

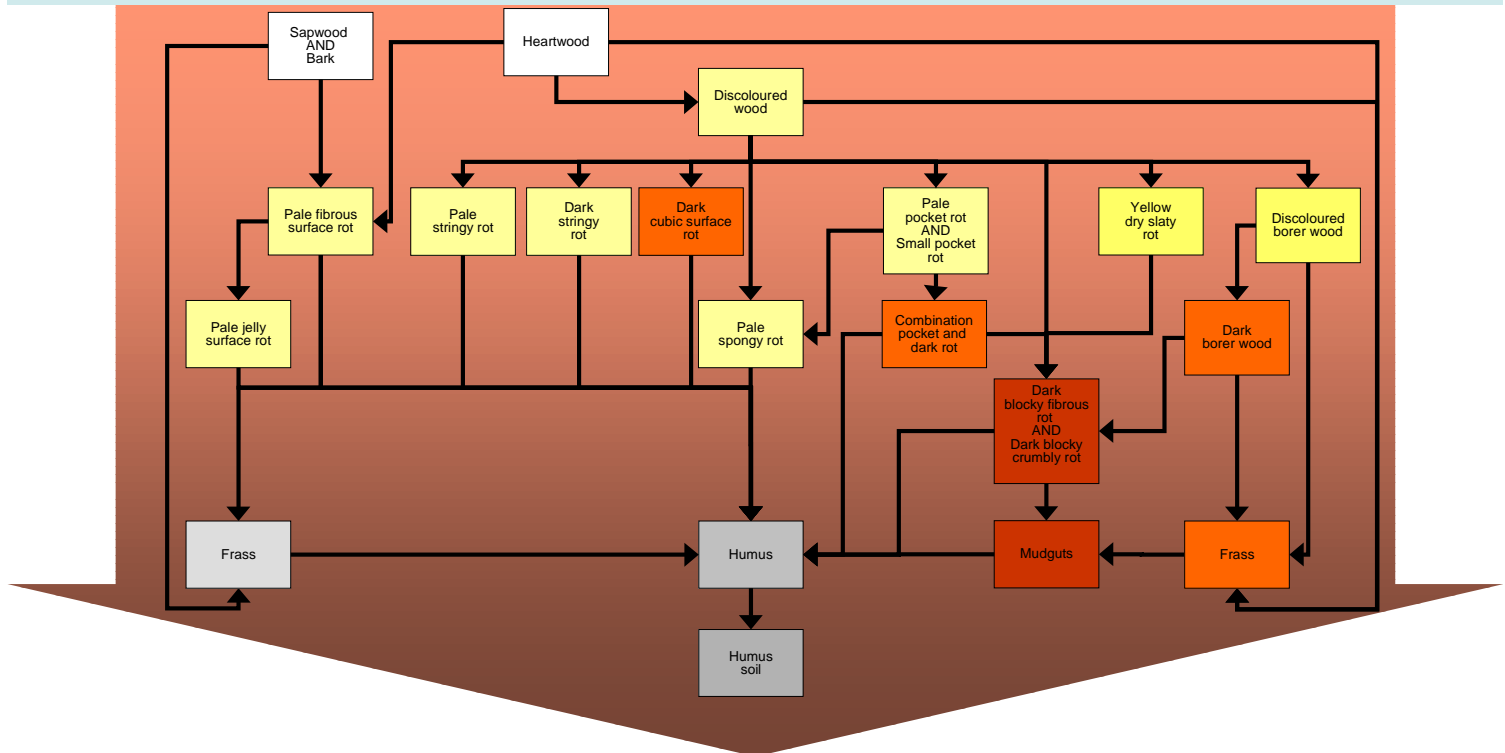
# Successional pathways in the development of wood decay in Tasmanian *Eucalyptus obliqua*: from living tree to rotten log

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Several related studies on *Eucalyptus obliqua* trees and logs have been conducted in Tasmania's Southern Forests in recent years. One of the outcomes has been a greater understanding of the ecological processes involved in the development and progression of wood decay. This poster describes the main rotten wood types so far recognised and charts their hypothesised relationships in the overall decay process.



**Discoloured wood - DIW**  
Comprises any wood that has been slightly discoloured, but still has the apparent physical structure of sound wood. Discolouration can vary from light pink, to yellow, or brown. The wood can have a grainy appearance.



**Pale stringy rot - PSR**  
Composed of continuous long, spongy, wool-like, bleached-white fibres. Crimson to dark brown solid wood is always found adjacent. Often associated with the outer heartwood, and sometimes in contact with the log surface, though columns occur within inner heartwood.



**Fibrous surface rot - FSR**  
Occurs in the top 1 – 5 cm of the log surface layer but can extend into the outer heartwood. Has a soft stringy texture, ranging from grey-white to straw or brown. Seems to consist of numerous minute irregular pockets, speckled with soft bleached fibres.



**Jelly surface rot - JSR**  
Characterised by large (> 50 mm) irregular pockets which may be empty or filled with white, soft, very wet, gelatinous or crystalline material. Black 'zone' lines demarcate the pockets. Rhizomorphs also present.



