



D
*Woodland
Wonderland*

Two hours drive south-east of Perth lies an archipelago of 17 bushland islands amid a sea of wheatlands and grazing pastures near the Central South town of Narrogin. Together, they form Dryandra Woodland, the biggest tract of remnant vegetation in the western Wheatbelt and habitat for several of Western Australia's rare and endangered animals. The survival of these species hinges not only on the conservation of the woodland, but on future partnerships with surrounding land owners.

*By
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and
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Dryandra Woodland lies on the boundary between the Darling and Avon botanical districts of the South West. It is a distinct transition zone between the jarrah-dominated forests of the Darling Range and the more arid Wheatbelt. Jarrah gives way to powderbark, wandoo and brown mallet. Marri begins to disappear from the mid slopes and the valleys host stands of York gum. This transition is also marked by stark contrasts in the vegetation structure - tall, open wandoo woodlands, dense sheoak forests, low, dense heathlands and granite outcrops. The heathlands, or kwongan, are the most species-rich vegetation associations and, in spring and early summer, yield a riotous display of wildflowers and birdlife. But at the beginning of the century, the area was important for very different reasons.

European settlers in Western Australia's semi-arid zone, now known as the Wheatbelt, turned to the native brown mallet (*Eucalyptus astringens*) as a source of revenue to develop farms. The tree's tannin-rich bark was a winner with the European leather industry.

In 1908, officials in the then Woods and Forest Department warned that the species was in danger of being cut out, and by the early 1920s, the mallet supply had become critical. Extensive surveys of land west of Cuballing resulted in the recently formed Forests Department reserving the first section of what is now



Dryandra Woodland to protect natural mallet stands and establish plantations.

In the Depression of the 1930s, extensive areas of Dryandra were sown to mallet by sustenance workers. At the same time, outstations from the main Dryandra block were established.

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Main: Dryandra's powderbarks (*Eucalyptus accedens*) can trick the uninitiated into believing they are wandoo (*E. wandoo*). Brush the bark with your fingers and you will discover the difference. Photo - Chris Garrett

Inset: The autumnal colours of shed wandoo bark are another aspect of the contrasts in the Dryandra Woodland. Photo - Marie Lochman

Above: Dryandra Woodland is home for one of the biggest populations of the woylie. Photo - Marie Lochman

Below: Plantations of brown mallet still have commercial uses, but their distinctiveness is now part of Dryandra's natural beauty. Photo - Jiri Lochman



Mallet plantations continued to be established periodically until 1962, by which time the market for vegetable tannins had collapsed in the face of competition from synthetics.

Today, these plantations extend over more than 8 300 hectares, about one-third of the area of the Dryandra Woodland, and supply a local tool-handle manufacturer and a few firewood licences.

But if those early foresters thought Dryandra was established merely to preserve the commercial exploitation of the mallet resource, they were wrong. They created, perhaps unwittingly, what has become one of the most significant conservation areas in the Wheatbelt.

