

# Old Growth Forests

## What are old growth forests?

Old growth forests are those where the overstorey is in the late mature to over mature (senescent or partly dying) growth stage with the presence of relatively large old trees, many containing hollows and often with the presence of dieback or dead branches in the crown.

Additionally, a diverse structure and composition of species in the subcanopy and understorey and dead standing stags and fallen trees (logs) may be present.

Areas of drier old growth forests and woodlands may be less diverse than more productive sites but are still characterised by a canopy of older trees (many with hollows) but with a sparse understorey and a groundcover of native grasses.



John Turbill

Moist Old Growth Forest

## Why are they important?

Old growth forests are recognised as having very high aesthetic, cultural and nature conservation values. Their protection and management is extremely important in maintaining biodiversity.

It is estimated that over half of the original forests of NSW have been cleared and that much of what remains is substantially disturbed or modified by

grazing, logging, excessive fires, weeds and dieback. Areas of old growth forests, in particular, have been severely reduced and now represent less than 10% of their original extent.

Old growth forests are extremely important in the maintenance of biodiversity (fauna, flora and insect diversity) and ecological functions (nutrient and water cycles).

Specific values of old growth forests used for foraging, nesting, basking or roosting by native animals include:

- diversity of hollows in limbs and trunks of live trees, dead trees (stags) and ground logs;
- more dead wood present both standing and as ground logs;
- usually deep litter layer or native grasses present as ground cover;
- diversity in tree structure and age with older trees producing larger amounts of loose and shedding bark providing greater opportunities for nesting and roosting, and higher levels of food resources such as insects, nectar, pollen and sap;
- mistletoe and epiphytes often present; and
- more availability of nest building materials and locations and perches for resting, basking and hunting of forest birds and owls.

Table 1 provides a list of species that are dependent on tree hollows and other key resources provided by old growth forests.

## Mapping of forest growth stages?

Old growth forest and other forest growth stages for public lands in north east NSW have been mapped using Aerial Photograph Interpretation (API). These maps give an indication of where old growth forests occur across the landscape.





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Old Growth Forest - Northern Tablelands

## *Definition of old growth forests*

“an old growth forest is an ecologically mature forest where the effects of disturbances are now negligible” (JANIS 1997).

Old growth forests and woodlands on drier or less productive sites (for example in the Tableland areas) are generally characterised by an open forest structure with a sparser understorey and native grass groundcover with smaller diameter dead woody material on the forest floor.

## *Forest growth stages*

Forest growth stages are determined by structural characteristics of the forest. These include the presence or absence of older, mature to over mature trees with large crowns and the presence or absence of regrowth. Forest growth stages for the north coast have been mapped into different growth stage categories. These categories generally relate to the age of the forest, the amount of older trees compared to regrowth and mature trees, and amount of disturbance. The categories of each of the growth stages are further described below. Figure 1 illustrates the characteristics associated with growth stages from regrowth to old senescent trees.

### *Old growth forest*

These are forests where there are many late mature to senescent trees (larger older trees, many with die-back in the crown, and hollows in branches and the trunk). Additionally, there are very few younger regrowth trees and little evidence of disturbance such as recent logging.

Old growth forests may vary in the size and height of older trees due to site quality and location (e.g. tree size may be less in areas of poorer soil fertility and lower rainfall).

Old growth forests in very productive sites (moist forests) usually contain very tall trees (40 metres or more), are dominated by trees with a large girth (i.e. > 100 cm

diameter) and have some trees with large, partly dying crowns. Dead standing trees (stags) and / or logs on the forest floor or in streams may also be present.

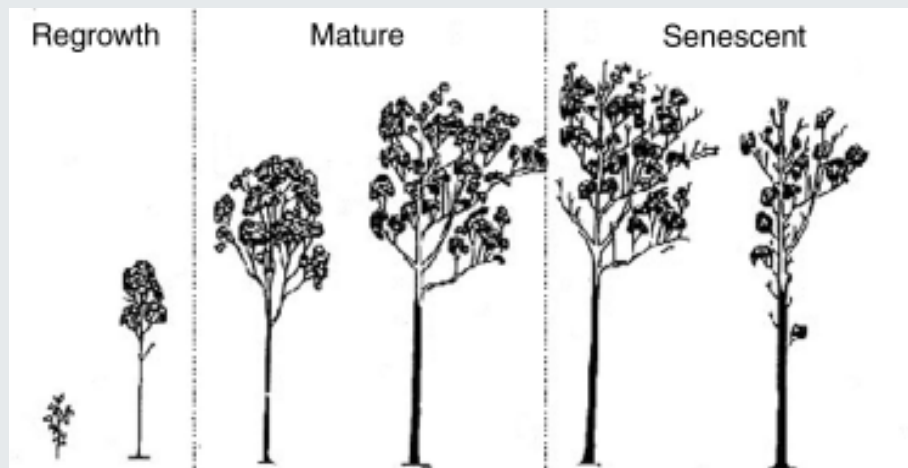
Forests and woodlands where the site quality supports less productive forests will usually be less than 25 metres in height and not necessarily of a large diameter. While these trees may contain hollows, it may be generally more difficult to observe any dead limbs in the crown from the ground. These forests are characterised by an open forest structure with a sparser understorey and native grass groundcover with smaller diameter dead woody material on the forest floor.

