

A Review of the Regional Conservation Status of a Clay-based Wetland Community (Clay pans) (Ecoedge, 2019)

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Prepared for the BORR Project Team
December 2019



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1. Background

The Commissioner of Main Roads Western Australia (Main Roads) is proposing to construct and operate the Northern and Central sections of the Bunbury Outer Ring Road (BORR) project. The BORR is a planned Controlled Access Highway linking the Forrest Highway and Bussell Highway and will provide a high standard route for access to the Bunbury Port. The completed BORR will also provide an effective bypass of Bunbury for inter-regional traffic and freight, reducing traffic on the local road network, and facilitate proposed development to the east of the city of Bunbury.

Planning for the BORR has high-lighted the fact that roadworks may impact on about 0.61 ha of the Federally-listed threatened ecological community (TEC) 'Clay pans of the Swan Coastal Plain' (BDCA, 2019). This TEC is comprised of several floristic community types (FCTs), one of which (FCT08) occurs within the Central and Northern Sections of the BORR corridor (BORR IPT, 2018; Ecoedge, 2019). The definition of FCT08 is as described by Gibson et al 1994 as:-

Viminaria juncea, *Melaleuca viminea*, *M. lateritia* or *M. osullivanii* and occasionally *Eucalyptus wandoo* generally dominate this community. *Hypocalymma angustifolium*, *Acacia lasiocarpavar. Bracteolata* (long peduncle form P1) and *Verticordia huegelii* can also occur. Typical herbs include *Centrolepis aristata*, *Chorizandra enodis*, *Drosera menziesii* subsp. *menziesii*, *Drosera rosulata* and *Hyalosperma cotula*.

The total area of FCT08 on the Swan Coastal Plain is estimated to be 298.1 ha¹.

The main objective of this review is to assess the potential impact at the regional level on FCT08. For the purposes of this review the 'Region' is defined as the Swan Coastal Plain within Harvey, Bunbury, Capel, Dardanup and Busselton local government areas.

2. Methods

Information on the occurrence of FCT08 was drawn from Appendix 1 of BDCA (2019). An updated table of occurrences that occur within the Region is presented in **Appendix 1** of this report. Information on new areas of FCT08 was obtained at a meeting with Mr. Andrew Webb of BDCA, Bunbury² and some of the identified new areas of FCT08 were visited during this onsite meeting. The onsite meeting between Main Roads (Freea Itzstein-Davey), BDCA (Andrew Webb) and Ecoedge Environmental Services (Russell Smith & Colin Spencer) occurred on the 1st August 2019.

¹ Source: BDCA, 2019, 'National Recovery Plan for the Clay pans of the Swan Coastal Plain Ecological Community'.

² As well as revised sizes and updated condition scores for the information on occurrences within the Region in Appendix 1 of BDCA (2019).

3. Results

3.1. Impact on Extant Areas of the Claypan Communities

A total of 1.7 ha of claypan communities in three separate occurrences were added to the areas known from the Region. Most of these 'new' areas occur immediately to the east of Bunbury in the Waterloo area. Several other small areas of FCT08 are known from the Region but their boundaries are as yet unmapped. However, it is unlikely that these unmapped areas cover more than 3.0 ha in total. The revised area of FCT08 within the Region is presented in **Table 1**, below.

Table 1. Estimated area of FCT08 in the Region and as a proportion of the total estimated area on the Swan Coastal Plain.

Community Type	Region ³	Swan Coastal Plain	% in Region
FCT08	132.0 ha	298.1 ha	44.2

As stated above about 0.61 ha of claypan community may be impacted by the construction of the BORR and associated roadworks. The effect on the area of FCT08 at a State level and Regional level is presented in **Table 2**, below.

Table 2. Potential impact at a Regional and State level on the conservation status of the claypan community FCT08.

