



Hollybank Forest Reserve

The Hollybank Forest Reserve is located 21 kilometres from the centre of Launceston just off the Lilydale road. The reserve covers an area of 140 hectares and since July 1977 has been managed by Forestry Tasmania as a recreational reserve. Hollybank's European history dates from the early 1850s when William Tyson and William Grubb first purchased 250 hectares of densely forested land. Since then it was a source of fine timber, was cleared for farming, became the site of a failed ash plantation venture, became a forest reserve and is now the site of a Treetops Adventure tourism experience. Hollybank is an interesting mix of dry and wet eucalypt forest, *Pinus radiata* and *Eucalyptus nitens* plantations, exotic plantings in an arboretum, around the remnants of farming cottages and along old roadways, and grassy open spaces. Old, small, struggling ash trees are scattered across some of these areas, a remnant of the failed ash plantation venture of the 1930s. Relatively deep dolerite soils with a reasonable rainfall provide moisture and nutrients to support good growth rates of native species and radiata pine.

The major environments of dry sclerophyll and wet eucalypt forest environments can be investigated over a distance of little more than 100 metres and these can be compared with the exotic plantings fringing the native forest environments.



Dry eucalypt forests

Dry sclerophyll (woody plants with leaves that are tough and thick in order to reduce water loss) forests are characterised by a multi-aged overstorey dominated by eucalypts, a sparse, hard-leaved understorey and a flammable ground cover which has a high species diversity and includes many endemic species. The frequent gaps in the canopy allow more or less continuous regeneration of eucalypts. Fires are relatively frequent in this forest type, with a natural fire frequency of 5-25 years. Dry sclerophyll vegetation rarely exceeds 30 metres, and may be less than 10 metres in extreme situations. Dry eucalypt forest is concentrated close to the entrance to the Hollybank Forest Reserve, at the top of the hill, where soil drainage is greatest and soil depth is shallower.

At Hollybank the eucalypt species present include white gum (*Eucalyptus viminalis*), brown top stringy bark (*Eucalyptus obliqua*), white top stringy bark (*Eucalyptus delegatensis*) and black peppermint (*Eucalyptus amygdalina*). Brown top and white top stringy bark tend to occur only in higher rainfall areas (or where soil moisture is retained in deeper, more clayey soils) and more fertile soils.

The understorey of the dry sclerophyll forest is virtually non-existent. Occasional species here include native cherry, coffee bush and silver wattle. Because a large amount of light reaches the lowest level of the dry forest, a dense groundcover exists. The main species present include sags, white flag iris, short, sharp pricklies (including white and pink heath, pink mountain berry and prickly mimosa), native fireweed, bracken fern, grasses, guitar plant, blue berry and some softer fern species.

Because fires burn more regularly in the dry eucalypt forest than in the wet eucalypt forest, their intensity is relatively low. Few trees are killed as a result and thus the eucalypt population tends to be uneven aged. This is well illustrated at Hollybank.



Wet eucalypt forests

The wet eucalypt forest at Hollybank has an open canopy of eucalypts consisting mainly of stringy or swamp gum (*Eucalyptus regnans*), and brown top stringy bark (*Eucalyptus obliqua*) with some white gum (*Eucalyptus viminalis*) and white top stringy bark (*Eucalyptus delegatensis*). The dense understorey contains mainly dogwood (*Pomaderris apetala*) and musk (*Olearia argophylla*) with the occasional blackwood (*Acacia melanoxylon*), silver wattle (*Acacia dealbata*), blanket bush (*Bedfordia salicina*), manfern (*Dicksonia antarctica*) and dusty daisy bush (*Olearia lirata*). All these species, apart from blackwood and silver wattle, have a characteristic, very pale to white underside to their leaves. The leaves of these plants sit almost horizontally, with the upper surface having by far the most exposure to available sunlight. This results in the concentration of chlorophyll, and hence the plants' 'food factories', mostly on the top of the leaf, with the bottom of the leaf contributing almost nothing to the process of photosynthesis.

The dense understorey greatly reduces the amount of light reaching the forest floor. The small amount of light energy reaching the floor of the forest has a significant effect on the plant life. Only soft ferns, mosses and lichens can survive in the low light levels and these plants produce little food for animals. The dense understorey also blocks out wind and this, coupled with low sunlight penetration, reduces evaporation meaning that the forest floor remains moist much longer than in the dry forest. Fungi grow well in this environment.

The moister environment also reduces the natural fire frequency to once every 50 to 100 years. However, the continual build-up of flammable eucalypt bark, leaves and small branches, coupled with the large quantities of volatile oils in the eucalypt canopy, provides a big fuel source. Under extreme conditions, wildfires in this type of forest burn with a great intensity. Usually the fire kills most of the vegetation and a new forest begins to rise from the ashes as seeds begin to germinate. As a result, most wet eucalypt forests are even-aged in nature with the age of the eucalypts reflecting the last fire event.



Pine plantations

The radiata pine environment is quite different to that of the native forest. The pine canopy blocks out much of the light at high levels in the forest and this, coupled with the dense needle fall, prevents even wet sclerophyll understorey species from developing. Even the radiata pine cannot reproduce itself in the dense plantation environment. Where the radiata pine has been thinned, much more light reaches the ground. In these areas young pines are growing along with species from the eucalypt forest.



Eucalypt plantations

The *Eucalyptus nitens* planted at Hollybank are relatively close together. As they grow their canopy will restrict the colonisation of the area by many of the native species. More species will be found here than in the radiata plantation but the variety will generally be less than in much of the native forest environment.



Contact:

79 Mellville Street
Hobart, Tasmania
Australia 7000

Phone: 03 6235 8240

Email: info@forest-education.com

Web: www.forest-education.com