

Search for *Thelymitra stellata* and *Thelymitra magnifica*



**Prepared for:**  
**Holcim (Australia) Pty Ltd**  
**GOSNELLS**

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This report ("the report") has been prepared in accordance with the scope of services set out in the contract, or as otherwise agreed, between the Client and Eleanor Bennett ("the Author"). In some circumstances a range of factors such as time, budget, access and/or site disturbance constraints may have limited the scope of services.

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## **INDEX**

SUMMARY .....	i
1 INTRODUCTION .....	1
1.1 Background.....	1
1.2 Scope of Works .....	2
2 BACKGROUND INFORMATION .....	2
3. METHODS.....	3
4. RESULTS.....	3
5. DISCUSSION .....	3
6. REFERENCES.....	3
APPENDIX A .....	4

## **SUMMARY**

No plants of the Threatened Flora, *Thelymitra stellata* or the Priority 1 Flora *Thelymitra magnifica* were located at the nominated area at the Holcim quarry site. Transects were walked through the bushland by Dr Bennett and Ms Fleming on 20<sup>th</sup> October and 3<sup>rd</sup> November 2014 and additional searches were undertaken by Ms Fleming on 13<sup>th</sup>, 15<sup>th</sup> and 17<sup>th</sup> October 2014.

## 1 INTRODUCTION

### 1.1 Background

Bennett Environmental Consulting Pty Ltd was contracted to undertake a search of a selected area at the Holcim quarry in Gosnells. The vegetation unit and vegetation condition had previously been mapped by Astron (2012) as illustrated in Diagram 1.

*Thelymitra stellata* is listed as a Threatened Flora by the Department of Parks and Wildlife (2014) and as an Endangered flora under the Environment Protection and Biodiversity Conservation Act 1999 (Department of Sustainability, Environment, Water, Populations and Communities (2014).

**Threatened Flora** are defined as Taxa which have been adequately searched for, and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee (Department of Parks and Wildlife, (2014).

**Endangered Flora** are native species not critically endangered; and not facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.

*Thelymitra magnifica* is listed as a Priority 1 Flora by the Department of Parks and Wildlife (2014).

**Priority 1 Flora** are defined as Taxa that are known from one or a few collections or sight records (generally less than five), all on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, Shire, rail reserves and Main Roads WA road, gravel and soil reserves, and active mineral leases and under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes.

