

A TARGETED FLORA SURVEY OF THE NATUREBANK ENVELOPE IN MILLSTREAM CHICHESTER NATIONAL PARK

Submitted by

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Summary

A flora survey was undertaken in the Naturebank envelope at Palm Pool in Millstream Chichester National Park, Western Australia, in order to identify vascular plant species in the project area and to highlight any of conservation significance. The survey was conducted over two days in March 2017 in good seasonal conditions and encompassed the area surrounding Palm Pool and associated river and access envelopes. A total of 110 taxa were recorded, including four conservation-listed taxa: *Livistona alfredii* (P4), *Goodenia nuda* (P4), *Pentalepis trichodesmoides* subsp. *hispida* (P2) and *Teucrium pilbaranum* (P2).

Introduction

The flora survey outlined herein has been undertaken in response to a proposed Naturebank ecotourism development in Millstream Chichester National Park. This ecologically and culturally significant park, which is dominated by the rugged Chichester Range, is located in the Pilbara bioregion of Western Australia, some 150 kilometres by road south-east of Karratha. The northern aspect of the Fortescue River at Palm Pool had been identified as a suitable site for the proposed development. The footprint measures at 107ha with a 4.84km boundary.

The Palm Pool development envelope (Figures 1, 2) occurs in the Chichester IBRA subregion (Department of the Environment, Water, Heritage and the Arts 2013) and sits on an elevated plain, with undulating, rocky hills adjoining the riparian zone of the Fortescue River. The vegetation at this site predominantly consists of very open trees (*Corymbia hamersleyana*) and open, tall shrubs (*Acacia pyrifolia*, *Hakea lorea* and *Senna glutinosa*) over *Triodia epactia* and *Triodia wiseana*, with sparse herbaceous perennials and forbs. On its southern flank the riparian zone is dominated by *Eucalyptus camaldulensis* and *Melaleuca argentea*.

The aim of this flora survey was to identify species in the proposed Naturebank development envelopes and to highlight any species of conservation significance.

Methods

Prior to the survey, a preliminary desktop assessment was conducted using NatureMap (Department of Environment and Conservation 2007–) and FloraBase (Western Australian Herbarium 1998–) to identify the taxa recorded within a 20 km radius of the project area and their conservation status. The list of 372 taxa generated from this preliminary assessment included ten taxa that are currently listed on the Threatened and Priority Flora list for Western Australia, none of which are gazetted as Threatened (Table 1).

The field trip was conducted between 15–17 March 2017 by one of us [RD], with assistance from the women rangers from the Yindjibarndi Aboriginal Corporation. Using maps provided by the Department of Parks and Wildlife Tourism Section and GPS readings, the Palm Pool site was judiciously traversed on foot to account for subtle changes in vegetation and habitat. Some 74 herbarium collections were made at the time and later identified using the resources available at the Western Australian Herbarium. A list of the more obvious species were compiled during the survey and a subset of voucher specimens has been prepared for lodgment at the Western Australian Herbarium.

Table 1. Conservation-listed taxa highlighted during the desktop assessment phase as occurring within a 20 km radius of the proposed Naturebank development envelopes at Millstream Chichester National Park. Listings follow Department of Parks and Wildlife Conservation Codes for Western Australian flora (Smith 2017; Western Australian Herbarium 1998–).

Taxon	Conservation Code
<i>Paspalidium retiglume</i>	P2
<i>Oldenlandia</i> sp. Hamersley Station (A.A. Mitchell PRP 1479)	P3
<i>Solanum albotellatum</i>	P3
<i>Swainsona thompsoniana</i>	P3
<i>Livistona alfredii</i>	P4
<i>Cladium procerum</i>	P2
<i>Teucrium pilbaranum</i>	P2
<i>Owenia acidula</i>	P3
<i>Fimbristylis seiberiana</i>	P1
<i>Themeda</i> sp. Hamersley Station (M.E. Trudgen 11431).	P3



Figure 1. Looking towards the centre of the Palm Pool envelope.



Figure 2. Jirndawurranha Pool, Millstream

Results and Discussion

A total of 110 taxa representing 28 families and 68 genera were recorded in the Palm Pool envelope (Table 2, Figure 3), including 21 taxa that were new records for the area (i.e. not documented during the desktop assessment phase). The vegetation within the development envelope was relatively weed free with the exception of some *Aerva javanica*, *Passiflora foetida*, *Malvustrum americanum* and *Tribulus terrestris*.

There were four conservation-listed species recorded for the Palm Pool envelope, namely the Millstream Fan-Palm *Livistona alfredii* (P4), *Goodenia nuda* (P4), *Pentalepis trichodesmoides* subsp. *hispida* (P2) and *Teucrium pilbaranum* (P2).



Figure 3 (L to R). *Gomphrena cunninghamii*, *Tribulus hirsutus*, and *Hibiscus sturtii* var. *platychlams* (with Orange Palm Dart).

