

## **Commonwealth of Australia**

# Inclusion of ecological communities in the list of threatened ecological communities under section 181 of the *Environment Protection and Biodiversity Conservation Act 1999* (EC 121)

I, TONY BURKE, Minister for Sustainability, Environment, Water, Population and Communities, pursuant to paragraph 184(1)(a) of the *Environment Protection and Biodiversity Conservation Act 1999*, hereby amend the list referred to in section 181 of that Act by:

including in the list in the critically endangered category

## **Clay Pans of the Swan Coastal Plain**

as described in the Schedule to this instrument.

signed

TONY BURKE Minister for Sustainability, Environment, Water, Population and Communities

### SCHEDULE

### **Clay Pans of the Swan Coastal Plain**

The Clay Pans of the Swan Coastal Plain ecological community occurs within the South West Botanical Province of Western Australia on the Swan Coastal Plain, except for several small clay pans in the Jarrah Forest bioregion.

The ecological community is comprised of seasonal wetlands found on clay substrates that rely solely on rainfall to fill and then dry to impervious pans in summer.

There are two geomorphic types of clay pans on the Swan Coastal Plain that comprise this ecological community: low lying areas of seasonally inundated/waterlogged clay flats (the most common type); and small basin clay pans. Both types are referred to as clay pans. In low areas of the landscape or slight depressions water accumulates in the clay pans directly from rainfall and very local inflow. The clay pans are generally not considered to be connected to the local groundwater. They typically fill during the winter rains and dry completely over summer. Gilgai soil formations can occur on soils with high clay content, with soil mounding caused by the repeated dehydration and re-hydration<sup>1</sup>, and giving a 'lumpy' surface to parts of the clay pan ecological community.

The ecological community generally occurs as a shrubland (less commonly as a low, open woodland or herbland) over a ground layer of geophytes<sup>2</sup>, herbs and sedges which are characteristic of the wetter parts of the sites. There are no dominant species which characterise the entire ecological community. The ecological community, however, shows similar landform and vegetation structural features across its range.

A distinctive feature of the clay pan wetlands that comprise the ecological community is the suite of geophytes<sup>2</sup> and annual flora that germinates, grows and flowers sequentially as these areas dry over summer, producing a floral display for over several months. The clay pans have very high species richness, a number of local endemics and are the most floristically diverse of all the wetlands on the Swan Coastal Plain.

Perennial shrubs contribute to species richness to a smaller degree. In summer when it is hot and dry the shrubs in the clay pans often look dead, with leaves yellowing and dropping. This is part of the aestivation 'summer dormancy' and when water is added to the system in winter they start to 'green up' again.

<sup>&</sup>lt;sup>1</sup> Clay swells when wet, and shrinks when drying causing the soil to crack. When the soil swells with subsequent re-wetting, the soil pressure cannot be dispersed into the now water filled cracks and the soil is forced upwards, causing a mound to form between cracks, and depressions to form at crack locations. This process is exaggerated with subsequent cycles of wetting and drying.

<sup>&</sup>lt;sup>2</sup> A geophyte is a perennial plant with an underground food storage organ, such as a bulb, tuber, corm, or rhizome. The parts of the plant that grow above ground die away during adverse conditions, such as a dry season, and grow again when conditions improve from buds that are on or within the underground portion.

The Clay Pans of the Swan Coastal Plain comprises the following four sub-communities (or vegetation types) described as threatened ecological communities in Western Australia.

- Herb rich saline shrublands in clay pans
- Herb rich shrublands in clay pans
- Dense shrublands on clay flats
- Shrublands on dry clay flats
- It also includes the ecological community type 'Clay pans with shrubs over herbs' which, at the time of listing the national ecological community, was recognised as a high priority to be considered as a threatened Ecological Community in Western Australia.

At least ten flora taxa are endemic to the clay pans, and at least 19 flora taxa have distributions centered on the Clay Pans of the Swan Coastal Plain (i.e. clay pan specialists). Five of these clay pan specialists are listed as endangered species under the EPBC Act at the time of listing the national ecological community: *Trithuria australis* (few-flowered hydatella), *Centrolepis caespitosa* (matted centrolepis), *Trithuria occidentalis* (one-sexed hydatella), *Eleocharis keigheryi* (Keighery's spikerush) and *Verticordia plumosa* var. *pleiobotrya* (plum featherflower).

The Clay Pans of the Swan Coastal Plain supports a diverse array of fauna some of which are dependent on the ecological community while others utilise the community as part of their habitat, depending on different aspects of the vegetation and surface water to provide shelter, food and suitable breeding conditions.

At the time of listing the national ecological community three fauna species listed as threatened under the EPBC Act are known to be dependent on Clay Pans of the Swan Coastal Plain for all or a part of their life/breeding cycle. These are *Pseudemydura umbrina* (western swamp tortoise) (critically endangered) and two species of native bee, *Leioproctus douglasiellus* (endangered) and *Neopasiphae simplicior* (critically endangered).