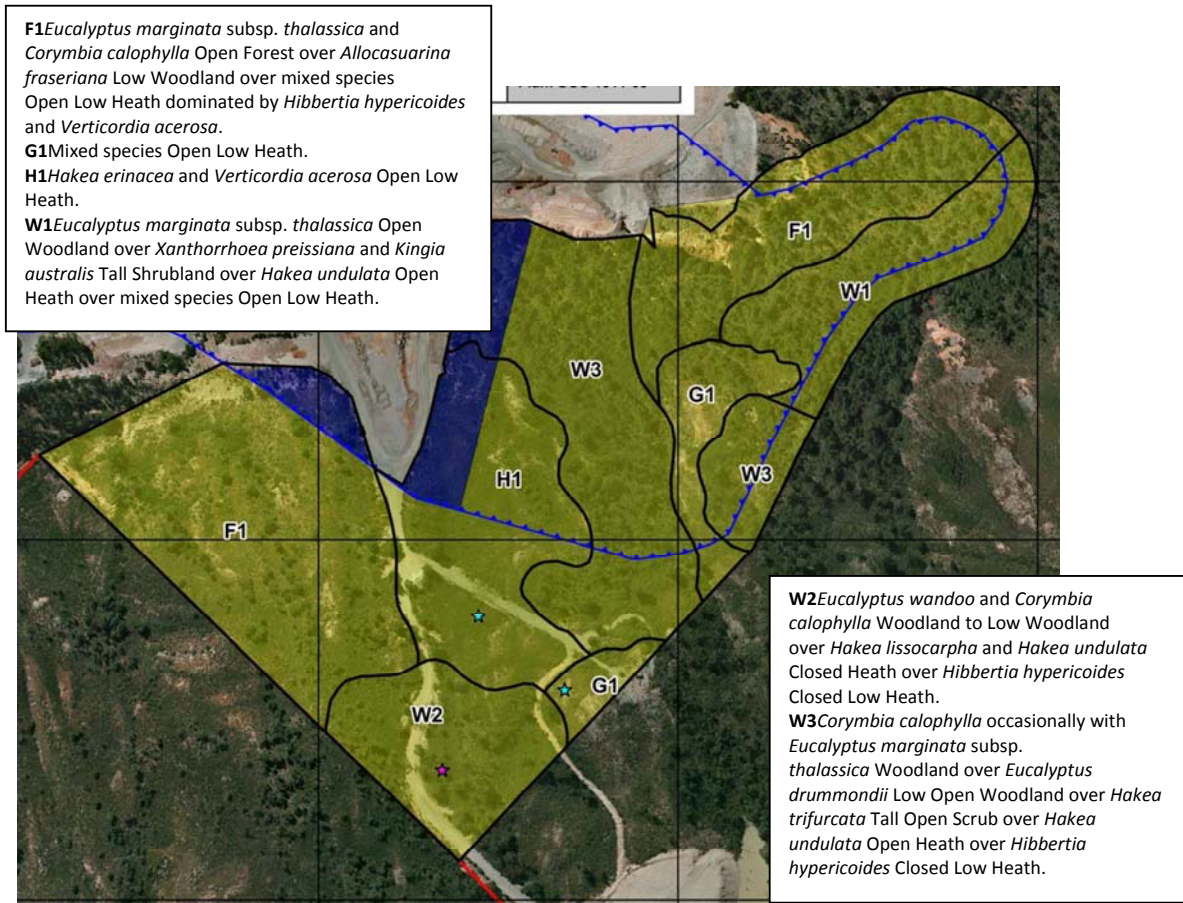


Diagram 1. Vegetation map of the search area prepared by Astron (2012)

## 1.2 Scope of Works

The requirements for this project were to:

- i. Search for *Thelymitra stellata* (Threatened Flora) and *Thelymitra magnifica* (Priority 1 Flora) within the nominated proposed development area; and
- ii. Undertake a detailed record of all plants of these two species located.

## 2 BACKGROUND INFORMATION

A search was undertaken of the two species on Florabase (Western Australian Herbarium 2014) for information about recorded locations, soil preferences and flowering times. In addition, Andrew Brown (pers.com) at the Department of Parks and Wildlife was contacted about the suggested search times for these species. It was recommended that the *Thelymitra magnifica* search be undertaken in mid-October and the *Thelymitra stellata* search in early November.

Jeanes (2006) explained how to distinguish the species in the *Thelymitra fuscolutea* group, ie the yellow flowering *Thelymitra* species, which included the 2 search species. The major distinguishing differences between these 2 species in this article were:

1. FLOWER COLOUR  
*T. magnifica* flowers are dark, golden brown with large yellow blotches and striations; *T. stellata* flowers are brown to reddish brown with large yellow blotches and striations
2. SCENT  
*T. magnifica* has a cinnamon-like scent; *T. stellata* has a sweet scent

3. FLOWERING TIMES

*T. magnifica* flowers in September and October; *T. stellata* flowers in October and November.

4. SOIL

*T. magnifica* prefers seasonally moist, granitic soils; *T. stellata* prefers dry lateritic soil.

