

The kurrajong

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The kurrajong, *Brachychiton populneum*, is a well-known and highly regarded tree of inland New South Wales. Not only is it shapely and shady, but it is also an excellent fodder tree which can be readily lopped for stockfeed during droughts.

Kurrajongs are moderately tall (5 to 20 m high) with a dense canopy of shiny green leaves and a thick smooth grey-barked trunk. The pale-coloured soft spongy wood has no commercial use. The leaves, which are from 10 to 15 cm long, vary in shape and may be ovate (egg-shaped) and entire, or deeply three-lobed with narrow, pointed lobes.

Flowers are borne in clusters near the ends of the branches and each flower is cream-coloured with reddish spots on the inside, usually about 1.5 cm across and bell-shaped with five out-turned lobes. The trees flower mostly during summer.

The fruit is a woody, boat-shaped pod, about 7 cm long, which is at first green but ripens black, splitting down one side to release about 20 yellow hairy seeds. The hairs on the seeds can cause intense irritation to sensitive skin.

DISTRIBUTION

The kurrajong occurs naturally in all the major climatic divisions of the State. It grows best on well-drained soils from the tablelands westward as far as Wanaaring in the north and Narrandera in the south. In the west, kurrajong is most common

on deep sandy soils with mallee and on hillslopes with sandy soils. In the east it is common on many soil types. Where it occurs there is often limestone in the soil at depth. It is rarely found on heavy clay soils or in high tableland areas which experience prolonged cold periods.

Annual average rainfall increases from 300 mm at the western limit of its distribution to about 600 mm in the east. Although kurrajong does not occur naturally on the very wet and humid coastal areas of the State, it will grow quite well there provided it is planted on well-drained soils.

Kurrajongs are rarely removed when land is cleared of timber because they have little effect on crop or pasture production and are useful in supplying drought forage. It is now common for kurrajongs to be the only trees left standing in many paddocks in the west and central west of New South Wales.

DROUGHT FEEDING AND LOPPING

Trees may be lopped whenever forage is required. Once lopped it usually takes three to five years for kurrajongs to grow enough to be lopped again.



The kurrajong is useful for shade and is also an excellent fodder tree. Photo: PL Milthorpe

Usually only one or a few trees are lopped at a time, often in conjunction with grain feeding. When lopping large trees it may be advisable to cut only a portion at a time to stop stock concentrating around a single tree. Stock readily eat both leaves and smaller branchlets.

Lopping can be done with an axe or saw as the wood is soft and easy to cut. If trees have been planted mainly for use as ornamentals or as a windbreak, lop as required to shape them. Make the first cut from below, followed by a cut above the limb to prevent damage to the bark below the branch being lopped.

No cases of poisoning have been recorded from stock eating kurrajong. However, it is suspected that feeding may be dangerous after rain. The seeds contain compounds known to be harmful, especially to fowls. However, this risk is normally not great where the trees are most commonly grown.

How to lop native trees and shrubs for fodder

Lopping is the removal from a tree or shrub of foliage which does not compromise the trunk or primary branches. The critical limitation is that the continued health of the native tree or shrub is not affected.

The continual lopping of any tree or shrub will affect its natural resilience and growth habit and this will affect its ecosystem and biodiversity function. To ensure the retention of biodiversity values, shade and shelter, and seed sources for regeneration, it is suggested that no more than about 60% of tree or shrub foliage be removed and that some tree or shrubs remain unlopped.

The best method of lopping native vegetation is to cut straight through branches to minimise the potential for insect or bacterial attack. There are also advantages in pruning and shaping the tree or shrub, rather than heavily lopping it. This will assist the recovery of the tree/shrub and help retain environmental, economic and aesthetic values.

Higher branches should be lopped so that regrowth is out of the reach of stock. In addition, enough foliage should be left so that the tree/shrub still provides shade and shelter.

Lopped trees/shrubs will need good management and a number of favourable seasons to regenerate. Trees and shrubs should not be used in successive droughts if they have not recovered from previous lopping. The recovery rate of trees/shrubs that have previously been lopped can be used as an indicator of the sustainability of the lopping method. Long-term use should not result in any modification to the structure or composition of the

associated vegetation community. Consider how the trees/shrubs are to be rehabilitated and how long that is likely to take.

USES

Because kurrajongs are easy to establish and long lived, they are often planted in tree lots, and as windbreaks or ornamentals. For windbreaks, plant two or more rows of trees about 7 to 8 m apart for best effect.

Historically, the fibre of the bark was used by Aborigines for making cordage and nets, while early explorers and settlers roasted and ground the seeds to make a pleasant beverage.

PROPAGATION

Kurrajongs readily grow from seed and are easily propagated. There are several ways of establishing seedlings and planting out young trees in the paddock.