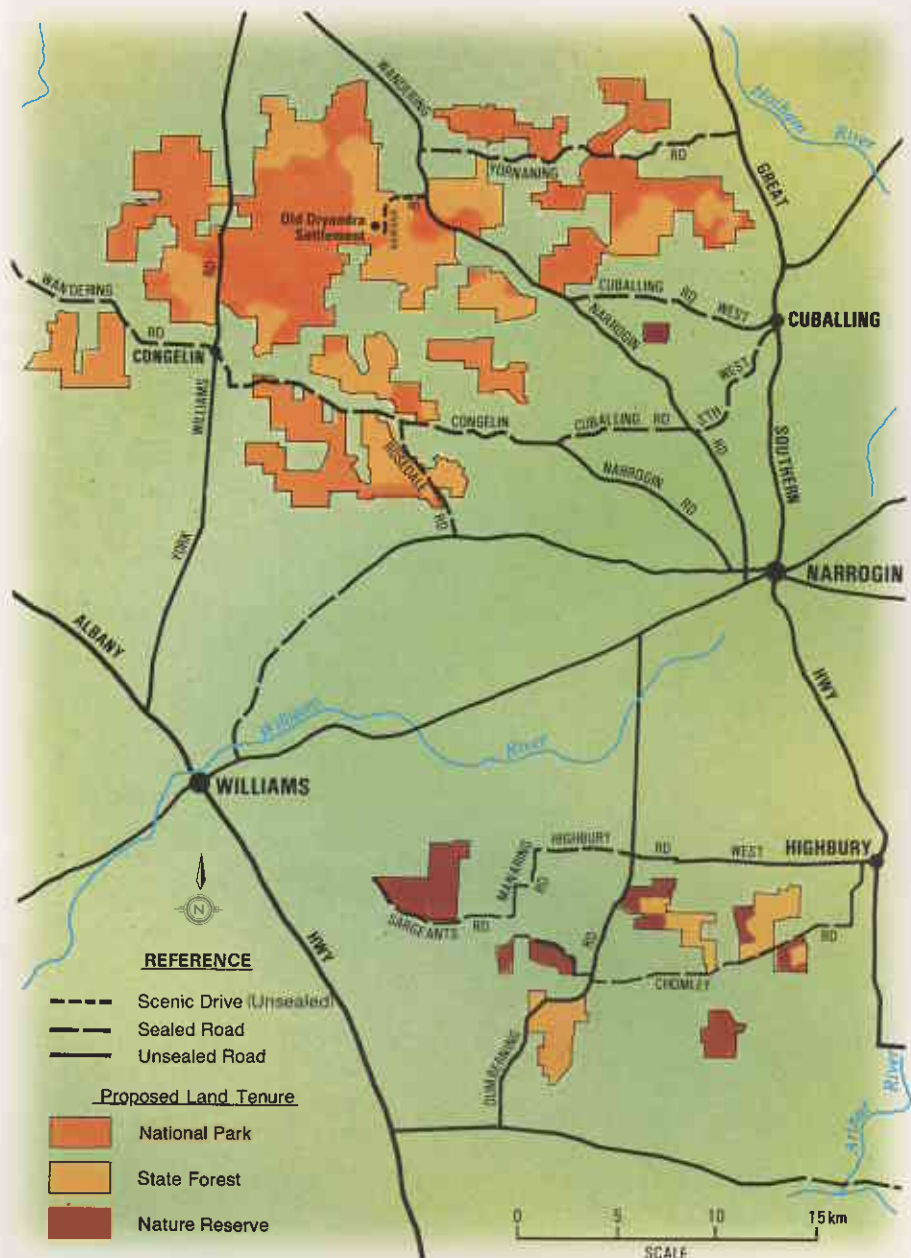
FLORAL RICHNESS

Dryandra has a relatively rich flora with 816 identified native plant species ranging from those common in the wetter jarrah forest to species peculiar to the semi-arid Wheatbelt. Its floral significance can be gauged from comparing it with other conservation areas - the nearby Tutanning Nature Reserve has 697 species and the Walpole-Nornalup National Park has 698 species (albeit Fitzgerald River National Park has 1 748 species).

The Department of Conservation and Land Management (CALM) maintains a reserve species list for flora that are poorly known and in need of further survey, or are in need of monitoring. Dryandra hosts 19 of these reserve species, which include the smooth-lipped spider orchid (*Caladenia integra*), two Darwinias, a mountain buttercup (*Hibbertia montana*), the narrow-leaved red mallee (*Eucalyptus latens*), Crowley's grevillea (*Grevillea crowleyi*) and the non-poisonous native pea *Nemcia stipularis*.

In 1988, CALM Operations Officer Greg Durell collected a specimen of the rare *Eucalyptus olivacea* from the Highbury section of Dryandra, believing it at the time to be a different species. However, the discovery was only recently unearthed after a chance look through Herbarium records confirmed that it was indeed the rare eucalypt.

Above: The smooth-lipped spider orchid is one of 19 reserve flora list species found in the woodland.
Photo - Babs and Bert Wells





Eight species of poison pea (*Gastrolobium* spp.) abound in the woodland, often in dense thickets. The toxin in the peas is lethal to most animals, but not to many of WA's native mammals, which have developed a high tolerance to it (see 'Poison Peas: Deadly Protectors', *LANDSCOPE*, Winter 1991).

The dense thickets formed by poison peas provide perfect shelter for native animals. They are a fine example of Dryandra's microcosm of living partnerships, the sort that characterise WA's ecosystems. Another example is the relationship between the fungi and the woylie.

THE FUNGI AND THE WOYLIE

Only limited surveys of fungi, mosses, liverworts and lichens have been carried out, but more than 100 species of larger fungi have been recorded in the woodland. Many of these bigger fungi have underground fruiting bodies that are a major part of the diet of the woylie (*Bettongia penicillata*), a small wallaby-like marsupial that is one of the declared rare animals found in Dryandra. The spores of these fungi pass through the gut of the woylie and are spread to new locations in scats.

The importance of this relationship is highlighted when it is realised that many of these same fungi form symbiotic associations with the plants of Dryandra. They grow within or on the outside of the plant roots and increase the uptake of nutrients by the plant, thus enhancing its growth and survival. In part it is the dense vegetation, including thickets of poison plants, that in turn has assisted the survival of the woylie.

Top: The presence of the short-beaked echidna is revealed by the plethora of diggings it makes while seeking out ants and termites.

Photo - Jiri Lochman

Above: Dryandra also is a haven for the red-tailed phascogale. Fox control is retrieving this and many other marsupials from the brink.