Table 2. Vascular plant taxa recorded during survey of the Palm Pool Naturebank development envelopes in Millstream Chichester National Park. Conservation-listed taxa are highlighted in grey; weeds are indicated with an asterix.

Aizoaceae

Trianthema triquetrum

Amaranthaceae

**Aerva javanica*

Alternanthera nana

Amaranthus undulatus

Gomphrena cunninghamii

Ptilotus astrolasius

Ptilotus auriculifolius

Ptilotus axillaris

Ptilotus calostachyus

Ptilotus clementii

Ptilotus fusiformis

Ptilotus incanus

Ptilotus nobilis

Ptilotus obovatus

Arecaceae

Livistona alfredii

Asteraceae

Flaveria trinerva

Pentalepis trichodesmoides subsp. *hispida*

Pluchea dentax

Brassicaceae

Cleome viscosa

Lepidium pedicellosum

Convolvulaceae

Bonamia erecta

Bonamia pannosa

Evolvulus alsinoides var. *villosicalyx*

Ipomoea muelleri

Operculina aequisejala

Cucurbitaceae

Cucumis melo

Cyperaceae

Cyperus vaginatus

Fimbristylis ferruginea

Juncus kraussii

Schoenoplectus subulatus

Euphorbiaceae

Euphorbia australis var. *subtomentosa*

Euphorbia biconvexa

Euphorbia boophthona

Euphorbia careyi

Fabaceae

Acacia ampliceps

Acacia bivenosa

Acacia citrinoviridis

Acacia farnisiana

Acacia maitlandii
Acacia pyrifolia
Acacia synchronica
Acacia trachycarpa
Crotalaria medicaginea var. *neglecta*
Indigofera linifolia
Indigofera monophylla
Neptunia monosperma
Petalostylis labicheoides
Senna artemisioides subsp. *oligophylla*
Senna glutinosa subsp. *glutinosa*
Senna glutinosa subsp. *pruinosa*
Senna nobilis
Sesbania cannabina
Sesbania formosa
Swainsona formosa
Tephrosia rosea var. *clementii*
Tephrosia aff. *clementii*
Goodeniaceae
Goodenia muelleriana
Goodenia nuda
Lamiaceae
Teucrium pilbaranum
Malvaceae
Abutilon fraserii
Corchorus tectus
Corchorus tridens
Gossypium robinsonianum
Gossypium australe
Hibiscus leptocladus
Hibiscus sturtii var. *platyklamys*
**Malvustrum americanum*
Triumfetta clementii
Waltheria indica
Molluginaceae
Trigastrotheca molluginea
Myrtaceae
Corymbia hamersleyana
Eucalyptus camaldulensis
Eucalyptus leucophloia
Eucalyptus victrix
Eucalyptus xerothermica
Melaleuca argentea
Melaleuca eleuterostachya
Melaleuca glomerata
Melaleuca linophylla

Mennispermaceae
Tinospora smilacifolia
Nyctaginaceae
Boerhavia coccinea
Passifloraceae
**Passiflora foetida*
Phyllanthaceae
Phyllanthus maderaspatensis
Plantaginaceae
Stemodia grossa
Poaceae
Cymbopogon ambiguus
Cynodon convergens
Cynodon dactylon
Dicanthium fecundum
Enneapogon caerulescens
Eragrostis tenellula
Eriachne benthamii
Eriachne ciliata
Eulalia aurea
Sorghum plumosum
Themeda triandra
Triodia epactia
Triodia wiseana
Portulacaceae
Portulaca oleracea
Potamogetonaceae
Potamogeton tricarlinatus
Proteaceae
Grevillea pyramidalis
Grevillea berryana
Hakea lorea
Scrophulariaceae
Eremophila maculata
Solanaceae
Solanum diversifolia
Solanum phlomoides
Surianaceae
Stylobasium spathulatum
Thymelaeaceae
Pimelea ammocharis
Typhaceae
Typha domingensis
Zygophyllaceae
Tribulus asterocarpus
Tribulus hirsutus
Tribulus platypterus
**Tribulus terresteris*

References

- Department of the Environment, Water, Heritage and the Arts (2013). Interim Biogeographic Regionalisation for Australia (IBRA), Version 7. http://www.environment.gov.au/parks/nrs/science/bioregion_framework/ibra/index.html [accessed March 2017].
- Department of Environment and Conservation (2007–). NatureMap: Mapping Western Australia's Biodiversity. <http://naturemap.dec.wa.gov.au/> [accessed March 2017].
- Smith, M.G. (2017). Threatened and Priority Flora list for Western Australia. (Department of Environment and Conservation: Kensington, Western Australia.)
- Western Australian Herbarium (1998–). FloraBase—the Western Australian Flora. Department of Parks and Wildlife. <http://florabase.dpaw.wa.gov.au> [accessed March 2017].

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