

BANKSIAS & BLACKBOYS

— in the Great Victoria Desert —



Banksias and blackboys are normally associated with the sandplains of the coast and Wheatbelt, but Ian Kealley looks at some of the species that occur far inland in the Great Victoria Desert.

By Ian Kealley



Unknown to all but the most adventurous travellers and students of botanical literature, banksias and blackboys occur in the Great Victoria Desert up to 300 kilometres north-east of Kalgoorlie. This outlier is the most inland population of banksias in Australia and contains some of the largest blackboys.

The Great Victoria Desert is essentially a waterless sandy plain north of the Nullarbor, stretching from Laverton in Western Australia to Coober Pedy in South Australia. It varies in width from 150 to 500 kilometres, with the dominant feature being the numerous windblown, longitudinal, red-brown to yellow sand dunes that are derived from ancient weathering of the underlying sandstone.

The dominant vegetation is spinifex (*Triodia basedowii*) hummock grassland, with scattered shrubland, a wide variety of mallee eucalypts and, intermittently, the spectacular open woodland of marble gum (*Eucalyptus gongylocarpa*). Marble gums are large striking trees with spreading branches, glaucous (blue-green) leaves and mottled white bark. They have adapted superbly to the desert and achieve a surprisingly large size in such a harsh and arid environment. On the heavier soils, around remnant rocky areas and occasionally between the dunes, there are low mulga (*Acacia aneura*) woodlands. Of the wide variety of mallees that occur in the Great Victoria Desert, many have only recently been discovered and named, or renamed, as part of ongoing taxonomic research.

In the south-west of the Great Victoria Desert, on deep yellow sands and where linear dunes dominate, we find spectacular blackboys or grass trees (*Xanthorrhoea thorntonii*) and the hardy swordfish banksia (*Banksia elderiana*). They occur in groups, at widely scattered intervals from the tops of the dunes and through the interdune swales.

While both species occur elsewhere in Western Australia's eastern Wheatbelt, it is in the Great Victoria Desert that the best-developed mix of large blackboys and spreading prickly banksias occur. The yellow flowers of the banksia are hidden and protected in the foliage. The blackboys proudly display their flowers on elongated spikes



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Main: Blackboys silhouetted against a sunset sky.

Photo - Richard Woldendorp

Background: Close-up of blackboy leaves and stem.

Photo - Richard Woldendorp

Above: The flowers of the large-fruited mallee (*Eucalyptus youngiana*) are the largest gum flowers in the desert.

Photo - Steve Hopper

up to two metres long. Both attract birds and insects, the main pollinators in the arid interior.

The large spreading mallee, yarldorlba (*Eucalyptus youngiana*), with

its spectacular large predominantly red and occasionally yellow flowers, is also common in these areas, adding additional colour and contrasting with the yellow sand of the dunes.

GILES AND THE BLACKBOYS

Some of the best stands of blackboys and banksias occur in or near to the 272 000 hectare Queen Victoria Spring Nature Reserve. The reserve is named after a small claypan often containing fresh water known to the Aborigines as Munyurra and named Queen Victoria Spring in 1875 by Ernest Giles, who also named the Great Victoria Desert on his expedition. Giles' party located the 'spring' on Sunday 26 September 1875,



Above: This old and hardy grass-tree, of more than five metres height, produced a flowering spike following a recent fire. Photo - David Pearson

Right: The Queen Victoria Spring area is very rich in mallee. Good rains in 1992 led to exceptional flowering of *Eucalyptus platycorys* and other species. Photo - David Pearson



after travelling 325 miles on camels east-west across the Great Victoria Desert for 17 days without water.

In his published journal *Australia Twice Traversed*, Giles recorded the day before reaching Queen Victoria Spring that 'for the first time upon this expedition [we have seen] some very fine specimens of the Australian grass-tree'. He camped at the spring for nine days, during which time he made observations on the flora and fauna. One comment recorded was: 'Some grass-trees grew in the vicinity of this spring to a height of over twenty feet.' More than 100 years later, the same blackboys are still to be found just south of the spring.