Photo - Jiri Lochman

Left: Dryandra has an aura that even the native inhabitants, such as this western grey kangaroo, find far from the madding crowd.

Photo - M & I Morcombe

Bushwalkers in Dryandra might occasionally notice a commotion at their feet and a flash of a rapidly disappearing furry rump, betraying the location of a woylie's daytime nest: a neat ball of shredded bark, grass and leaves. Dryandra is a stronghold of this threatened species and the fact that bushwalkers can flush one from its nest shows how numerous they are.

Many overnight visitors at Dryandra Settlement are startled at night by what they think are huge hopping rats, right outside their hut. These are woylies, and up to 40 have been known to gather at the settlement at one time. At Dryandra, it is hard to believe their threatened status, but the species has declined dramatically from being one of the most widespread and common of the rat kangaroos in southern Australia, to a very small number of remnant populations in Dryandra, Batalling, east of Collie, and Perup, east of Manjimup.

A powerful torch or spotlight provides an intimate view of their activity as they feed on fungi, Guildford grass bulbs (*Romulea rosea*), seeds and food scraps left after an alfresco meal. A woylie growl or swift cuff with their legs soon sorts out a dispute over a particularly tasty morsel. Woylies also carry off seeds, especially

big ones such as those of the sandalwood (*Santalum spicatum*), and bury them so they may be recovered for a later feast.

OTHER ANIMALS

There are few places in Western Australia that have as rich or as visible fauna as Dryandra. A quiet walk or drive in the woodland could reward one with an encounter with the State's mammal emblem, the rare numbat (*Myrmecobius fasciatus*). Or you could catch an echidna (*Tachyglossus aculeatus*) out looking for its next meal of ants and termites.

Further from the settlement a spotlight reveals more of Dryandra's rich wildlife. Brush wallabies (*Macropus irma*), western grey kangaroo (*Macropus fuliginosus*), brushtail possum (*Trichosurus vulpecula*) and the rare tammar wallaby (*Macropus eugenii*) are frequently seen. Tammar wallabies are one of the four declared threatened mammals found in Dryandra along with numbats, woylies and the red-tailed phascogale (*Phascogale calura*). The phascogale is locally abundant but rarely seen, as it is small and keeps to the dense rock sheoak thickets.

But Dryandra is not all rare mammals. Other smaller species include the mardo (*Antechinus flavipes*), honey-possum

(*Tarsipes rostratus*), pygmy-possum (*Cercartetus concinnus*), dunnarts (*Sminthopsis* sp.) and 10 species of bat.

If very quiet, you might even get a glimpse of a malleefowl (*Leipoa ocellata*) as it fades out of sight into the undergrowth. The malleefowl faces enormous pressure in those remnant areas of the Wheatbelt from which it has not become locally extinct through predation or clearing of habitat for grazing lands and wheat fields. Recently, there has been an upsurge in concern for this species and many volunteer groups have projects to protect and enhance local populations. The Royal Australasian Ornithologists Union (RAOU) is carrying out a long-term project to monitor the breeding and survival of Dryandra's malleefowl.

The 36 species of lizard and 15 of snake, most of which are harmless burrowers, reflect the woodland's

Below: One of the species that lends its name to the Dryandra Woodland. This one is *Dryandra horrida*. In all, Dryandra is host to 816 identified native plant species. Photo - Jiri Lochman





position on the transition zone between the Wheatbelt and the jarrah forest. Several species exist at the eastern and western limits of their range. One, the carpet python (*Morelia spilota imbricata*), is declared specially protected.

As for most of Western Australia, invertebrate life in the woodland is not well known. But in common with elsewhere, invertebrates play a pivotal role in the biodiversity and conservation of the woodland. Termites, for example, those much-maligned 'house eaters', are keystones of the ecology of Dryandra. They perform a crucial role in recycling the nutrients in dead plant matter back into the soil and in maintaining soil structure. They are the 'earthworms' of Australia's arid and semi-arid areas.

The numbat eats only termites and the insects form a substantial part of the diet of the echidna. The big winged termites that swarm from their nests after the opening rains form a veritable feast for bird and beast alike.

One species of termite - *Coptotermes acinaciformis raffrayi* - is the only species that forms hollows in wandoo and powderbark trees. These hollows provide the numbat with nest sites and refuge from predators. Hollows in standing trees or in branches on the ground are important refuges for many of the other species in the woodland.

FOX CONTROL

The first fox control in Dryandra was a by-product of rabbit baiting introduced in the mid 1950s. Foxes preying and scavenging on rabbits poisoned with 1080-laced oats died from secondary poisoning. While this had some benefit for native wildlife, it wasn't until the early 1980s that researchers stepped up their efforts and attacked the fox head-on in parts of Dryandra with poisoned meat baits. Now, sightings of native animals, including numbats, woylies, tammar wallabies and brushtail possums, have increased dramatically.

