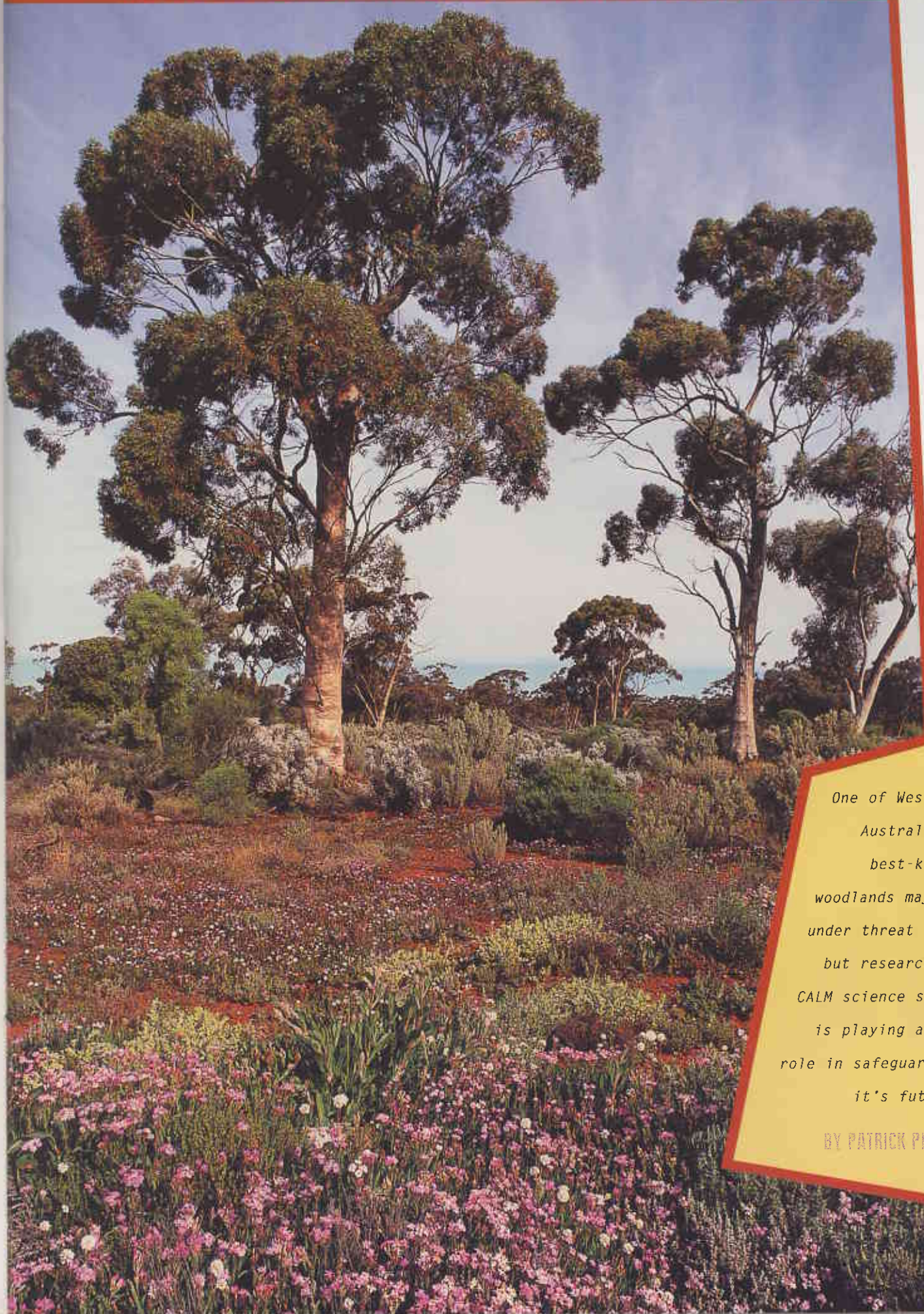


# SMALL STEPS SAVE SALMON GUMS



*One of Western  
Australia's  
best-known  
woodlands may be  
under threat now,  
but research by  
CALM science staff  
is playing a key  
role in safeguarding  
it's future.*

**BY PATRICK PIGOTT**



**T**hose magnificent salmon gums (*Eucalyptus salmonophloia*)—renowned for their towering stature and shining copper trunks in summer—are increasingly feeling the pressure of agricultural development. Once widespread across the dry Wheatbelt and Goldfields, the open, grassy, salmon gum woodlands were favoured by early settlers for grazing and were extensively cleared for cropping. The hard native timbers were used for fencing, construction and firewood. As such, they played an important role in establishing farms and towns of the growing colony.