**3. METHODS**

It was suggested by Holcim that their environmental technician, Priscilla Fleming also assist with undertaking the searches. Ms Fleming works 1 full day and 2 half days at the quarry and it was agreed that information be forwarded to her so that she could start the searches a week prior to Dr Bennett being available. Dr Bennett prepared background information (See Appendix A) together with a collection data sheet which was forwarded to Ms Fleming ahead of her being able to conduct the first search on 13<sup>th</sup> October. In addition it was suggested that the first search was to be for *Thelymitra magnifica* and that the searches commence in vegetation units F1, H1 and G1 (See Diagram 1). Dr Bennett undertook searches with Ms Fleming on 20<sup>th</sup> October and 3rd November 2014.

Transects were walked through the bushland when searching for the two species.

**4. RESULTS**

Ms Fleming and Dr Bennett undertook searches for *Thelymitra magnifica* and *Thelymitra stellata* on 20<sup>th</sup> October and 3<sup>rd</sup> November 2014 and Ms Fleming also undertook additional searches on 13<sup>th</sup>, 15<sup>th</sup> and 17th October. No yellow/brown flowered *Thelymitra* species were located by Ms Fleming when she undertook the searches or by Dr Bennett. Some late flowering and many fruiting *Thelymitra crinita* were observed during all surveys. In addition the following orchids were recorded:

- *Caladenia flava*;
- *Eriochilus dilatatus*;
- *Thelymitra macrophylla*;
- *Pyrorchis nigricans*,
- *Spiculaea ciliata* (on granite rocks);
- *Lyperanthus serratus*; and
- *Microtis media*.

**5. DISCUSSION**

No plants of *Thelymitra stellata* or *Thelymitra magnifica* were located during the searches.

**6. REFERENCES**

- Astron (2012). *Gosnells Quarry Field Flora, Vegetation and Fauna Survey*. Unpublished report for Holcim (Australia) Pty Ltd
- Department of Parks and Wildlife (2014). *Declared Rare and Priority List for Western Australia*. Published list by the Department of Parks and Wildlife, Western Australia
- Department of Sustainability, Environment, Water, Populations and Communities (2014). *EPBC Act List of Threatened Flora*. <http://www.deh.gov.au/>
- Jeanes J.A. (2006). *Resolution of the Thelymitra fuscolutea R. Br. (Orchidaceae) complex of southern Australia*. *Muelleria* 24: 3–24
- Western Australian Herbarium (2014). *Florabase*. Department of Parks and Wildlife. <http://www.calm.wa.gov.au/science/florabase.html>

## **APPENDIX A**

### **How to Distinguish *Thelymitra stellata* and *Thelymitra magnifica***



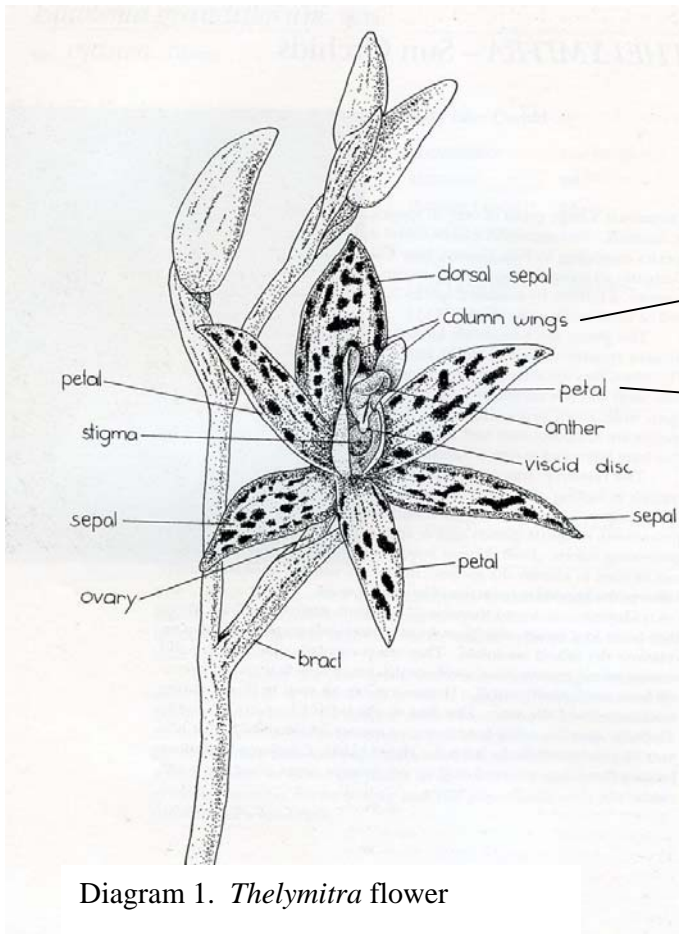
*Thelymitras* are commonly called Sun Orchids as they open during the day and close at night. On an overcast day they may not open at all. A search is to be undertaken for two of the brown coloured flower species, *Thelymitra magnifica* and *Thelymitra stellata*.

