PLANTS

Rural tree decline

Parks and Wildlife Service Tasmania

DEPARTMENT *of* TOURISM, PARKS
HERITAGE *and the* ARTS

Have you ever wondered why there are so many dead or sick trees in the midlands of Tasmania? It is a sad sight to see the skeletons of trees standing sentinel in paddocks while sheep, cattle and native wildlife try to make the most of the limited shelter they provide. This condition, known as rural tree decline or dieback, is the accelerated death of rural trees, principally eucalypts.

Which trees are affected?

White gum (*Eucalyptus viminalis*) is the tree that is most affected by dieback. It is common in the midlands and low rainfall areas of Tasmania. White gum is targeted by browsing animals and insects because of its palatable and nutritious foliage.

Other species are also affected, though to a lesser degree than white gum. These include: black peppermint (*Eucalyptus amygdalina*), black gum (*E. ovata*), swamp peppermint (*E. rodwayi*), silver peppermint (*E. tenuiramis*), mountain gum (*E. dalrympleana*), cabbage gum (*E. pauciflora*) white-topped stringybark (*E. delegatensis*),blue gum (*E. globulus*) and candlebark (*E. rubida*).

White gum (*Eucalyptus viminalis)*
(Drawing courtesy R. Hale)

Why does rural tree decline occur?

Rural tree decline is the result of a combination of problems. Extended drought, land management practices, possums and insects can all contribute to tree decline.

Drought

Tree decline is closely related to rainfall. It is moderate where the annual rainfall is between 625 and 1000 mm per annum. Tree decline is most severe where the annual rainfall is below 625 mm per annum. From 1975 there have been 20 years of drought in central and eastern Tasmania and the stress on trees in the low rainfall areas of the State is intense. Less than average rainfall, in autumn particularly, affects the health of paddock trees, even if there has been good rain in the previous spring.

Land management

Land clearance for agricultural and urban development has altered the environment dramatically. The remaining eucalypts are subject to many stresses: soil compaction; increased nutrients from fertilisers; browsing of seedlings; increased browsing by both possums and insects. All of these factors contribute to the stress on the trees and if the stress continues the trees die.

Possums

Possum numbers in the low rainfall districts of Tasmania are at record levels. Land clearing has reduced their habitat, so browsing pressure by possums on the remaining trees is increased. In some areas this pushes the trees ‘over the edge’, particularly during a drought.

Insects and diseases

Periodic outbreaks of defoliating insects have occurred in the midlands for thousands of years. In recent history, the major insect pests in the midlands have been the gum leaf skeletoniser (*Uraba lugens*), the peppermint looper (*Stathmorrhopa aphotista*), the autumn gum moth (*Mnesampela prvata*) and chrysomelid beetles (*Chrysophtharta bimaculata*). Such outbreaks of insects are generally short-lived.

While insect numbers build up, predator numbers also increase. Insect attack alone is not responsible for the death of trees. However, the combination of drought stress and the pressure of insect attack may have contributed to the decline of rural eucalypts.

What can be done?

To reverse the decline of rural trees there are a few options that land managers can apply:

1. Fence remaining remnant bushland to encourage seedling regeneration. Fencing also prevents stock from compacting the soil and reducing water penetration.

2. Fencing off regeneration areas doesn't mean they are no longer a productive area of the farm. Light winter grazing is recommended as it can reduce fuel loads and maintain species diversity by controlling tussock growth. Remove stock at the end of winter to allow trees to grow.

3. Once regeneration is established the remnant will need to be left ungrazed until the trees are tall and strong enough to withstand stock. This can mean no grazing for five to six years. After this time the remnant will not need to be spelled again for some time.

4. Fire is another useful tool for managing regeneration areas if grazing is not an option. Fire can reduce fuel loads, stimulate germination, and remove grass cover to provide a reproductive seed bed. The best time to burn is in early spring or late autumn. It is best to use fire when young trees are about 8 metres tall when they can survive a low intensity fire. Burn different patches of the remnant every 3-5 years to improve the diversity of the structure.

5. Prevent access of browsing animals including livestock, possums and rabbits to fenced regeneration areas so new trees can successfully establish.

6. Use metal guards around large trees prevent possums climbing and defoliating them.

7. Where trees are sparse or they are too sick, natural regeneration may not be possible. Planting or direct sowing of seeds may be necessary.

There is nothing that can be done in the longer term to save the old paddock trees. Inevitably, if only through old age, these trees are going to die.

Therefore it is important to encourage regeneration by managing areas of trees, including remnants and groups of paddock trees. In this way younger trees can take the place of the old ones as they disappear.

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Further information

The Tasmanian Bushcare Toolkit is available from the internet at www.bushcare.tas.gov.au or from the Department of Primary Industries, Water and Environment, Service Tasmania, 134 Macquarie St, Hobart.

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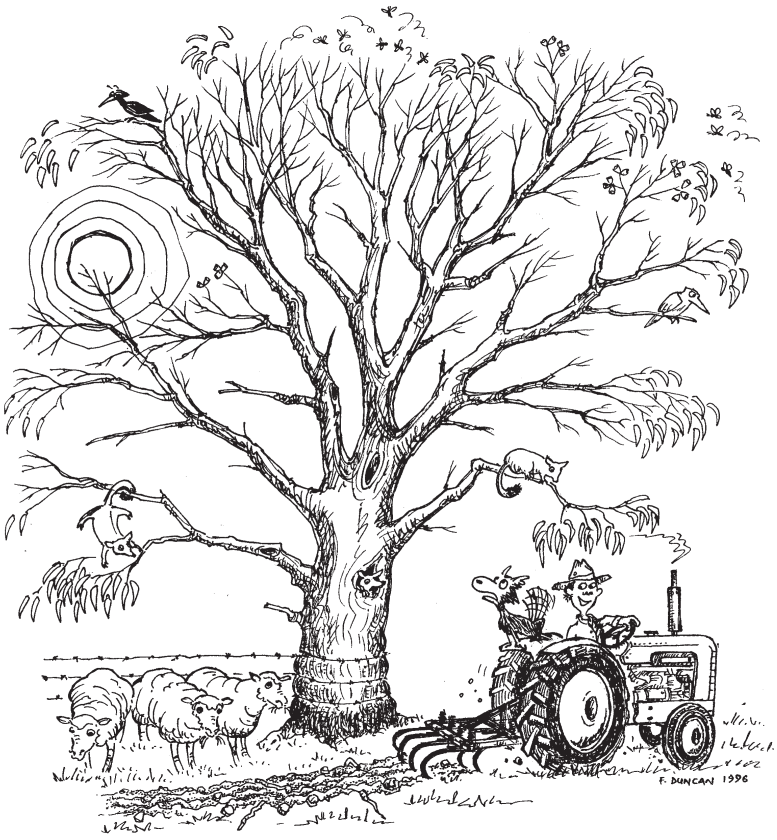

A combination of factors contribute to tree decline (Drawing courtesy F. Duncan)

