

paddock TREES



who'll miss them when they're gone?

Paddock trees and other small patches of native trees are vital to the economic and environmental health of the South West Slopes landscape. Current research indicates that unless the management of paddock trees changes within 40 years they will be gone.*

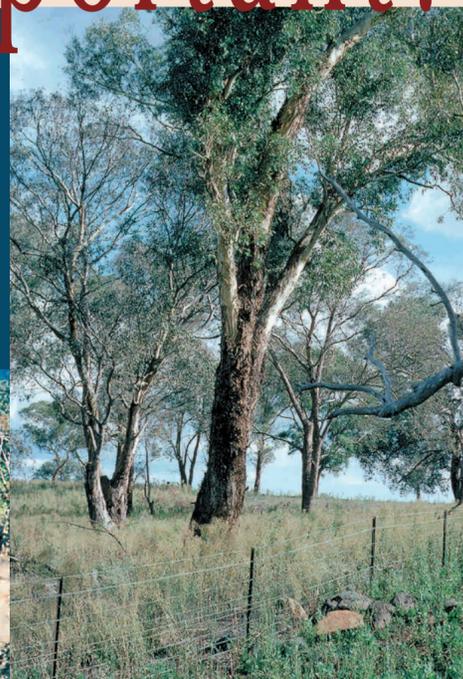
* Gibbons P. and Boak M. (in prep). 'The role of paddock trees for regional conservation in the agricultural landscape', Eco og'ca Management and Restorat'on

On the South West Slopes ...

paddock trees and small patches of native trees represent most of what is left of some native vegetation types such as Red Box, Blakely's Red Gum, Yellow Box, Apple Box and White Box. For example, one study has found that 55% of woodlands dominated by Blakely's Red Gum and Yellow Box, occur in patches less than one hectare in size.

Why are paddock trees important?

Paddock trees and small patches of native trees play an important role in maintaining the productive capacity of the South West Slopes and they are critically important to the conservation of the natural flora and fauna found in the South West Slopes.



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Reducing stock and crop stress

Paddock trees provide shelter from wind, heat and cold for pastures, crops and stock. Sheltered off-shears wethers require only about one third the amount of supplementary feed to maintain bodyweight compared to those that are unsheltered. Cold stress reduces wool growth, limits liveweight gains and reduces dairy cattle milk yields. Heat stress limits liveweight gains in cattle and reduces wool growth in sheep.



Reducing salinity risk

Widely-spaced trees develop a large root volume and have the potential to intercept and pump considerable volumes of subsurface water, leading to a lower water table and a reduction in the risk of salt being carried to the surface.



Reducing erosion & improving water quality

Tree roots help reduce erosion potential, especially in gullies and along creek banks. Fallen logs, leaves, branches and litter help to slow the impact of rainfall and runoff and its erosion potential. Along creek banks trees, roots and debris provide a buffer strip that can filter unwanted nutrients and silt from runoff into the creeks and improve water quality.



Controlling insects

Birds, lizards and bats that feed on pest insects live in paddock trees. Honeyeaters can consume 24–36 kg of insects per hectare, per year; 40–60% of the diet of ravens consists of insects such as grasshoppers and army grubs; sugar gliders are estimated to consume 3.25 kg of insects per year; one insect-eating bat can consume up to 600 small flying insects in an hour.



Providing wildlife habitat

Birds, bats and other animals use paddock trees for resting, feeding, protection from predators and as a 'stepping stone' to larger stands of vegetation. Tree hollows, including those in dead trees, are used for nesting while fallen timber provides habitat for small ground-dwelling animals such as reptiles.

There are also a number of species found on the South West Slopes that are threatened with extinction due to the loss of their natural woodland habitat. These include the Superb Parrot, the Regent Honeyeater, the Bush Stone-curlew (or Bush Thick-knee) and the Squirrel Glider.



For technical advice & information on possible funding (eg for fencing material) contact:

NSW National Parks & Wildlife Service
Tumut (02) 6947 7000
Queanbeyan (02) 6299 2929

Department of Land & Water Conservation (DLWC) Wagga Wagga (02) 6923 0400
www.dlwc.nsw.gov.au/care/veg/

Greening Australia NSW
Wagga Wagga (02) 6921 8202

Your local Landcare Coordinator can be contacted through the Regional Landcare Facilitator, DLWC, Wagga Wagga (02) 6923 0528

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Increasing nutrient cycling

Tree roots reach lower into the soil substrate and reach nutrients in the soil which have leached beyond the pasture root zone. Fallen tree debris reintroduces these nutrients back into the top layers of the soil.



