





Treasuring our tuarts

Tuart woodlands on the Swan Coastal Plain provide important habitat for a diverse range of plants and animals. But land clearing has reduced this ecological community to 20 per cent of its original extent. In July 2019, tuart woodlands were listed under federal legislation as a 'Critically Endangered' threatened ecological community. This elevation of conservation status will help to guide conservation efforts to afford greater protection of this precious ecosystem.

by Kimberlee Kucera

The tuart tree (*Eucalyptus gomphocephala*) is one of Perth's most iconic species. Even the name, which is derived from the Nyoongar name 'tooart', is entrenched in the metropolitan vernacular, with the suburbs 'Tuart Hill' and 'White Gum Valley' named after the species, which once thrived in those areas. Tuart trees are only found along the Swan Coastal Plain and the threatened ecology community, of which the species is part, can be found in fragmented populations from Jurien Bay – 200 kilometres north of Perth – to Busselton – 225 kilometres south of Perth.

As the largest tree species on the Swan Coastal Plain, tuart can grow to more than 30 metres tall and can be up to two metres thick at the base of its trunk. They are commonly the primary tree species in the uppermost canopy, but other native trees including jarrah (*Eucalyptus marginata*), peppermint (*Agonis flexuosa*) and banksias (*Banksia grandis*, *B. attenuata* and *B. menziesii*) often occur in the canopy below.

Tuart woodlands include many threatened plant species, such as the grand spider orchid. They are also home to a raft of animal species. The fertile soils of this community support at least 800 invertebrate species, providing a food source for the 92 bird species that have been recorded making use of the hollows and living in the branches. These woodlands also provide habitat for several conservation significant mammal species, including chuditch (*Dasyurus geoffroii*), quenda (*Isoodon obesulus*), wambenger (*Phascogale tapoatafa*) and the western ringtail possum (*Pseudocheirus occidentalis*).

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Main Tuart trees are a feature of many metropolitan bushland areas.
Photo and shapes – Cliff Winfield

Above Tuart trees are characterised by their rough, fibrous bark.
Photo – Sallyanne Cousans



Ecological communities

An ecological community is classified as a group of native plants, animals and other organisms that interact in a unique habitat. Environmental factors such as soil type, position within the landscape, climate and hydrology can influence the distribution, structure and composition of the community. The species that make up these communities can have different relationships or interactions with each other, but they all play a vital role in contributing to the functionality of their environment.

PROVIDING PROTECTION

Over the past 200 years, the areas where tuart woodlands naturally occur have been significantly cleared. Logging and other land uses, including for agriculture, urban development and mining, has resulted in a decrease of 80 per cent of the original extent of the ecological community. Of the remaining tuart woodlands, many of those that aren't surrounded by natural vegetation, are in a degraded condition with a high presence of weeds and a considerable loss of native biodiversity. It is estimated that about 22 per cent of the remaining extent of the ecological community (five per cent of the estimated pre-European extent), is protected within formal conservation reserves. The remainder occurs on land

that is not formally protected, or on privately owned lands.

However, in July 2019, in recognition of its significant conservation values, the 'Tuart woodlands and forests of the Swan Coastal Plain' was recognised as a nationally significant ecological community and listed as 'Critically Endangered' under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

For a patch of tuart woodland to be considered part of the threatened ecological community (TEC), it must meet certain criteria identified in the Australian Government's approved conservation advice using key diagnostic characteristics, and condition thresholds. For example, patches of vegetation need to occur on the Swan Coastal Plain, should be discrete – and mostly



Top right Tuart woodlands are known to co-occur with banksia woodlands.
Photo – Jiri Lochman

Above right Tuart trees flower between mid-summer to mid-autumn.
Photo – Cliff Winfield

continuous – areas with at least two living tuart trees in the canopy layer. The patch boundary is 30 metres beyond the outer canopy of the established tuart trees (including dead trees). In order to be considered a ‘Matter of National

Environmental Significance’, as defined under the EPBC Act, areas less than half a hectare are not part of the TEC, patches between half and five hectares that meet the key diagnostic characteristics will require on-ground surveying to determine if they meet condition thresholds, and patches larger than five hectares that meet the key diagnostic characteristics will be included regardless of condition.

The tuart woodlands TEC can co-occur or intergrade with other threatened ecological communities. For example, tuart woodlands may co-occur with the

‘Banksia woodlands of the Swan Coastal Plain’ TEC where a canopy of tuart occurs above a banksia-dominated tree layer. This is most common in the Spearwood dunes in the southern suburbs of Perth.

Another example is where the ‘Aquatic Root Mat Community in Caves of the Swan Coastal Plain’ TEC supports a diverse and distinctive assemblage of cave fauna, which live in the dense root mats of the tuart trees above. The ‘Sedgeland in Holocene Dune Swales of the southern Swan Coastal Plain’ TEC may also contain a tuart canopy that in some cases



will meet the diagnostic characteristics for the tuart woodlands TEC.

CONSERVATION IN ACTION

National listing of tuart woodlands provides guidance for management and restoration, and helps to reduce any further impacts or risks to the community. It also means that any activity likely to have a significant impact on the ecological community may need to be referred to the Australian Government Department of Agriculture, Water and the Environment for assessment and approval.

Recommended conservation and research actions will help to prevent vegetation clearance and fragmentation; manage weeds and feral animals, disease and overgrazing; and maintain groundwater function, ecological connectivity and appropriate fire regimes.

Above Western ringtail possum is one species that house in tuart woodlands.

Above right Tuart trees can grow to 30 metres tall.

Photos – Jiri Lochman

Right It will be important to protect tuart woodlands as urban sprawl continues.

Photo – Cliff Winfield

Revegetation and regeneration may be necessary to improve the condition of some patches. Initiatives to engage the community through education and incentives are encouraged. And research is required to better understand community composition, extent, threats and restoration techniques.

A particular focus will be to determine the condition and extent of tuart woodlands and forests that occur on private lands. It has been observed that these populations are generally in a more degraded condition than the communities located in conservation

reserves. Owners of private land on which tuart woodlands and forests occur, may be eligible for funding incentives to improve the overall condition of the TEC through conservation work. Funding and advice for supporting and protecting these communities may be accessed through National Landcare, Regional Catchment, National Resource Management (NRM) groups or from local councils.

By taking these steps, it is hoped that this precious ecosystem will be protected into the future, so it will continue to provide refuge to the myriad of species that make up the ecological community.



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For more information about tuart woodlands and forest ecological communities, visit environment.gov.au/cgi-bin/sprat/public/sprat.pl