Raising seedlings

If large numbers are required, seed can be raised in seed trays with normal seed raising mix. Soak the seed overnight in boiled water to break its natural dormancy and encourage a more uniform germination. After soaking the seeds, sow two or three to each tube or container of soil. If more than one seed germinates then retain the better seedling and discard any others, or transplant them into another tube.

Seedlings can also be grown on the farm by planting seeds into well-prepared and well-drained beds during September. Keep the soil moist for two to six weeks to allow for germination. Subsequently, thin seedlings to 5 to 7 cm apart along rows 10 to 15 cm apart.

Tubed seedlings a few months old and about 10 to 20 cm tall are available from Forests NSW nurseries and other commercial sources.

Following good spring and early summer rains, many young seedlings germinate, especially near stockyards or in disturbed or ploughed areas where stock access has been restricted. These seedlings can be dug up and transplanted wherever necessary.

PLANTING OUT

Planting situation

Kurrajongs may be planted in the paddock, as the tree is deep rooted and pasture and crops can be grown close to the base of the tree.

Kurrajongs are well worth planting in clumps around rocky knobs in paddocks where cultivation is impossible. These clumps will provide shelter for stock, especially lambing ewes or sheep off shears.

Frequently kurrajongs are planted in gardens, school yards and streets as ornamentals and shade trees. However, if a line of kurrajong trees crosses a creek line or a patch of heavy clay soil trees will not thrive in these situations, and a gap will be formed in the row.

Seedling planting

Thoroughly prepare the land and plant out seedlings when soil is moist.

Deep rip the soil along the rows where the trees are to be planted and surface cultivate the land between rows to limit weed growth. Rabbits and stock will eat the seedlings so fence the area off.

In the drier and warmer parts of NSW, plant seedlings out in autumn, and elsewhere plant out in spring. Water seedlings at planting and then periodically for a couple of years, particularly if conditions are dry. Regular inter-row cultivation to control weeds and the application of fertilizer will enhance seedling growth.

After planting, periodic pruning to remove unwanted lateral growth may be required for several years to ensure that a well-shaped, sturdy tree develops. Prune the tree so that the main trunk reaches a height of at least 2.5 m before the main limbs are allowed to develop.

Transplanting of open-rooted developed seedlings and small trees

An alternative to planting seedlings is to allow seedlings to grow in nursery plots and then to plant out advanced open-rooted small trees after about eight years. With this method, plant seedlings about 1.5 m apart and prune them intermittently until they reach a height of about 5 to 6 m. This usually takes about seven to eight years and at that time the tree trunks are about 10 cm diameter at about 2 m from ground level.

When ready for planting out, lift the young trees from the nursery beds and cut them to a stump about 2 m high. Prune the roots cleanly with secateurs or an axe, making quite sure that the

swollen root base, or "bulb", is not damaged. Plant the tree in a hole and fill in the soil firmly around it. When watering the transplanted tree be careful not to puddle the soil. Water again if it does not rain within a fortnight of planting. If conditions remain dry, further waterings may be required.

This procedure is more time-consuming and strenuous than planting out smaller tubed seedlings direct into the paddock, but it does have the advantage of easier maintenance and training of the young stock, and quicker, more erect growth of the trees due to the closeness of the plantings in the nursery plots. However, these transplanted, taller, young trees may not survive as well as smaller seedlings.

MISTLETOE DAMAGE

Mistletoe is a parasitic plant which becomes attached to its host tree and may kill the branch or even the entire tree if there are several attachments. Kurrajong is often attacked by mistletoe, particularly during drought. Healthy, vigorous trees are able to exclude the germinating mistletoe seed during dry seasons, whereas old and less vigorous trees are easily entered.

Treatment by chemicals is especially undesirable with this tree as the herbicide that affects mistletoe will also place the tree at risk. Removing the affected branch just below the point of attachment is recommended, followed wherever possible by fertilizer treatment and watering.

Pruning to remove mistletoe is best done in winter so that cut surfaces are not exposed to insect attack, for example by the kurrajong weevil.

INSECT PESTS

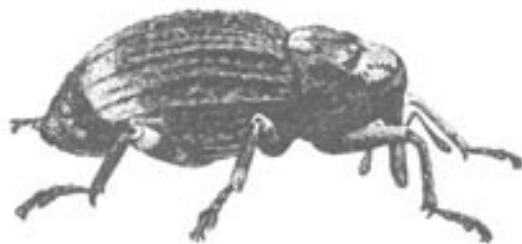
The kurrajong seems to occur naturally as a minority species, surrounded by other trees, usually eucalypts, such as white box, grey box, and mallees. It is possible that in its natural environment insect problems were not severe because of the scattered pattern of kurrajong distribution.

When planted in an artificial environment insect control by predators and parasites appears to be less effective than with trees growing naturally. These trees often succumb to the ravages of insect pests.