The recovery of the woylies in particular is proving so successful that the experience forms the basis for reintroducing and establishing colonies in other areas of the species' former range, and there is every indication it may be taken off the endangered list within the next few years.

A NATURAL PLAYGROUND

Dryandra is one of the Central South's three major tourist attractions, attracting 30 000 people a year. This compares with the 66 000 people a year who visit the region's major tourist drawcard - Wave Rock at Hyden.

CALM surveys have shown that visitors frequently list beautiful open woodlands, naturalness, wildlife, scenery

and peacefulness as reasons for their visits. The same surveys show many people have a great curiosity about Dryandra and its values, and that their experience is heightened by a better understanding of the ecology and cultural heritage of the woodland.

Bushwalking features high on the list of visitor activities. While so far there is only one designated bushwalk, many people are content to explore the diversity of the woodland on foot using the many management tracks that run through the area.

The one existing structured walk, the Ochre Trail, has interpretive information on the ecology of the area and provides a link between Dryandra and the region's Aboriginal heritage.

Although not well documented, there is evidence of Aboriginal occupation in Dryandra, including an ochre quarry, scarred trees, stone arrangements and scatterings of artefacts. However, no comprehensive survey of the area has yet been done.

Above: Ninety-nine bird species have been recorded at Dryandra and an early morning walk to catch the dawn chorus is a popular activity. This blue-breasted fairy wren (*Malurus pulcherrimus*) busies itself with family matters.
Photo - Babs and Bert Wells

Picnicking, too, is popular and barbecue facilities have been provided at several sites throughout the woodland. These provide ideal focal points for other activities such as sightseeing, wildflower viewing and bushwalking.

NATURE STUDY

Most of the buildings in the old Dryandra Settlement, which followed the development of the mallet plantations, are now run by the Lions Clubs of Western Australia under a lease arrangement with CALM. Former forestry cottages - and Nissen huts for bigger groups - are bases from which to explore the woodland.

More recently, the Irabina Field Study Centre has been set up within the old settlement and is used by a variety of interest groups for seminars and workshops. There also are two Dryandra Woodland Ecology Courses run by CALM staff each year to introduce people to the local ecology.

It is this pressure for recreation and nature-based tourism, along with the distinct natural values of the Dryandra itself, that present the greatest challenge to the conservation effort for the woodland.

A 100-YEAR VISION

Last March, CALM released a Draft Management Plan for Dryandra Woodland in recognition of the need to balance the conservation, recreation and timber production values of the woodland. Although the plan presented a 10-year program, it was a vision that looked beyond that decade and virtually into the 22nd century.

This '10-year-plan with a 100-year vision' was based on the concept that the conservation of the woodland could not be viewed in isolation from its neighbours, nor indeed those small, but locally significant commercial entities that relied on access to the timber resource for their future. It also encouraged these neighbours to become involved in the nature conservation effort. For example, not only could tracts of native vegetation on private farmland create further corridors for native mammals to migrate, they could also play a role in the landcare efforts of the farmers within surrounding catchments.

Already some neighbouring landowners, assisted by local volunteers, have included bushland corridors



Above: The turtle frog (*Myobatrachus gouldii*) is found in Dryandra and is one of only two frogs that burrow forwards. It doesn't need open water to breed, but lays eggs underground. The embryos go through the tadpole stage while in the egg and emerge as miniature versions of the adults. Photo - Babs and Bert Wells

Top: The woodland is a refuge for the rare malleefowl. The bird's habitat has been severely curtailed through clearing for agriculture.

Photo - Peter Marsack/Lochman Transparencies

between some of the blocks of bush at Dryandra in their land conservation plantings. In the future, native vegetation plantings could offer a financial return through the prospect of sustained harvesting of the timber resource for local industries.

It is a vision based on integration through partnerships - the very partnerships that have helped create Dryandra as a woodland, and wildlife, wonderland.

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Hand in hand with nature. This brushtail possum is just one of the animals studied during fauna surveys of the Batalling Forest. See page 16.



Lush vegetation and a welcoming smile greet you as you arrive at Mt Hart Homestead, the 'Oasis in the Leopolds'. See page 48.



'Fire, Wind and Water', on page 42, tells of recent research into the rehabilitation of exploration tracks in the Rudall River area of the Little Sandy Desert.



Deep beneath the Southern Ocean lies the wreck of the Sanko Harvest. This rotting hull is now an artificial reef attracting marine life and divers alike. See page 23.



Plantations of brown mallet in the early 1900's began a chain of events that resulted in the 'Woodland Wonderland' of Dryandra. See page 28.

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COVER

Woylies prefer clumped, relatively open vegetation with sandy soils that are easy to dig. They are found, among other places, at Batalling Forest and the Dryandra Woodland. See stories on pages 16 and 28.

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