Below is a diagram of a typical Sun Orchid. The petals and sepals are alike so that they appear to have six petals. Also all petals and sepals are of a similar colour. There are a few technical terms that will need to be understood:

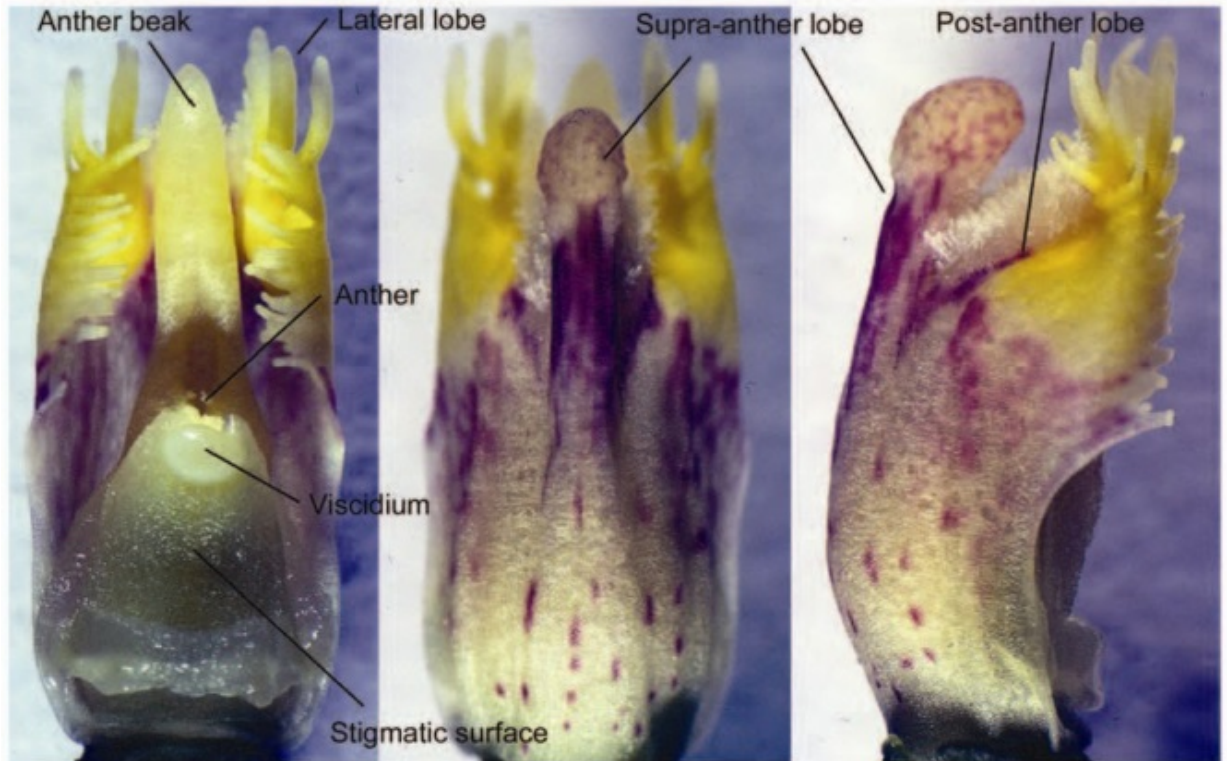
Column – a structure formed by the fusion of the stamens and style;

Column wings – out growths from the column possibly to attract insects; and

Bract is the leaf-like structure under each individual flower stalk.



