

Fuel Treatment Strategies

Trees



Established eucalyptus groves are usually thick with trees of many different ages. Removal strategies are complex as they involve falling very tall, dense trees, onto a forest floor littered with strips of bark, leaf debris, and often a field of stumps.



Cutting

Working with different sized trees requires different skills and equipment. Trees are sometimes removed in stages. The smaller trees may be cut first to make room for felling the larger ones. The largest eucalyptus trees are 72" (6 feet) or more in diameter. Harnesses may be required to lower the larger trees in sections.

The initial cut is usually at one to two feet off the ground. Taller stumps are later "flush cut" as close to the ground as possible. If chemical treatment is going to be applied to stumps, it must be done soon after cutting for maximum absorption.

There are two main approaches to cutting:

Stand thinning

Thinning can accomplish immediate fuel reduction objectives. It involves removing only select trees, usually the smaller ones, and leaving the remaining trees widely spaced.

Stand removal

This involves removing all trees and is done to achieve comprehensive site restoration.

Toppling

To avoid generating stumps, "toppling" has been used as an alternative to cutting. This method employs heavy equipment to knock over large trees, which causes the unearthing of their root systems as they fall.

Pros: No stumps are leftover so stump treatment costs are eliminated, and no chemicals are introduced to the site.

Cons: This technique involves significant soil disturbance and increased soil erosion potential.

Limbing

If cost prohibits tree removal, or historic or aesthetic values outweigh fire hazard or natural resource concerns, removal of lower limbs alone will reduce fuel and help keep fire from being carried into the tree tops.

Understory burning

Using a prescribed burn to remove litter and duff on the ground reduces fuel without removing trees. This is often done when costs prohibit cutting, when trees are critical habitat, or when historically significant trees are involved.

Stumps



When eucalyptus is cut, it vigorously resprouts unless the stumps are treated to prevent regrowth. This adds an extra phase of treatment to almost all eucalyptus removal projects.

Chemical application

Stumps may be treated by applying herbicide to a freshly cut surface. Garlon 4 and Round-up are widely used herbicides for eucalyptus and other weeds because they are very effective and break down quickly rather than continuing to persist in the soil. Herbicide must be applied around the entire circumference of the cut where the actively growing cambium layer is. A dye is usually added to the herbicide to mark stumps that have been treated.

Light deprivation (tarping)

Experiments with "tarping" have used light deprivation and a physical barrier to prevent resprouting. This involves stapling heavy black plastic over the stump, and burying it with duff and mulch onsite.

Stump grinding

Physical destruction of stumps by grinding down to 2 feet below the surface, is another alternative to chemical treatment. When sensitive areas such as streams are nearby, the use of chemicals, even those which break down quickly, may be undesirable. Stump grinding may also be used if stump size or density will inhibit native plants from getting re-established. In some cases, however, resprouting has continued to occur even after grinding. This method is also labor intensive and costly.



Slash

Slash is the debris generated by vegetation management activities. It includes branches, tree trunks, and leaf litter. Removing eucalyptus generates an enormous amount of slash which also must be treated. This is usually the final phase of the project.



Hauling

The largest tree trunks can often be used as lumber or firewood, and are typically hauled away by truck. Trees 24" in diameter or smaller can be chipped, so hauling is typically used on diameters greater than 24". Eucalyptus removed near waterways may also be hauled by barge.

Aerial removal

In very rugged, inaccessible terrain, helicopters have been used to transport trees to staging areas where they can be safely loaded onto trucks for hauling.

Pile burning

Pile burning involves stacking slash into piles and burning it under controlled conditions. This is a very cost-effective way of removing slash. In situations where the mulch generated by chipping cannot be used on the site, pile burning is the preferred slash treatment because removal of unwanted chips adds additional time and cost to the project.



Chipping

Chipping involves grinding vegetation debris into small pieces which can be spread onsite as a mulch or transported offsite for other uses such as composting or burning to produce electricity. Mulching onsite often may also provide weed or erosion control by covering loose, recently disturbed soil. The largest chippers can easily process 24" diameter trees.