Drought-stressed trees or those that have been pruned too hard and often are more susceptible to insect attack than healthy, vigorous, unpruned trees. Frequent pruning for fodder causes kurrajongs to draw on their food reserves. When these are exhausted, or nearly so, the trees cannot

produce enough gum to engulf the young larvae of the kurrajong weevil. Rotational pruning will ensure that the trees stay healthy. Do not prune more than 25 per cent of the crown foliage, except in good seasons.

Kurrajong weevil, *Axionicus insignis*



This weevil attacks old or stressed trees and those that have been injured by stock or careless pruning. It attacks mainly during and after drought.

The adult is about 1 cm long and a dark grey colour with white patches on the thorax and wing covers. It is similar in colour to the bark of the kurrajong, making it hard to see.

The female lays her eggs in exposed pruning scars and dead branches. The larva is white and legless with a small dark head. Its tunnels in the wood are round and firmly packed with wood and faeces. The emergence holes are round and often stained.

Bark and pruning scars should be sealed using a grafting sealant to prevent insect attack. Applications of a complete fertilizer to the soil within the dripline assists trees to recover after drought.

Insecticides are of little value in the control of the kurrajong weevil.

Kurrajong seed weevil, *Tepperia sterculiae*



This weevil lays its eggs in the seedpods of kurrajong and the larvae feed on the seeds in the pods. It has been recorded from stem galls, but it may not be the cause of the gall.

The kurrajong seed weevil only damages the pods and therefore has no effect on the tree's vigour. It is of significance only where seed is being retained for propagation.

The weevil is likely to be found sheltering in cracks in the bark. It is about 7 mm long and reddish brown in colour. The legless larva feeds on the seed and pupates inside the empty seed-coat.

Where seed production is important, the pods can be protected by covering them with plastic, or a lower yield of seed accepted. Normally enough undamaged seed is produced. No chemical control is required.

Kurrajong star psyllid, *Protyora sterculiae*



Psyllids are known as lerp insects because of the lerp or 'test' covering they construct for protection. However, the two psyllids that occur on kurrajongs do not have this fixed covering.

The star psyllid lays its eggs on the upper surface of the leaves and the young nymph that hatches can be recognized by a red stripe which extends, on the upper surface, from the head to the tip of the abdomen.

These psyllids produce wool-like filaments from the tips of their abdomens and when clustered give a star-shaped appearance.

The adult psyllid is only 2 to 3 mm long, green with dark stripes across its body, and has red eyes.

Control is seldom required since predators and parasites keep their numbers in check.

Kurrajong psyllid, *Aconopsylla sterculiae*



The psyllid occurs mainly on the growing tips where its presence is often betrayed by numerous ants feeding on a honeydew produced by the psyllid.

Its eggs are laid on the young tips. The nymphs, which occur in clusters, are yellow with brown markings on the body, and red eyes. As they grow older, their colour becomes darker.

The adult is about 2 mm long, reddish to brown in colour with dark markings on the thorax. The head is almost black. It is easily distinguished from the star psyllid by the darker-coloured wings.

Parasites and predators control this psyllid and control is seldom required except in nursery situations.

Kurrajong leaf-tier, *Dichocrosis clytusalis*



The kurrajong leaf-tier is an often encountered pest of kurrajongs, occurring in greatest numbers during autumn.

The moth lays her eggs on the foliage, and the young larvae, which are gregarious, mat the leaves together with silken threads, and live inside the bag shelter. The small bags vary in size but often reach 20 cm long.

The larva is green and when fully fed is 25 to 30 mm long. The thorax has dark areas on it. The larvae pupate inside the bag shelter and several green pupae may be found in one bag.

The moth, which is seldom seen, is about 25 to 30 mm across the wings. It is yellow with dark wavy bands on the wings.

The larvae can cause serious defoliation during some seasons, but the trees recover quickly.

Treatment by insecticide is usually undesirable, especially in an urban situation, and the trees usually recover during the winter to spring period.

Kurrajong pod beetle, *Australaethina froggatti*



The larvae of the kurrajong pod beetle feed on the soft tissue lining of the pods. The larva is about 5 mm long, elongate and reddish brown. The adult is small, about 2 to 3 mm long, and red brown in colour. It has the tip of its abdomen exposed.

Unlike most other dried fruit beetles it appears to be specific in its host requirements, attacking only kurrajong seed pods.

No control is required as the seed germination does not seem to be affected.

ACKNOWLEDGMENTS

The authors acknowledge with thanks the assistance of Mr PW Hadlington, former Chief Entomologist, Forestry Commission of New South Wales, who revised the insect section of an earlier version of this publication.

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ISSN 1832-6668

Job number 4198

Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (November 2005). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of New South Wales Department of Primary Industries or the user's independent adviser.