Community Type	Potential area impacted	Reduction at Regional Scale	Reduction State-wide
FCT08	0.61 ha	0.46%	0.20%

Based on the results presented in **Table 2** the potential loss of about 0.61 ha of FCT08 through road construction works associated with the BORR project has only a small impact on the remaining area of the claypan community, which would diminish in extent by less than 0.5% at a Regional scale.

³ The data for the Region is drawn mainly from the Recovery Plan (Appendix 1) with additions based on mapping of new occurrences for this project and some modification of areas based on advice from Mr. A. Webb.

4. Discussion

Based on the published data, with additions made as a result of the winter and spring surveys undertaken by Ecoedge (2019), the potential impact of the BORR construction project on the extent of the FCT08 claypan community is a loss of 0.46% of the Regional area and 0.20% of the total area on the Swan Coastal Plain. All the potentially impacted areas are on narrow road verges or rail corridors. Native vegetation in narrow corridors along roads and railway lines is exposed to a range of influences due to the adjacent land uses which may negatively impact on hydrology, reproductive strategies and nutrient cycling within the remnant vegetation. Consequently, it tends to lose native species that are out competed by non-native species (Tikka *et al.*, 2000; van Etten, 2014).

The published data on the areas of claypan communities on the Swan Coastal Plain (DBCA, 2019) may need revision. It appears that there needs to be a reconciliation of the areas contained in the Departmental database of mapped claypan communities and the areas given in **Appendix 1** of DBCA (2019).⁴

In addition, there is variation in the floristic composition of individual claypan occurrences associated with the landform (and geology) (Hedde *et al.*, 1980; Webb *et al.*, 2016) on which they occur that is an avenue for further study of variation within the communities (A. Webb, *pers. comm.*). Most (77%) of the total area of FCT08 within the Region is on the Cokelup Complex, whereas only 13% is on the Guildford Complex, which includes the areas potentially affected by the BORR construction project.

It is therefore unlikely that the proposed clearing of FCT08 claypans will have a significant impact on the conservation status of the community because of the relatively small area that will be cleared and because the areas that will be cleared, with their high perimeter to area ratios, will be subject to ongoing degradation in the normal course of events.

⁴ Mr. A. Webb of DBCA, Bunbury, *pers. comm.*

5. References

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Appendix 1. Updated table of occurrences of FCT08 in the Region (Spring 2019)

Occ. #	Location	FCT	Land-owner/ manager	Condition	Estimated area (ha)	Soil and Landform
114	CR40251 Tuart Forest National Park	SCP08	Conservation Commission WA	Good-Very Good	39.8	Cokelup Complex
113	State Forest 2/Timber Reserve	SCP08	Conservation Commission WA	Good-Very Good	62.6	Cokelup Complex
30	Lot 201 on Boyanup West Rd; Road reserves along Boyanup West Rd and Roselands Rd	SCP08	Conservation Commission WA	Very good	3.3	Guildford Complex
New 1	Lot 2, Roselands Road	SCP08	Private	Very Good	0.9	Guildford Complex
38, 52	CR 46108 on South Western Hwy; CR11078 on Railway Rd; Road reserve Waterloo Rd & SW Hwy; Railway reserve along Railway Rd, Waterloo, CR 2806; Private land SW Hwy; CR 39954; Waterloo	SCP08	Conservation Commission WA, Shire of Dardanup, Main Roads WA, DRD, Private owner, Water Corporation	Good-Excellent	12.6	Guildford Complex
New 2	Road verges Bell Road, Wireless Road, Shire of Dardanup	SCP08	Shire of Dardanup	Good-Very Good	0.4	Guildford Complex
90	Crown Reserve C670	SCP08	City of Bunbury	Very Good	3.4	Southern River Complex
New 3	Private land south of Centenary Road	SCP08	Private	Very Good	0.4	Southern River Complex
48	Hay Park (CR 30601) on Parade Rd; Road reserve along Bussell Hwy, Bunbury	SCP08	City of Bunbury/ Main Roads WA	Very Good - Excellent	8.6	Yoongarillup Complex