But the enthusiasm and hard work of our pioneering forefathers have left an unwanted legacy. An estimated 96 per cent of salmon gum woodlands have been cleared and the remaining areas are now fragmented and vulnerable. In the Wheatbelt, most remaining salmon gums are found low in the landscape, close to saline wetlands and watercourses.

These remnant areas of salmon gum woodlands are home to many species of plants and hold great biodiversity value. Depending on where you are, you will find wandoo (*Eucalyptus wandoo*), York gum (*E. loxophleba*), morrel (*E. longicornis*), jam (*Acacia acuminata*),



rock casuarina (*Allocasuarina huegeliana*), gimlet (*E. salubris*), and numerous mallees (*Eucalyptus* spp.) scattered throughout. Then there are the large numbers of small herbs, everlasting daisies, grasses, sedges and rushes, as well as the smaller flowering shrubs often found growing on patches of sandy loams. Some of the plants are unique to the flat clayey soils.

As the largest of the Wheatbelt trees, salmon gums provide crucial nest hollows for many birds, such as Carnaby's cockatoo (*Calyptorhynchus latirostris*) (see 'Roadsides: the Vital Link', *LANDSCOPE*, Winter 1998) and

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The majestic salmon gum, with its colourful understorey of annuals, is one of WA's most widespread trees. Photo – Jiri Lochman

**Left:** Volunteers, working here at a remnant salmon gum site, provide valuable assistance to CALMScience researchers.

**Facing page above right:** The degraded salmon gum woodland experimental site near Lake Taarblin one year after fencing.

**Facing page right:** Native grasses and saltbushes regenerate profusely in degraded salmon gum woodland six years after fencing.

Photos – Patrick Piggott/CALM

the elusive peregrine falcon (*Falco peregrinus*) (see Bush Telegraph: 'Falcon Tales', *LANDSCOPE*, Summer 1993).

**UNDER PRESSURE**

Rather than any one isolated threat, a combination of factors is causing these woodland areas to decline. By far the biggest, though, is the rise and spread of salinity, a consequence of the extensive clearing carried out by pioneers (see 'Halt the Salt', *LANDSCOPE*, Spring 1997). While salmon gums naturally tolerate some salinity, they die if salt levels rise too quickly.

Drift from fertiliser allows weeds to

**Left:** Chicks of the peregrine falcon await feeding time in a salmon gum tree hollow, south of Lake Taarblin, Narrogin Shire. Photo – Patrick Piggott/CALM

**Below:** The hooded gaze of the peregrine falcon, reported to be the fastest bird in the world. Photo – Jiri Lochman







invade areas where the bush is already in decline. Once there, they compete with native plants and often displace them (see 'Garden Plants Gone Wild', *LANDSCOPE*, Spring 1997). And, in an ecosystem that is out of balance, insects will frequently attack as the trees and shrubs try to regenerate, devouring new foliage as well as seed produced by the shrubs. Even in autumn, when conditions are usually conducive to establishing seedlings, competition from mature trees, erosion from storm runoff and, in grazed areas, soil compaction and trampling from stock, make it almost impossible for them to grow and become established.

Another problem for the long-term conservation of salmon gum woodlands is that they are not well represented in conservation reserves. Most remnants are found on private property, roadsides and various Crown reserves set aside for townsites and water catchments.

## THE SEARCH FOR SOLUTIONS

Knowing that these threats exist brings us one step closer to a solution. Still, the question remains: how can we manage these precious woodlands if we don't know much about them?

Research carried out near Narrogin by science staff from the Department of Conservation and Land Management (CALM) has found some of the remnant salmon gum woodlands to have many more species than expected. Up to 60, mostly native, species of grasses, sedges and everlasting daisies were found at some particular sites, and nearly 200 species were found overall. Other parts



of the same remnants, though, were dominated by weeds and had fewer native species present. The difference in species diversity is directly related to whether or not there is a history of sheep grazing in the area.

Soil seedbanks (seeds buried in the soil) and existing rootstocks are a valuable resource for species regeneration—especially for severely degraded and burnt vegetation. Experiments carried out by CALM staff examined the soil seedbanks of these woodland sites. Unfortunately, few species recorded in the remnant bush were also found in soil seedbanks—only a few of the important shrubs and no salmon gum at all. Instead, most species found were identified as annual 'pioneers' (species that dominate an area for the first year or so).