Flower of *Thelymitra magnifica*.



**Diagram 2. Column features, explaining terms used below**

*Thelymitra magnifica* is the first of the two orchids to flower:

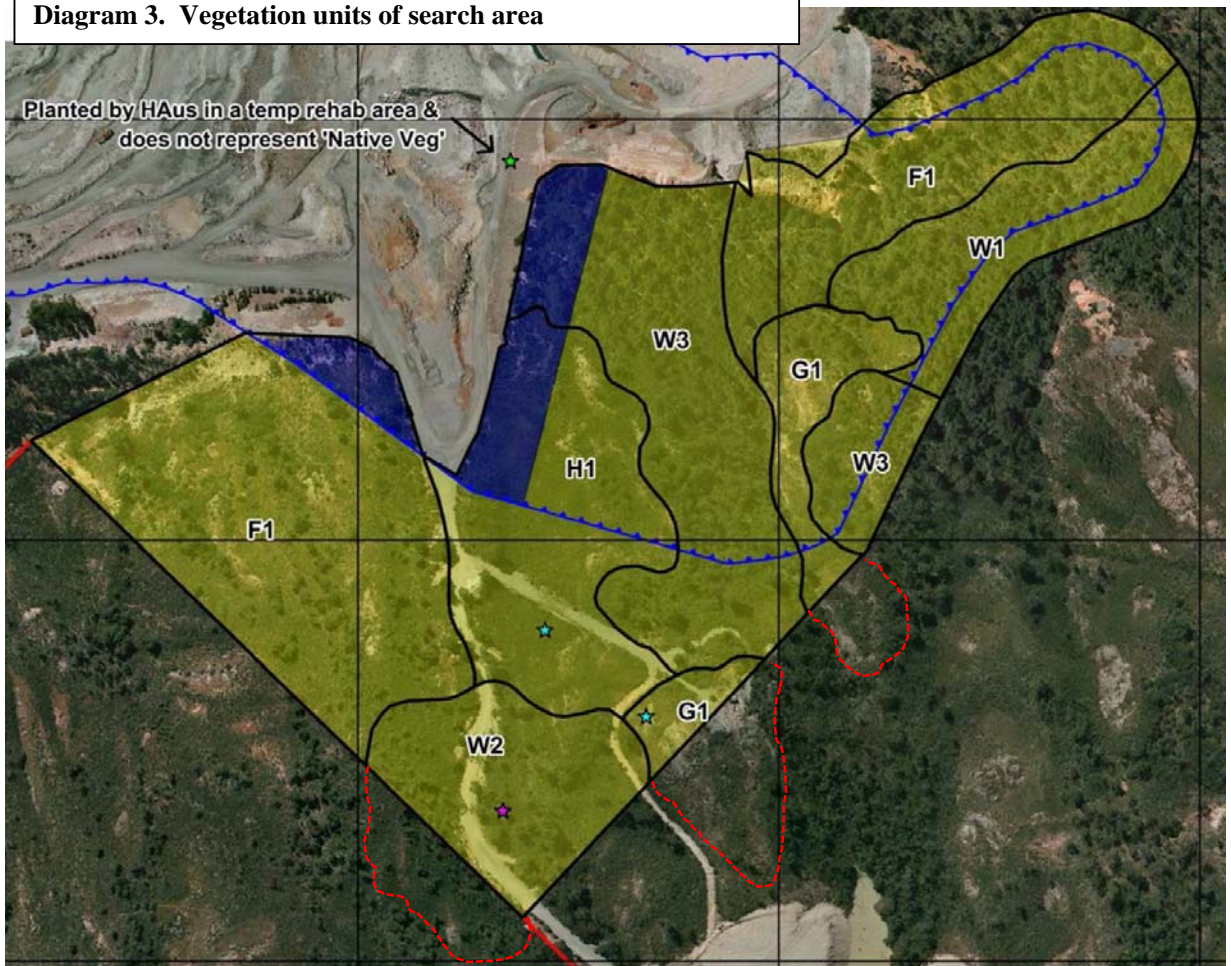
- The leaves are 6-15cm long and 1-2.5cm wide, with a sheathing base;
- The flowers are dark, golden brown with large yellow blotches and striations;
- It has a cinnamon-like scent;
- The column (see diagram 1) is 7-9mm long, 5-6mm wide, golden brown at base and yellow towards apex, broadly winged, the wings have teeth along the margins;
- Post anther lobe (see Diagram 2) is covered in dense mass of orange hairs;
- Supra-anther lobe (see Diagram 2) is rod-like with a swollen club shaped apex, orange; and
- Occurs on slopes in seasonally moist sandy clay and granitic soils in the vicinity of *Eucalyptus wandoo* trees.