Old growth forests have minimal disturbance at least in the upper canopy tree structure with respect to recent logging or clearing. Where some disturbance is present the extent is not sufficient to affect the old growth characteristics of the forest.

### *Disturbed old forest*

These forests are characterised by similar growth stage features as those described above but contain more obvious disturbance to the upper canopy (e.g. logging related canopy gaps and uneven crown heights) even though many large old trees are present. There will also be signs of subcanopy disturbance (e.g. stumps, snig tracks, weeds). There may also be > 5 dead standing trees per hectare due to previous ringbarking or other disturbance such as dieback.

**Figure 1: Growth Stages**



Characteristics associated with different growth stages for eucalypt forests in high quality environments (moist forests).

### ***Mature forest***

Mature forests are generally dominated by mature trees with fewer very old trees and some areas of regrowth.

Signs of disturbance will be more evident as some logging and clearing may have occurred. For these forests a number of disturbances may be observable under the canopy confirming a previous logging history.

### ***Disturbed mature forest***

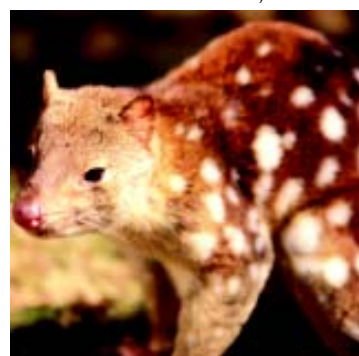
Disturbed mature forests contain more obvious disturbance to the upper canopy and the lower layers as evidenced (over the majority of the area) by signs of recent and / or old logging such that there are visible logging related canopy gaps and uneven crown heights. There may also be localised areas where the understorey is dominated by native regrowth and / or lantana and other weeds.

### ***Young forest***

Young forests are dominated by greater than 30 % regrowth and there is evidence of intensive past disturbance such as logging gaps. While there may be older senescing trees these forests are primarily comprised of even-aged regrowth. A range of disturbances in addition to the growth stage will be visible on site.

### ***References and Further Reading***

- Commonwealth of Australia (1992), *National Forest Policy Statement: A New Focus for Australia's Forests*, AGPS, Canberra.
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- Love A, Cavanagh J and Willet D (1992), *Old-growth Forest Attributes in North East NSW*, NPWS Occasional Paper 15.
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Spotted Tailed Quoll - a hollow dependent species found in old growth forests.



*Table 1: Species dependent on tree hollows and other key resources found in old growth forests*

| <i>Mammals/tree dwelling</i>       | <i>Bats</i>                  | <i>Birds</i>               |
|------------------------------------|------------------------------|----------------------------|
| Feathertail Glider                 | Greater Long-eared Bat       | Australian King-Parrot     |
| Sugar Glider                       | Chocolate Wattled Bat        | Red-winged Parrot          |
| Squirrel Glider                    | Hoary Wattled Bat            | Crimson Rosella            |
| Yellow-bellied Glider              | Gould's Wattled Bat          | Pale-headed Rosella        |
| Greater Glider                     | Eastern False Pipistrelle    | Turquoise Parrot           |
| Common brushtail Possum            | Greater Broad-nosed Bat      | Powerful Owl               |
| Mountain brushtail Possum          | Eastern Broad-nosed Bat      | Southern Boobook           |
| Common ringtail Possum             | Little Broad-nosed Bat       | Barking Owl                |
| Eastern pygmy Possum               | Northern Broad-nosed Bat     | Sooty Owl                  |
| Brush-tailed Phascogale            | Large Forest Bat             | Masked Owl                 |
| <i>Ground/partly tree dwelling</i> | Eastern Forest Bat           | Barn Owl                   |
| Spotted-tailed Quoll               | Southern Forest Bat          | Australian Owlet-nightjar  |
| Yellow-footed Antechinus           | Little Forest Bat            | Laughing Kookaburra        |
| Brown Antechinus                   | Large-footed Myotis          | Sacred Kingfisher          |
| Dusky Antechinus                   | <i>Birds</i>                 | Forest Kingfisher          |
| Bush Rat                           | Nankeen Kestrel              | Dollarbird                 |
| <i>Bats</i>                        | Peregrine Falcon             | Australian Ground Thrush   |
| Yellow-bellied Sheathail Bat       | Red-tailed Black Cockatoo    | Scarlet Robin              |
| White-striped Freetail Bat         | Glossy Black-Cockatoo        | Flame Robin                |
| Beccari's Freetail Bat             | Yellow-tailed Black Cockatoo | Tree Martin                |
| Eastern Freetail Bat               | Sulphur-crested Cockatoo     | White-throated Treecreeper |
| Southern Freetail Bat              | Galah                        | Red-browed Treecreeper     |
| Little Northern Freetail-Bat       | Double-eyed Fig-Parrot       | Brown Treecreeper          |
| Northern Freetail-Bat              | Rainbow Lorikeet             | Striated Pardalote         |
| Eastern Long-eared Bat             | Scaly-breasted Lorikeet      | Spotted Pardalote          |
| Lesser Long-eared Bat              | Musk Lorikeet                | Buff-rumped Thornbill      |
| Gould's Long-eared Bat             | Little Lorikeet              | Dusky Woodswallow          |

**Old Growth Forests are considered rare across the landscape. Their protection is very important to the maintenance of biodiversity.**

DEC website:  
www.environment.nsw.gov.au

### *Further Information*

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