The same research also looked at changes to understorey species after

**Top:** The canopy of a salmon gum tree against the backdrop of dead paperbarks in Lake Taarblin; a survivor of clearing and salinisation.

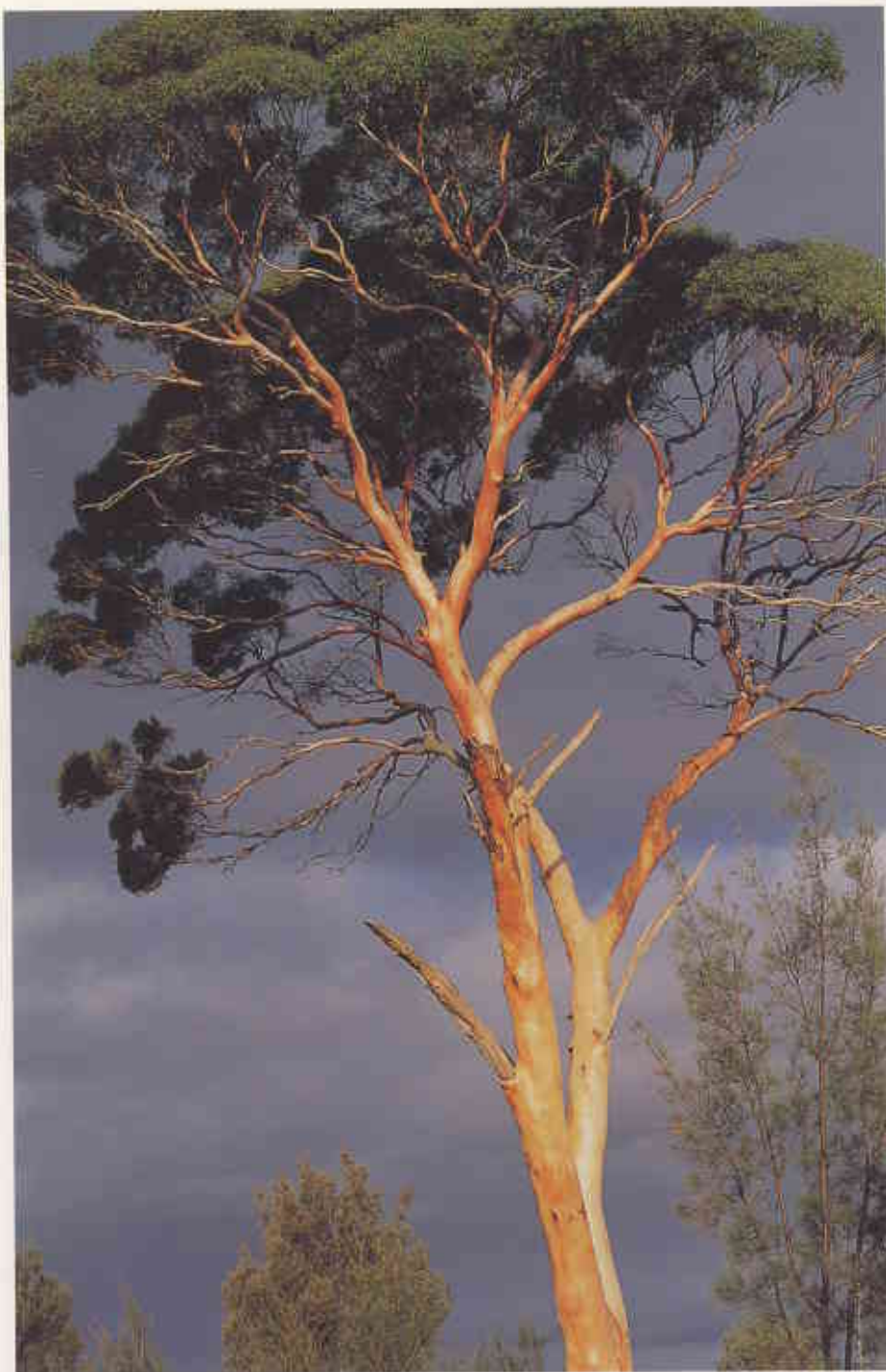
Photo – Jiri Lochman

**Above:** A dead creekline in a cleared Wheatbelt landscape highlights the landcare problems facing farmers today.

Photo – Dennis Sarson/Lochman Transparencies

salmon gum sites had been fenced off from sheep and other grazing animals. With the pressure of grazing lifted, results have been dramatic. Native grasses, such a vital part of the bush, are growing their full cycle and producing much more seed, some of which can establish into new plants the next season. Likewise, native saltbushes, not seen before the fencing, have been found established in bare patches. And seedlings of the less common shrubs (many of which had been previously grazed out) have survived their first