In 1891, the Great Victoria Desert

was traversed from the north-east by the Elder Exploring Expedition, which included a botanical collector, Richard Helms, who collected the type specimen for swordfish banksia (*Banksia elderiana*) on 17 September 1891. The species was named after Sir Thomas Elder, sponsor of the expedition. The botanical district now occupied by the Great Victoria Desert (Helms District) was named after the collector.

Queen Victoria Spring was next visited from 18 to 21 April 1894 by Carnegie and Luck, while exploring the Eastern Goldfields for prospective country. David Carnegie, in his book *Spinifex and Sand*, also mentions the blackboys near the spring.

"There was no change in the country till afternoon on the 18th, when we noticed some grass-trees, or black-boys, smaller than those seen near the coast, and presently struck the outskirts of a little oasis, and immediately after an old camel pad (Lindsay's in 1892, formed by a caravan of over fifty animals), which we followed for a few minutes, until the welcome sight of Queen Victoria Spring met our eyes."

Carnegie also recorded the vegetation on maps of his traverse; blackboys feature on his map next to and north of the spring.

During a later expedition (July 1896), while en route from Coolgardie to Halls Creek in the Kimberley, Carnegie also



recorded a stand of blackboys in sand dune country once he had entered the Great Victoria Desert. These blackboys are near Cosmo Newberry, north-east of Laverton, and can still be seen next to the Laverton to Warburton Road.

Queen Victoria Spring Nature Reserve is a very diverse and important reserve located in the south-west corner of the Great Victoria Desert, where the Austin and Helms botanical districts overlap. The Austin District, to the west, is dominated by acacia woodland, with mulga (*Acacia aneura*) being the main species. The Helms District is mainly tree and shrub steppe of the deserts. Elements of both districts overlap in the Queen Victoria Spring Nature Reserve,

creating a diverse flora and fauna. The banksias and blackboys are representatives of the western flora.

FURTHER LINKS

The connection between the flora of the South West and that of the Great Victoria Desert is further exemplified by the occurrence, in the desert, of two threatened species: the purple-leaved daviesia (*Daviesia purpurascens*) and the Victoria Desert smokebush (*Conospermum toddii*). The smokebushes are predominantly a south-west plant group. However, the usual habitat of Victoria Desert smokebush, where it occurs within the Great Victoria Desert, is on the crests of the yellow dunes.



Top: The declared rare flora Victoria Desert smokebush (*Conospermum toddii*) that occurs on dune crests in the Great Victoria Desert.
Photo - Kingsley Dixon



Above: The elusive purple-leaved daviesia (*Daviesia purpurascens*) near Coolgardie, yet to be rediscovered in the Great Victoria Desert since the original collection in 1891.
Photo - Andrew Chapman

Left: The grass-tree (*Xanthorrhoea thorntonii*) grows abundantly on sandplain in the area.
Photo - David Pearson

Purple-leaved daviesia, which is listed in the Department of Conservation and Land Management's (CALM) Draft Nature Conservation Strategy for WA as one of the 50 most threatened plant species in the State, is known only from several hundred plants near Gnarlbine, south of Coolgardie, and two sub-populations of several plants near Narembeen, in the Wheatbelt. It was first recorded and collected by Richard Helms about 320 kilometres north-east of Kalgoorlie on 16 September 1891, the day before he collected the type specimen of swordfish banksia. The original locality, which is close to the western edge of Plumridge Lakes Nature Reserve and where swordfish banksia is known



to occur, has been searched without success. However, given the vastness of the Great Victoria Desert, it is considered likely that somewhere between a sand dune and a patch of banksias, the purple-leaved daviesia will one day be rediscovered.

