Epicormic growth

Fact Sheet

What is epicormic growth?

Epicormic growth is a plant response to damage or stress. It is the growth of new shoots from epicormic buds that lie dormant beneath the bark. This growth is normally suppressed by hormones from active shoots higher up the tree, but when there is trauma from factors like insect attack, drought or fire these buds are activated. Plants which respond in this way are often referred to as resprouters.

Some of the most successful resprouters in the world are eucalypts (Clarke et al. 2013). Eucalypts have extensive epicormic buds that are highly protected, often by bark. This allows eucalypts greater insulation from the intense heat of fires than other tree species.

Does epicormic growth mean that a tree is dead or dying?

The presence of epicormic growth does not mean that the tree is dead or dying. It indicates that the tree has been damaged and is attempting recovery. However, there are a number of factors which may determine whether its recovery is successful or not:

- Severe fires (see Box 1) may reduce a trees chance of survival – this is further reduced if the tree is older or less healthy, and
- Continued stress after fire, from factors such as drought, insect damage, repeat fires or pathogens, may also reduce a trees chance of survival.

Does epicormic growth increase the risk of tree and branch falling?

Compared with the deeper attachment characteristics of branches that form during the tree's growth epicormic branches form relatively weak unions with the trunk or other branches – they have shallower attachments.

In certain circumstances, epicormic growth may increase the risk of branches falling on that tree.

In particular, when epicormic branches grow quickly and become too heavy for the trunk to support them, they may fall. This is more likely if:

- The union between the epicormic branch and the trunk or branch is cracked, cankered or decayed, or
- The trunk below the epicormic branch is decayed. This might also result in tree fall, if the load exceeds the trees mechanical strength.

Windy conditions may precipitate any of these situations.

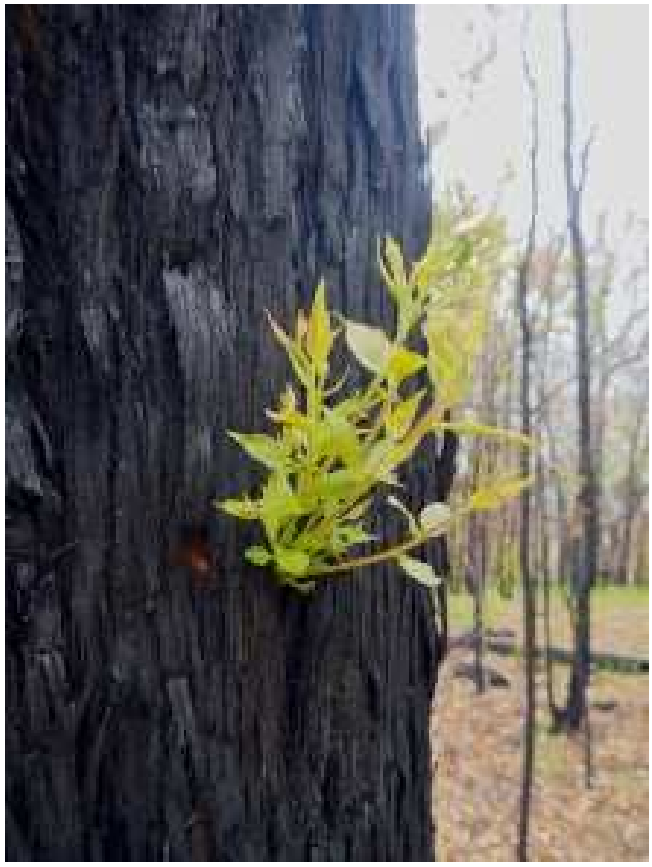

Diagram 1: Epicormic growth on a eucalypt (Source: http://www.bing.com/images/search?q=Does+Epicormic)

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What are the pros and cons of epicormic growth?

Since epicormic growth is an attempt by the tree to recover from damage or stress, ecologically, this is an excellent response. Without this ability, the tree may die, and impact on a range of issues including other tree-dependent species which are reliant on it. However, conversely, it may pose a risk to people if it is a weakly attached epicormic growth, especially during windy conditions.

What can be done to make a tree with epicormic growth safe?

If the symptoms indicate that an epicormic branch or tree may fall, it would be wise to contact an arborist, who could advise on the best solution. This may involve removal of the offending branch.

References: Albers JS Pokorny JD Johnson GR (2003) How to detect and assess hazardous defects in trees. In Urban tree risk management. St. Paul, USDA, Forest Service, Northeastern Area, Staty and Private Forestry pp. 41-116. (http://na.fs.fed.us/spfo/pubs/uf/utrmm/urban_tree_risk_mgmnt.pdf); Costermans L (1981) Native Trees and Shrubs of south eastern Australia. Reed New Holland Publishers, Sydney.

Box 1. How do you estimate damage to a eucalypt?

The height of the epicormic growth on a eucalypt indicates the level of damage. For example after fires eucalypts may resprout at the base of the tree if all the above epicormic buds are dead or higher if they are less damaged.

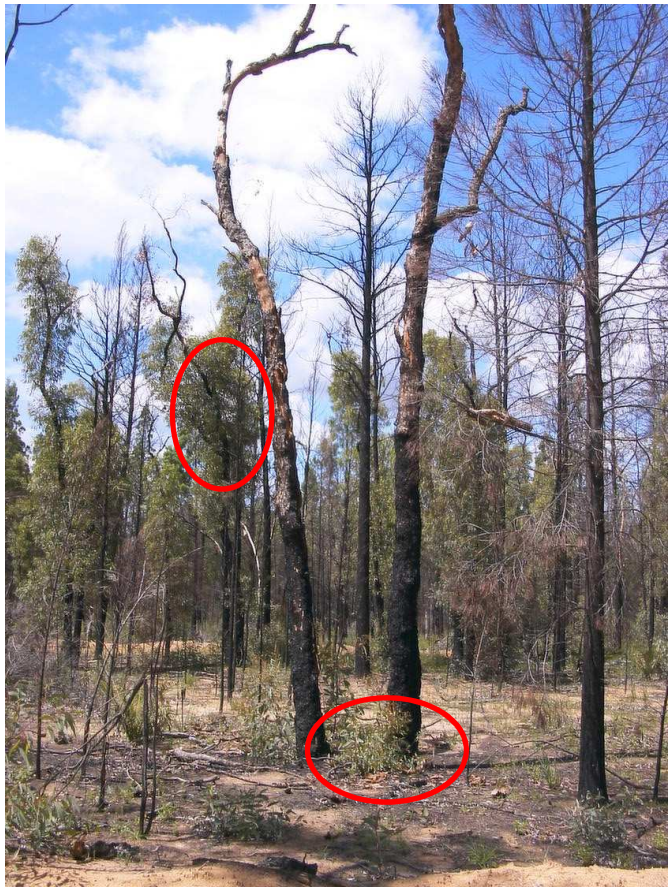

Diagram 2: Eucalypts recovering after 2006 Pilliga fire in NSW. (Source: J Cohn)