FRIENDS of TRIGG BUSHLAND, Inc.

ROBERT POWELL'S TIPS ON TUARTS

We visited our current survey area opposite St Mary's School; west of SW path after first fork. We were shown how to recognize signs of insect damage; and features distinguishing healthy from stressed trees.

ASSESSMENT OF WHETHER A TUART TREE IS HEALTHY AND STRESSED
Most trees we looked at were assessed as generally healthy but with signs of stress, where damage by insects, particularly the tuart longicorn beetle, *Phoracantha impavida*, was excessive.

HEALTHY FEATURES

- Leafy green, open or dense crown. Disregard dead twigs and branches on lower subordinate parts of the tree.
  "It is natural on eucalypts for such parts to die and be discarded." (Robert's additional note.)
- Signs of leaf growth, buds, flowers, fruit.
  "Mature tuarts do not grow in the cooler times of the year. Growth commences in October, November or even later and finishing some time in the following autumn. An abundance of buds, flowers, fruits can be a sign of good health, but trees, in excellent health, may nonetheless have very few." (Robert's additional note.)
- Herbivorous insects do not generally harm the tree.
- No leafy parasites identified.
- *Hardenbergia* strangling is temporary as trunk girth expansion finally breaks stranglehold.

STRESSED FEATURES

- If the crown is dying back.
- If there are severe signs of use by the tuart longicorn (many clumps of foliage have become purple or have died recently).
- Significant brown staining of the bark on many of the smaller branches.

INSECT DAMAGE
Many insect species are normally associated with the tuart in bark, trunk and leaves. The damage they cause is normal. Each shows its specific signs of infestation/damage: eg. buds are eaten by tuart bud-weevil larvae, leaf minor distort and brown the leaves, termites chew access channels through the woody trunk.

"Most of the many insects in the foliage probably have no effect other than to slow down the tree's growth somewhat. The effects on the tree depend on the insects involved and their numbers. Some insects, if present in large numbers, can stress the tree. Then, sometimes the common eucalypt borer *(Phorancantha semipunctata)* will arrive in numbers and lay eggs on the trunk – and the larvae can kill the tree by ringbarking it." (Robert's additional note.)

Specific damage by the tuart longicorn IN THE PAST:
The best confirmation is to look for a pair of oval holes in the smaller dead branches.

- "The larvae of the tuart longicorn tunnel under the bark of branches of just a few centimetres in diameter." (Robert's additional note.)
- Dead outer branches, but first eliminate FIRE and SALT LADEN WIND damage as causes.
- Substantial exfoliation.
- Darkened bark is gum exudation at insect tunnelling site (see further detail below re: Smut Fungus).

- First, exclude the CHARCOAL check (see below) and note that the tree responds in the same way to attack by other tunnelling insect species.

PRESENT DAMAGE BY tuart longicorn is recognizable in the CROWN:

- Clumps of foliage that have turned purple or have died.
- Exclude new shoot growth, the youngest leaves; they start life with a pink/purple pigmentation.

BLACKENED TRUNKS AND STEMS

Blackening of the trunks/stems can be three issues:

- BURNED: Charcoal which blackness rubs off on your fingers.
- INSECT DAMAGE: Black/brown streaking of the stem due to sap exudation with/without bark exfoliation.
- SMUT FUNGUS: The blackness does not rub off on the fingers.

"When the stem is damaged (eg. by the larvae of the tuart longicorn) and sap has exuded, the blackening that may occur afterwards is made by fungal growth, possibly a smut fungus, that develops around the moistened area." (Robert's additional note.)

DAMAGE BY SALT LADEN WINDS

Recognised as dead branches on the top of the crown, particularly on the tree's western and south western aspect; PLUS the leaning of branches towards the east. In time, healthy sub terminal branches will develop and take over. These, in turn, may die, once they reach that height when they become excessively exposed to the salt winds. So the process is repeated.

FIRE AND AGEING OF TREES

After fire, "How quickly the stems gain thickness will depend on how many stems the tree produces (the more stems the slower each grows), as well as the conditions in which the tree is growing (including competition from other trees and vegetation). When I saw the trees, I didn't base my assessment on the diameters of the trunks, but just more generally on how the tree had regrown." (Robert's additional note.)

INTERPRETING POST-FIRE SURVIVAL

- Recently burned tuarts may become targets for insect attack, compounding their growth and survival problems.
- Surviving trunks may resprout from epicormic buds under the bark.
- Supposedly fire killed trunks or stems may regrow from a lignotuber-like swelling of the trunk below ground. A mallee style of growth will result.

"Tuart is a fast growing species and can develop rapidly if there is sufficient moisture and not too much competition from other trees or vegetation. It usually takes at least several years, however, for regrowth stems to begin developing flower buds. A further two years before the buds flower. Then an additional several months, or more, before the mature fruits form." (Robert's additional note).

CURRENT LIVING TRUNKS OF 15cm - 20cm DIAMETER

They were guestimated to be about 20 years old; suggesting that the last significant fire that damaged the previous dominant trunk(s) came through some 20+ years ago. Therefore, in this area, records of severely burned charcoal trunks carry historical relevance, but are not directly linked with the current health status of the tree.

ACACIA ROSTELLIFERA

Acacia rostellifera has a life span of 30 – 40 years. "…based on my observations at Woodman Point, where the specimens were getting close to the end of their lives 30 years after a fire." (Robert's additional note).

There is evidence of A. rostellifera dying out in our survey area, possibly due to some infection, which is opening up the vegetation for other plant species (mainly weed species) to establish.