



Woodlots and wildlife

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Many of Victoria's native trees have excellent qualities for fencing, construction, firewood and other uses. European settlers found them to be durable and strong, however the high demand for native timbers, coupled with the pressures to clear land for agriculture, led to the resource being rapidly depleted and today many areas are now treeless or reliant on off-farm supplies of timber.

As a result of this timber removal, much wildlife relying on treed areas disappeared.

This Note explains the principles of how a woodlot could be established and managed to provide wood for personal use whilst also providing some wildlife habitat.

The advantages of a 'wildlife woodlot'

A woodlot need not be designed for wood production alone. It can also function as a shade and shelterbelt, recreational area, as an erosion and salinity control area and as wildlife habitat.

This Note is based upon the principle that these multiple returns may be of greater value than managing the woodlot for wood alone and that a healthier woodlot is likely to be sustainable in the long term with minimal landholder input. Together, these multiple benefits will probably offer greater return from the same area of land.

Wildlife, including birds, bats, mammals and predatory invertebrates that use the woodlot, will assist in maintaining its health by providing natural pest control.

Woodlots on a property with other areas of remnant vegetation that are managed principally for wildlife can have the additional benefit of reducing the need to harvest timber from those other areas. A woodlot on the property avoids the expense of driving to another location to gather wood and permit fees for collection (where applicable).

This is quite a different approach to the coppiced Sugar Gum plantations, used extensively in western Victoria, which provide minimal wildlife habitat.

Principles of a wildlife woodlot

- Local native plant species are used. These are not selected for any particular genetic traits.
- Monocultures are avoided. Diversity of species is encouraged.

- Native animals, including invertebrates, provide pest control. There is no use of chemical control.
- Some trees are left to reach old age and existing old trees may be incorporated into a new woodlot, if available. These are not harvested but are left to age, fall and decay, providing hollows for wildlife whilst standing and returning nutrients to the soil when fallen. Smaller branches may be removed if they pose a fire risk, although these are quick to mulch down.
- A selection of understorey species is included in the woodlot, including species that would naturally occur in association with the trees. Some plants are clumped to provide dense thickets for wildlife refuge.
- Ground litter is left to accumulate. Fire precautions are taken but the aim is to locate these out of the woodlot area. Fine litter is not left to accumulate near buildings.
- Fertilizers and supplementary watering are not required. Unnatural nutrient input to the woodlot is minimised although fallen eucalypt litter or branches from other fire-prone sites on the farm could be relocated to the woodlot.
- Young trees (10-40 years old) are harvested selectively or in small patches. Clearfelling large areas is avoided. Various age classes are represented.
- There is minimal disturbance to the woodlot when removing timber.
- Stock are mostly excluded. Other herbivores may also need to be excluded to permit natural regeneration.
- The woodlot may be able to act as a 'corridor' for wildlife species movement between intact remnants of native vegetation.

How to create a wildlife woodlot

Siting

A Whole Farm Plan for the property (see Garrett) will enable suitable areas to be identified. During the preparation of the Plan, potential other uses of the woodlot (e.g. recreation, wildlife habitat, shelter, erosion control) can be considered. They will in part determine its size and location. Suitable areas might be – beside watercourses, in erosion prone areas, salinity recharge areas on hillsides,

around fenced dams and adjacent to fencelines on the windward side of paddocks.

Points to consider:

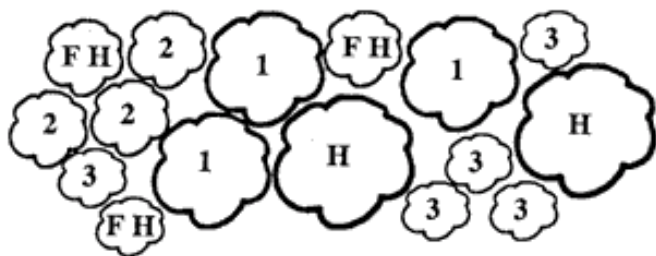
- Local native plant species are adapted to particular sites in the landscape.
- Fencing is a major cost of establishment. This can be minimised by careful placement of the woodlot to take advantage of existing fences (within the framework of the Whole Farm Plan).
- Access for equipment used to harvest timber must be considered.

Area and shape

The total area required will be determined by the rate of harvesting, the number of useful trees per hectare and the age classes being maintained on the site. A proportion of all age classes, and preferable a range of species, should be left to reach old age (future habitat trees, some with hollows). Mature trees will occupy a greater area than young trees and those being maintained for wildlife will be unproductive for wood. It is better to start off with a greater area under wood production than is likely to be needed and to reduce the area, if necessary, as the productivity of the site is evaluated.

Species selection

Local native species are recommended as they are adapted to local conditions. Each species has unique qualities that may be valued for different reasons (e.g. if harvesting firewood: heat production, ease of splitting, ignitability, quality of coals and number of sparks). Good native firewood species include Grey Box *Eucalyptus microcarpa*, Black Box *E. largiflorens*, Red Ironbark *E. sideroxylon*, Yellow Box *E. melliodora*, Red Box *E. polyanthemos*, Yellow Gum *E. leucoxyton*, River Red Gum *E. camaldulensis*, Blue Gum *E. globulus*, Red Stringybark *E. macroryncha*, Narrow-leaved Peppermint *E. radiata*, Messmate *E. obliqua*, Mountain Ash *E. regnans* and White Cypress Pine *Callitris columellaris*. CNR can provide information about local species suitable for firewood. Note that eucalypts of the subgenus *symphyomyrtus* (frequently smooth-barked eucalypts) form hollows more readily than subgenus *monocalyptus*. Some species are better nectar producers than others or of special importance to particular wildlife species (e.g. Red Ironbark).



