

Reading Tree Crowns

One of the challenges facing a competent forest manager is the ability to assess the productivity of the forest. Productivity of the forest is affected by many things, for example, previous logging activities, the age of the trees, the spacing and the degree of competition between the trees. To maintain the productive nature of a forest some forestry skills are required. One of these skills is the ability to observe and interpret the structure and condition of the forest.

Eucalypt forests are particularly noted for their intolerance to competition. In particular eucalypts are 'crown shy' with naked buds sensitive to abrasion when crowns of different trees touch one another. Competition between trees affects their behaviour, especially in the development of the stem and crown. Competition affects the structure and condition of the forest, which in turn influences the productivity.

To understand the process of competition in a forest you must be able to "read the tree crown". Tree crowns are shaped by competition with other trees for space. Tree crowns can tell a lot about the history of disturbance in the forest, its potential productivity and the best methods of forest management.

Crown Classification in uneven-aged forests

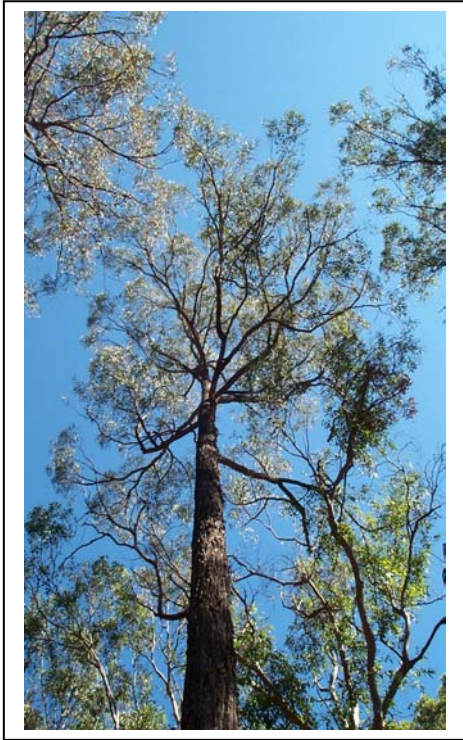
The following crown classification system can be used to classify trees in uneven-aged forests. It provides an introduction to reading tree crowns.

- **Overmature Trees**
- **Mature Trees** Trees which have reached or are close to maturity
- **Developing Trees** Trees which are capable of developing to maturity
- **Restricted Trees** Trees whose crowns have been restricted under competition for so long that they are unlikely to advance to full maturity even when subsequent logging releases them from such competition. These are often referred to as 'suppressed trees'.



Suppressed Spotted Gum

These classes can be further divided to take into account the level of competition between trees and the historical influences on the form and vigour of the crown.



Ironbark with a healthy crown

Tree Vigour

When viewing a tree crown an assessment of the vigour of the tree is most important. Generally a healthy eucalypt crown is a vigorous crown. There are a number of tell-tale signs which indicate a vigorous crown. These include,

- A crown with good leaf density
- A well balanced crown (symmetrical shape)
- The crown has dominance at the apex (apically dominant)

The telltale signs of non-vigorous crown are,

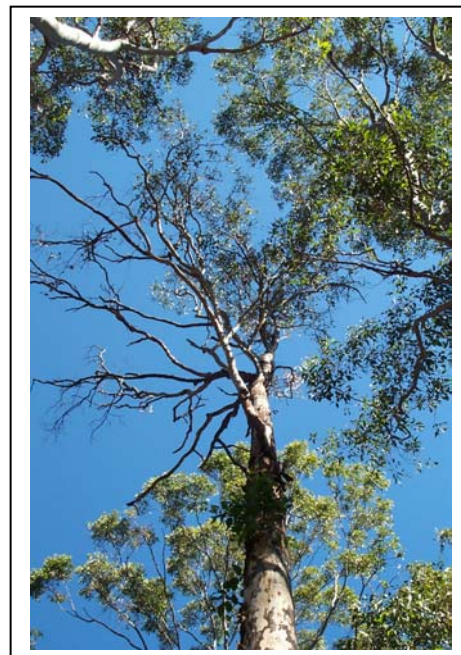
- imbalance (lack of symmetry),
- dead or receding main stems,
- thick branches that have died
- a main stem (trunk) that does not have a definite vertical alignment.
- epicormic shoots
- mistletoe infestation

Implications

Often native forests on private land have been logged selectively (STS - single tree selection) with the best-formed trees being systematically removed. Such forests are often referred to as being "high graded". In other words, the high-grade material has been systematically removed, progressively degrading the quality of the remaining stand. These would be the mature trees in the first classification. The remaining trees are usually developing and restricted (suppressed) trees or old over mature trees of little commercial value.

After a number of logging cycles using this approach, the remaining trees in the forest are often reduced to suppressed and old over mature trees. Often times, the continual removal of preferred species brings about a species shift, favouring the non-commercial species. Suppressed trees can dominate the forest, especially if the suppressed (often non-commercial) trees are not removed and healthy regeneration is not achieved after harvest.

So when carrying out a harvesting operation, basic forestry skills such as being able to read tree crowns" can assist forest managers in deciding on the appropriate forest management so that the forests can be left in a vigorous, healthy and productive condition.



Very Unhealthy Spotted Gum Crown

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