**Yellow dry slaty rot - YDS**  
Characterised by wood that superficially appears intact, but is dry, lightweight, brittle, and inclined to break along the growth rings. The grain of the wood often has a sheen. It occurs mostly in the outer heartwood.



**Dark blocky fibrous rot - DBF**  
Characterised by brittle wood that breaks off in regular blocks and can be crumbled to powder by hand. Tan or light brown. Consistently very dry. Sheets of mycelium, with a chamois-like texture, progress along the rays.



**Dark blocky fibrous rot - DBF**  
Has a distinctive red-brown colour. Breaks into irregular blocks, and maintains a soft, fibrous, texture. Even when the wood is hard, the fibres can be teased apart. In more decomposed wood, the fibres are moist and soft, giving a spongy texture.



**Dark cubic surface rot - DCS**  
Can be easily broken into 2cm wide cubes, and easily crumbled to a friable mass in the hand. It is orange-brown. Mostly found in patches on the undersides of logs.



**Pale pocket rot - PPR**  
Characterised by 5 – 20 mm regular round to elliptical pockets, which are either empty or are filled with white gelatinous or crystalline material (cellulose), or may be lined with white or yellow mycelium. Pockets are separated by thin areas of seemingly intact wood. Mostly occurs in a log's outer regions.



**Small pocket rot - SPR**  
Characterised by 2-5 mm elliptical pockets, which are usually empty but occasionally filled with white gelatinous or crystalline material (cellulose). Pockets are separated by thin areas of seemingly intact wood. Can range from light tan to dark reddish-brown. Often has black 'zone' lines.



**Combination pocket dark rot - CPD**  
Characterised by irregularly spaced 5-20 mm elliptical pockets. These are generally empty but occasionally filled with white gelatinous or crystalline material (cellulose). The wood breaks into regular blocks, and the wood in between the pockets is soft. It is light brown to red-brown.



**Pale spongy rot - PSP**  
Characterised by continuous long, spongy, wool-like, bleached fibres. Can range from white to a straw-yellow. Has a very soft texture and appears to have a very low density.



**Dark stringy rot - DSR**  
Has a coarse stringy texture, ranging from light brown through to dark reddish-brown. Appears to consist of long, stringy, wool-like fibres.



**Dark borer wood - DBW**  
Has a fibrous or spongy red-brown rot, which is rather moist and contains galleries of termites or other borers.



**Mudguts - MUD**  
Has a characteristic clay-like consistency, and appears devoid of recognisable wood fibres. Mostly occurs in the inner heartwood, sometimes associated with a hollow, but also occurs in localised patches in outer heartwood. Often found adjacent to red-brown blocky fibrous rot.



**Humus soil - HSO**  
This is a soil-like substance. It smears with a silty texture when rubbed between forefinger and thumb. It is dark brown to black. It is common in the inner heartwood area.

**No rot (heartwood) - NOR** - not illustrated

**Humus - HUM** - not illustrated

**Mycelium - MYC** - not illustrated

**External airspace - EXA** - not illustrated

**No rot (sapwood) - SAP** - not illustrated

Comprises dark brown to black organic material found in well-decayed logs. When rubbed between forefinger and thumb it crumbles into small particles.

Fungal mycelia can sometimes form substantial rubbery white structures within rotting wood.

Refers to the air surrounding a log that would once have formed the balance of the log's volume prior to its decay or collapse

**No rot (bark) - BAR** - not illustrated

**Charcoal - CHA** - not illustrated

**Internal airspace - ASP** - not illustrated

**Discoloured borer wood - DBW** - not illustrated  
Similar to discoloured wood but additionally contains borer galleries and frass.

Can occur embedded in other rots, or as rubble where a former log lay or a former tree stood. Arises through wildfire or lightning strike.

Refers to hollows within trees and logs, either excavated by animals, combusted by fire, or oxidised following decay.

Comprises accumulations of the droppings of arthropods such as wood-boring beetles and termites. Can form substantial deposits, for instance at the base of hollows.

## See also:

- Harrison, K.. (2007). Saproxylic beetles associated with habitat features in *Eucalyptus obliqua* trees in the southern forests of Tasmania. Doctoral thesis, School of Agricultural Science, University of Tasmania.
- Hopkins, A. J.M. (2007). The taxonomy and ecology of wood decay fungi in *Eucalyptus obliqua* trees and logs in the wet sclerophyll forests of southern Tasmania. Doctoral thesis, School of Agricultural Science, University of Tasmania.
- Wardlaw, T.J. (2003). The extent, impact and management of stem decay in young regrowth eucalypt forests scheduled for thinning in Tasmania. School of Agricultural Science, University of Tasmania.
- Stamm, L. (2006). Measuring and modelling coarse woody debris in tall wet eucalypt forests in southern Tasmania. Honours thesis, School of Agricultural Science, University of Tasmania.
- Yee, M. (2005). The ecology and habitat requirements of saproxylic beetles native to Tasmanian wet eucalypt forests: potential impacts of commercial forestry practices. Doctoral thesis, Department of Zoology, University of Tasmania.