The swordfish banksia occurs in two disjunct areas, west of Kalgoorlie in the Eastern Wheatbelt and east of Kalgoorlie in the Great Victoria Desert. Before 1984, the Great Victoria Desert population of swordfish banksia was known from only two locations, based on herbarium collections. From 1984 to 1986, volunteers working on *The Banksia Atlas* project increased records of swordfish banksia in the Great Victoria

Desert to seventeen locations. These records indicate it is common throughout an area of approximately 20 000 square kilometres between Queen Victoria Spring and Plumridge Lakes Nature Reserve. Surveys have confirmed that the east and west populations are separated due to the absence of suitable sandy soils in the area between them. In this area, a remnant paleodrainage system exists containing heavy soils, a chain of salt lakes and the Ponton Creek.

Both the banksias and blackboys are well adapted to the infrequent, but intense fires that occur in the highly flammable spinifex grasslands. The banksias sprout from underground stems



Top: The follicles on swordfish banksia (*Banksia elderiana*) cones open sporadically to release seed. However, a fire leads to the opening of all the follicles.

Photo - David Pearson

Above: Swordfish banksia is part of a disjunct population now known to be common over 20 000 square km of the Great Victoria Desert.

Photo - Andrew Burbidge

Left: The leaves of a grass-tree framed against the foliage of the native pine *Callitris preissii*.

Photo - David Pearson

(lignotubers) and regenerate from seed; blackboys shoot from their deeply fire-scarred 'trunks', which can reach heights of five metres. In recent years, the Department of Conservation and Land Management (CALM) has conducted a series of prescribed aerial burns in and around the Queen Victoria Spring Nature Reserve, to reduce the spread of severe wildfires and maximise vegetation diversity and plant succession. The resulting patch burns, which seek to emulate traditional Aboriginal burning, reduce the potential for wildfires to burn tens of thousands of hectares in one event. CALM, in its management (including fire management) of the Nature Reserve and surrounding areas, includes all flora issues in planning.

In the 1980s, extensive mineral exploration activity in the south-western part of the Great Victoria Desert,



Above: Close-up view of the flowers of a grass-tree. The nectar attracts honeyeaters as well as a great array of insects, including colourful jewel beetles.
Photo - David Pearson



Above right: Queen Victoria Spring is not permanent, as several explorers were to find. A layer of grey clay catches water as it percolates from surrounding sand dunes and holds it for brief periods.
Photo - David Pearson

Right: The sun orchid (*Thelymitra sargentii*) is a rarely seen species which grows on areas of yellow sandplain, particularly one to two years after fire.
Photo - David Pearson

associated with the search for uranium, created an extensive network of tracks and bulldozed exploration grid lines. This network of tracks provides access that has resulted in the location of many new stands of blackboys, banksias and populations of other flora, including rare and restricted species.

Along with the scientific interest, increased complexity of management issues and the fascinating history of discovery, these unusual vegetation outliers offer a stark contrast to the uniform spinifex and rolling dunes of the Great Victoria Desert. ■

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LANDSCOPE

VOLUME EIGHT NO. 3 AUTUMN ISSUE 1993



'Where there's fire there's smoke'. We look at one of the lesser known and misunderstood products of bushfires on page 10.



Banksias and blackboys are normally associated with the sandplains of the coast and wheatbelt rather than the Great Victoria Desert. See page 22.



The mountains of the Stirling Range are a refuge harbouring many ancient species of spiders. Spider expert Barbara York Main shows us some of them on page 28.



The disappearance of the Zuytdorp remained a mystery for many years. The story of its rediscovery and the formation of the Zuytdorp Nature Reserve is on page 42.



A new book, Perth Outdoors, aims to encourage people to get outdoors and enjoy nature and to learn more about Perth's unique natural communities. See page 35.

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COVER

The palisade spider (Neohomogona stirlingi) is endemic to the Stirling and Porongurup Ranges. It builds a shallow burrow with an open entrance surrounded by a palisade, or collar of leaves and twigs, which may project several centimetres above the ground or litter.

The illustration is by Philippa Nikulinsky.



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Cartography: CALM Land Information Branch
 Colour Separation by Prepress Services
 Printed in Western Australia by Lamb Print

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Published by Dr S Shea, Executive Director
 Department of Conservation and Land Management,
 50 Hayman Road, Como, Western Australia 6152.