Diagrammatic representation of a mixed age woodlot incorporating habitat trees (H), future habitat trees (FH) and various age classes of trees for harvesting (1,2,3). Note that understory shrubs and ground cover have been omitted for clarity.

A compact (round) shape will reduce the negative impacts of edges, including windthrow, impacts of adjacent land use and weed invasion from pasture. However, linear woodlots with long edges have the advantage of providing for 'edge' species, can provide habitat diversity and may be used to join more compact remnant areas.

Management

Site preparation and planting – a few points

As a general guide, on farmland, effective weed control will be the major factor in establishing the woodlot. Various options are available including herbicides, soil scalping and mouldboard ploughing. Plants can be established using natural regeneration (near existing remnants), direct seeding or planting. Advice on these techniques is available from: CNR, Department of Natural Resources and Environment, Greening Australia. The warm wet seasons (autumn, spring) are the time for planting to occur. Fertilizers and supplementary watering should not be necessary if the site is well prepared and seasonal conditions are near average.

It may be best to establish the woodlot in patches over many years to ensure a range of age classes.

'Pioneer' understorey species, such as acacias, cassinias and native peas, can be used to provide shelter during the establishment phase.

Avoid areas close to buildings for fire safety (although a carefully managed native woodlot can be used to shield buildings (see Simpfendorfer)).

In most cases it will be necessary to securely fence areas being used as woodlots. This should be done prior to planting to ensure exclusion of livestock.

Harvesting wood

Minimal disturbance during harvesting will have less impact on wildlife and plant life and reduce the risk of weed invasion. Care should be taken to avoid the spread of diseases, such as cinnamon fungus, by cleaning all equipment prior to entering the woodlot. It may be necessary to harvest 'patches' to allow sufficient light and moisture to be available for regeneration. In corridor woodlots, selective felling may help to retain continuity.

What and when to harvest

Small diameter trees are ideal for firewood. If cut green, they are less risky to fell, create less disturbance, are more easily cut into lengths that can be stored and reduce wear on chainsaws. Green wood often splits whilst drying and so requires less axe work. Forward planning is needed to ensure sufficient drying time (which may take one to two years depending on the species). The advantage for wildlife is that old and dead habitat trees are retained and, if young trees are found to be an important component of the habitat, they can be replaced fairly quickly. Harvesting in summer, when soils are compact, is likely to reduce the effects of soil compaction and means that vehicles are less likely to carry soil on their wheels which may include undesirable weed seeds or microorganisms.

Old trees

Old trees are particularly valuable for wildlife. They can provide hollows for shelter and breeding, large areas of bark for insect-feeders such as treecreepers and abundant nectar flows (see LFW Note 18 for details). Old trees are part of a naturally ageing forest. They produce abundant seed for natural regeneration and are more resistant to bushfire. As a general guide, three to ten hollow-bearing trees per hectare, with as many as thirty hollows, may be required to support a diverse wildlife population.

Incorporate old trees into the woodlot design.

Weeds

Weed problems can be avoided by careful selection and screening of the seed/plants used to establish the woodlot (seek advice), minimal disturbance once established, immediate control of weeds once identified and regular monitoring.

Pest animals

Invertebrates may be a problem during establishment. Their impact can be reduced by planting a diverse range of species in a reasonably large area and not using pesticides (which may kill helpful predators as well as the pests). Reducing soil fertility through soil scalping and avoidance of fertilizers may be an advantage in some areas as insect numbers have been correlated with the nutrient content of foliage (Landsberg et al, 1990).

Rabbits, foxes and other species may take advantage of the shelter of the woodlot. Increased control programs may be required. Effective techniques which minimise disturbance are available for the control of these species in bush areas (refer to Land for Wildlife News). Control of introduced species will benefit wildlife and assist regeneration. Remove only those fallen logs that are providing harbour in areas that cannot be treated by other means.

Fire

Firebreaks should be placed outside the woodlot area to reduce the risk of weed invasion through soil disturbance. Careful placement of the woodlot may offer protection from fire (Simpfendorfer, 1989), although understorey species may not be appropriate close to buildings as they may carry the fire into the canopy.

Natural litter, including fallen branches, leaves and twigs are an important component of the habitat for wildlife and predatory invertebrates. Leaf litter assists with controlling erosion and returns nutrients to the soil.

Livestock access

Livestock can concentrate nutrients, compact soils, eat seedlings and flowers (thereby preventing regeneration), ringbark trees and reduce the diversity of the vegetation which, for example, affects the quality of habitat for insectivorous birds and invertebrates. This substantially reduces the chance of natural pest control. Stock have been implicated in rural tree decline through redistribution of nutrients as dung to tree areas (Landsberg et al 1990), and in reduction of understorey habitat for insectivorous birds.

Stock should be excluded from woodlot areas at all times, except perhaps for short periods for protection from extreme weather, during drought or to reduce fire risk where other means are unavailable. In some instances retaining stock access to areas can provide open conditions that suit particular species (e.g. Bush thick-knee, Grey-crowned Babbler) and carefully managed stocking may be appropriate so long as the vegetation does not deteriorate. Advice is available from Land for Wildlife extension officers. The ability of the vegetation to recover after these occasional episodes should be monitored.

Further information

Department of Natural Resources and Environment,
Victorian Solar Energy Council, Victorian Timber Industry

References

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