BORER DAMAGE TO EUCALYPTUS AND ACACIA TREES IN REMNANT BUSH AND SUBURBAN GARDENS: CAUSES AND REMEDIES.

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Remnant eucalypts and acacia in suburban gardens, as street trees, patches of remnant bush and planted acacias and eucalypts (especially tuart) are often reported to have borer damage in late winter. Damage is more frequently reported after dry and extended summers. Symptoms of distress sometimes extend to death of affected trees but are more likely to include dieback of the crown, branchlet death due to girdling (ringbarking) and general malaise of the tree crown.

The primary cause of the problem is water stress and borers are a very good indicator of drought. Stressed trees are both attractive and vulnerable to attack by borers, although old trees are also susceptible to borers due to cracked bark and exposed wood in their crowns. Acacias tend to age quickly and are probably attacked for this reason.

Tree decline may be caused directly by drought or by problems related to borer infestation. Drought symptoms include permanent wilting and drying of leaves in summer or autumn, or a heavy leaf fall during summer. The whole tree or just upper parts of the tree may be affected by wilting and drying and tree death may occur at this time. During summer and autumn, the adult borers lay eggs under loose bark or in cracks in the bark. The eggs hatch into larvae which tunnel into the bark then sapwood of the tree during winter and early spring. Sometimes gum exuding from the tunnels is a good indicator of the larvae. The larvae can girdle young trees or branches causing the death of parts above the girdle in the following spring or summer. Their tunnels may also weaken stems and branches, increasing the risk of branch fall.

Water stress may by caused by overcrowding in young trees, unusually dry weather conditions, alteration of site drainage or water table, or in older trees simply as a result of reaching the carrying limits of the site. Nutrient deficiencies may also be a contributing factor when there is competition between trees. Note also that either herbicide treatment of lawns for broadleaf weeds or activity of fungal pathogens may cause symptoms in trees similar to drought.

Preventative measures.
The following (overleaf) should be used as a guide only. You might consider growing only drought resistant exotic trees or irrigation as alternative strategies.

Replacement trees.
We suggest using Powell's book (listed below and available from CALM offices, some nurseries and good bookstores) as a guide for selecting replacement trees. Suitable replacement trees are available from specialist nurseries or CALM.

Further information.

Abbott, I. (1988). More Boring Insects. *LANDSCOPE, **4(1)**, pages 42-46.*

Curry, S.J. and Moulden, J. (1984). Insect pests of eucalypts and other native plants. *Farmnote 116/84, Western Australian Department of Agriculture.*

Powell, R. (1990). Leaf and Branch. Trees and Tall Shrubs of Perth. *Department of Conservation and Land Management, Perth, 1990.*

Remedies.

A. Feature trees, old and isolated trees:

1. Has the drainage of the area been affected in any way? Nearby earthworks or bores may affect the drainage or water table of the site.

2. Have broadleaf herbicides been used around the tree?

3. Fall dead branches and trees that are hazardous to people. Leave non-hazardous branches and trees for nest hollows.

4. On living trees, try injection of systemic insecticide after the first winter rains. Results may be unsatisfactory for trees in poor condition but better for more vigorous trees (see WADA Farmnote 116/84).

5. As a last resort, fall and replace the tree (see **C.** for guide).

B. Remnant trees in bushland or parkland, after drought:

1. Has the drainage of the area been affected in any way? Nearby earthworks or bores may affect the drainage or water table of the site.

2. Fall dead trees that are hazardous to people or control access to the area, leave non-hazardous dead standing trees for nest hollows etc.

3. Promote conditions for regeneration. Protect the area from vehicles and animals to allow growth of self sown seedlings the following winter.

4. Plant seedlings if natural regeneration not successful (see **C.** for guide).

C. Before you plant:

1. Select tree species that originally belonged to the site. Plant as soon as winter rains have wet the soil to planting depth.

Considering eucalypts, tuart is best grown in the Metropolitan area on the yellow and orange soils overlying limestone (eg. western edges of Lake Joondalup, southern edges of Kings Park, eastern edges of Lake Cooloongup). Jarrah was common on deep yellow sands (eg. Karrakatta Cemetery, Wembley Golf Course, Warwick Recreation Reserve). A simplified list of other local eucalypt species that might be considered in particular areas includes: *E. rudis* -flooded gum (river banks and swampy areas with surface water), *E. todtiana* -prickly bark (drier sandy areas), *E. calophylla* -marri (deep moist sands), *E. foecunda* (coastal sand over limestone), *E. decipiens* (deep coastal sands), *E. wandoo* (clays and gravelly clays).

2. When planted trees are competing with established trees, water new plantings regularly from spring to autumn for the first few years.

3. If you don't want to water as frequently, select trees that like drier habitats (e.g. *E. decipiens*, *E. todtiana*).

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