**Top:** The splendid pink flowers of *Verticordia densiflora* characterise understorey shrubs of mature salmon gum woodland south of Lake Taarblin. Photo – Mike Braham/Lochman Transparencies

**Above:** *Waitzia acuminata*, one of dozens of everlastings and other annual plants that dominate the understorey of salmon gum woodlands. Photo – Patrick Pigott/CALM

**Left:** The shining copper trunks of the magnificent salmon gum blaze in the setting sun. Photo – Jiri Lochman

year—greatly increasing their chances of reaching maturity.

However, as the seedbank research has shown, fencing off may not be enough. Many important species do not regenerate and need to be grown from seed from nearby areas, then planted out. The salmon gum, for example, only establishes after a combination of gross disturbance and summer rainfall. Many flowering shrubs, such as *Hibbertia rupicola*, compacted featherflower (*Verticordia densiflora*), panjang (*Acacia lasiocarpa*) and tar bush (*Eremophila glabra*), have been grazed out from some sites and will also need re-introduction.

Positive steps are being taken. Many landcare and community groups are already managing their remnants and carrying out regeneration work. Large-scale tree planting schemes are helping by lowering the water table. The creation of 'corridors' of regenerated woodlands between existing nature reserves and farm remnants would also help protect the biodiversity of existing woodland remnants and provide habitats for native birds and plants. More is needed, but the result will be worth while if the beautiful towering salmon gum can remain one of Western Australia's most impressive sights.

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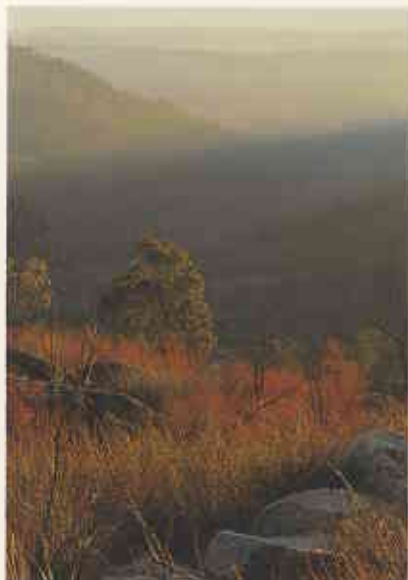
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# LANDSCOPE

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*This land, where the Avon River cuts through the Darling Range, was home to WA's most notorious bushranger. His story is on page 10.*



*Just when everyone thought it was extinct, this small mammal suddenly reappeared. See 'Dibblers' on page 28.*



*100,000 hectares of bluegums by the year 2000. Was it a realistic target? See 'From Blue sky to Blue Chip' on page 35.*



*'What about the Animals', on page 21, discusses early findings from the Kingston Study.*



*'Karla Wongi: Fire Talk', on page 48, is a Nyungar perspective on the use of fire in the south-west of WA.*

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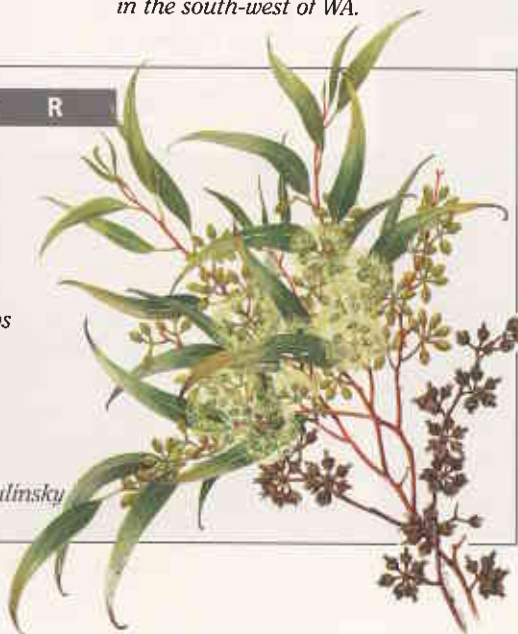
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## COVER

*One of Western Australia's best-known woodlands may be under threat now, but research by CALMScience Division staff is playing a key role in safeguarding their future. See 'Small Steps to Save Salmon Gums', on page 17*

*Illustration by Philippa Nikulinsky*



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