*, *A. gracilis*, *Hyalosperma demissum*, etc.) are likely to be present in "better" years (this season was very dry).

Surveys for the Tasmanian devil, spotted-tailed quoll, eastern quoll and masked owl have also been insufficient at this stage to provide detailed management advice.

### **Conclusions**

Given the unknown status of the project, I have prepared this statement for your records and to guide future management when the project is re-activated. I will process the threatened flora location data and supply this to DPIPWE's *Natural Values Atlas* database (no cost to ABx in this case) and invoice for the field assessment time only.

Please do not hesitate to contact me for further information.



**Mark Wapstra**  
**Manager/Senior Scientist**