

Causes of rural tree decline

There are various reasons why older paddock trees gradually die. Usually it is a combination of reasons and it may be hard to pinpoint the actual cause in the end. Suffice to say that gum trees really are not suited to being stand alone trees in a paddock- they are forest/woodland trees where they survive because of their association with their neighbours.

The following is a brief listing of the causes of tree decline (dieback) and some ideas on what you can do for some of your old trees out on the back forty.

Stock and vermin

- 1) Damage or death of trees through bark stripping
- 2) grazing of seedlings
- 3) soil compaction under individual trees and small clumps
- 4) over fertilisation from stock continuously camping under individual trees

Change to environmental conditions

- 1) Increased soil salinity caused by removal of trees in recharge areas (uphill from declining trees)
- 2) rising watertable caused by the removal of trees in recharge areas and possibly by inefficient earthworks ie., Dam or channel construction
- 3) mistletoe infestation usually occurs in open areas with few trees or on edges of forests, road-sides, etc. If Severe, the tree's ability to withstand other stress is lowered. Death is possible.
- 4) Partial clearing of land leaving isolated trees more vulnerable to other threats ie., Insects, wind etc.

Nature out of balance

- 1) Old age of trees are a major cause of tree decline. The environmental systems that normally take place in a healthy forest or woodland have ceased in isolated remnants. Fire is less frequent and burns hotter causing more severe damage to individual trees. Young seedlings are not able to grow into mature trees because many remnants are not fenced from grazing animals.
- 2) Especially in areas devoid of native ecosystems (forest, woodland, grassland) remnant trees are very susceptible to insect attack, especially by leaf eating and sap sucking insects. The natural predators of these insects (wasps, birds, mammals) are not attracted to these remnant trees because of the lack of that ecosystem that they rely upon for food, shelter, safety, etc.
- 3) Fungal infections (*Armillaria* sp. and *Phytophthora* sp.) in trees disable the tree's natural defences against fire and insect attack. For instance, if the *Armillaria* attack is severe enough epicormic buds below the tree's bark may die affecting the tree's ability to regenerate after a fire.

How can we help?

- 1) Some landowners have begun fencing off remnant trees from stock and fertilisation . The Natural Heritage Trust now provides funding to assist the protection of remnant vegetation.
- 2) Soil that is compacted around the tree's dripline can be aerated carefully. This may help the

remnants “breathe” and may lower the watertable and soil salinity levels.

3) Fencing remnants will increase the chances of germination of seedlings under the parent tree. Having young saplings near the older trees attracts a whole range of native fauna that wouldn't have been able to survive there previously.

4) If mistletoe infestation is severe, physically cutting out mistletoe is required. Planting indigenous understorey species around the tree(s) will help attract insects that assist in the control of mistletoe ie., Imperial White Butterfly and Wood White Butterfly.

5) Reinstate a natural fire regime so the remnants go through a natural ecological succession.

6) Organise a whole farm plan which includes planting indigenous plant species. Block planting, rather than narrow strip planting is more environmentally friendly to flora as well as fauna.

References: 1) Riemer, N., “Trees Why We Need Them”, ABC Enterprises, 1986

2) Platt, S., “Dieback Lessons”, Land For Wildlife Note No. 34, 1995 3) McCubbin, C., “Returning Butterflies”, Land For Wildlife News Vol 2, No. 8, 1995