Encouraging understorey plants

Paddock trees provide favourable conditions for some native grass species and flowering shrub species that attract insect-eating birds. Native grasses are being increasingly used as fodder reserve.

Providing a source for natural regeneration

Regeneration of native plants can occur through the germination of self-sown seeds or by vegetative means (eg, from stumps). Paddock trees are the best seed source for regeneration of local tree species. Generally, naturally seeded trees grow more quickly than planted trees and help to replenish local genetic tree stock. Collection of seed from single isolated trees should be minimised as this seed is likely to have reduced genetic quality.

Why are paddock trees disappearing?

Most paddock trees and other small patches of native trees on the South West Slopes are mature trees with little or no natural understorey and regeneration of these trees is extremely limited. If attention is not given to maintaining or regenerating these trees then it is likely they will disappear from the South West Slopes landscape within 40 years. There are five main reasons why the paddock trees and small patches of trees are disappearing:

Senescence – old age

The woodland trees of the South West Slopes can live for up to 500 years. Many of the trees currently found in paddocks on the South West Slopes are at the end of their life span and if regeneration is not encouraged these trees, their genetics and their habitat value will be lost from the landscape.

Fragmentation – breaking up of areas

Most of the paddock trees and small patches of native trees remaining on the South West Slopes were once part of woodlands. They were surrounded by other tall vegetation and had an understorey of native grasses, shrubs and vegetation of different ages including regenerating tree seedlings. Current land management practices mean paddock trees and small patches of native trees are now more exposed to natural elements and introduced agricultural activities.

Dieback – early death

The health of many paddock trees is declining as the insects that naturally feed on woodland trees become more concentrated on the few trees that remain. As well, the insects are not kept under control by natural predators such as birds because they are also less abundant in areas with isolated trees. Mistletoe, a natural parasite, also becomes a problem when it is concentrated on the few remaining woodland trees.

Stock contribute to dieback by camping under the remaining vegetation and changing the nutrient load in the soil through their urine and faeces. They also trample and compact the soil limiting the growth of seedlings and natural understorey plants. Stock may also strip the bark from existing trees which exposes them to greater disease risk. Other causes of dieback include fertiliser application which changes soil nutrient levels around trees and herbicide application which affects trees and regenerating seedlings.

Stubble burning

Stubble burning also threatens paddock trees. While burning may be necessary in some cases, farmers should protect their trees by establishing an adequate firebreak.

Clearing

Paddock trees and standing timber and standing dead timber are still being cleared for plantation establishment, firewood collection and paddock management purposes. Under the provisions of the *Native Vegetation Conservation Act 1997*, consent for clearing may be required from the Department of Land and Water Conservation.

Please contact the local DLWC office prior to commencing any clearing activity. In some areas, the clearing activity may be covered by a Regional Vegetation Management Plan, which contains advice and guidance on managing native vegetation in the specific region covered by the Plan.

Paddock trees and small patches of native trees are likely to disappear from the South West Slopes landscape within 40 years as old trees die, younger trees suffer from dieback and trees continue to be cleared.



Fencing around existing trees on a permanent or long-term-temporary basis (e.g. ten years) will allow natural regeneration to re-establish quickly and effectively. The fence must be much wider than the tree canopy as robust seedlings will not regenerate directly underneath the trees. Preferably include several trees in the fenced area. Apply the same fencing techniques to trees on watercourses.

Main priorities to protect existing areas of trees:

- allow livestock access only at critical times
- allow tree debris to remain on ground
- avoid fertiliser application and cultivation near native trees
- control the spread of weeds
- avoid herbicide drift onto paddock trees
- ensure adequate fire breaks around paddock trees during stubble burning
- retain standing dead timber, rocks, logs and stumps as habitat for birds, bats, lizards and other native fauna.



How can paddock trees be saved?

Short-term paddock spelling or reducing stocking rates should allow regeneration to begin.

However, the early reintroduction of stock may lead to the loss of new seedlings. Greening Australia recommends excluding cattle and sheep until seedlings are at least two metres tall to ensure new seedlings are established enough to resist stock pressure.

Main priorities to create conditions suitable for tree regeneration:

- avoid herbicide drift onto regenerating areas
- allow tree debris to remain on ground
- control weeds before the tree seeds fall to the ground
- re-establish missing native shrubs and grasses using local seed
- avoid fertiliser application and cultivation in regenerating areas
- exclude non-native animals (especially rabbits and hares)
- use fire in the regenerating patches for ecological purposes only. The use of fire may be considered clearing, and under the provisions of the *Native Vegetation Conservation Act 1997*, consent for clearing may be required from the Department of Land and Water Conservation. Please contact the local DLWC office prior to commencing any clearing activity.