*Thelymitra stellata* flowers later than *T. magnifica*.

- The leaves are 5-20cm long and 1-3.5cm wide, with a sheathing base;
- The flowers are brown to reddish brown with large yellow blotches and stripes on inner surface;
- It is sweetly scented;
- The column is 5.5-8mm long and 3-5mm wide, orange brown at the base, orange towards apex, broadly winged, the wings have teeth along the margins;
- Post anther lobe is covered with dense mass of orange hairs;
- Supra-anther lobe is rod like with a swollen club-shaped, notched apex, orange; and
- Occurs in low shrubs of the Jarrah Forest or in low heath on rocky lateritic slopes. Soil lateritic loam.

## Search Method

Diagram 3. Vegetation units of search area



Search for *Thelymitra magnifica* in areas: W2 (Wandoo Woodland), G1 (Granite Rocks) and H1 (Heath).

Search for *Thelymitra stellata* in areas F1, W1, W3 (*Eucalyptus marginata* subsp. *thalassica* Forest & Woodland) and H1 (Heath).

If plants of these species are found it would be beneficial to extend the search into the adjoining same vegetation – I have drawn approximate areas outlined in red).

Field work:

- Transects are to be walked through the bushland about 5m apart or at a distance where it would be possible to see these plants when in flower;
- When plant(s) is found record position using a GPS, record the number of plants; their condition ie if flowering or past flowering; and take a photograph for confirmation; and
- Leave a small piece of flagging next to the plant(s) to ensure they are not counted a second time.

**DO NOT PICK THESE PLANTS – A SPECIAL PERMIT IS REQUIRED  
THELYMITRA MAGNIFICA AND THELYMITRA STELLATA**

**Major differences**

1. FLOWER COLOUR

*T. magnifica* flowers are dark, golden brown with large yellow blotches and striations

*T. stellata* flowers are brown to reddish brown with large yellow blotches and stripes

2. SCENT

*T. magnifica* has a cinnamon-like scent

*T. stellata* has a sweet scent

3. FLOWERING TIMES

*T. magnifica* flowers in September and October

*T. stellata* flowers in October and November

4. SOIL

*T. magnifica* prefers seasonally moist, granitic soils

*T. stellata* prefers dry lateritic soil

**PHOTOGRAPHS**

Look up FLORABASE on the internet. This is a DPAW site. When the site opens click on NAMES. Enter *Thelymitra* under genus and then each species individually under species, then click on SEARCH at the bottom of the page. Next to the name there is a line of letters and pictures, click on the leaf. This will give you the information that is available on the site, which is not much, but it does have a good photograph of the inflorescence and closer one of the flowers. You can see on Florabase the differences in the flower colour.



*Thelymitra magnifica*



*Thelymitra stellata*