



ENGLISH HERITAGE

Landscape Advice Note: Horse Chestnut Bleeding Canker



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Bleeding canker of Horse chestnut can be fatal to the trees it infects and the number of trees infected in recent years has continued to rise. This Landscape Advice Note outlines the biology of Bleeding Canker and how it can be managed on historic sites.

INTRODUCTION

Bleeding canker of Horse chestnut (*Aesculus hippocastanum*) was first recorded in the UK in the 1970s. Observations of infection, have become increasingly common in recent years. It was originally believed that this was caused by the fungal diseases *Phytophthora cactorum* and *P. citricola*. However, more detailed research showed the causal agent to be a bacteria, *Pseudomonas syringae* pv *aesculi*.

SUSCEPTIBLE PLANTS

Symptoms can occur on trees of any age and have been found on *Aesculus hippocastanum* and *A. x carnea*. Data on other species of Horse chestnut is not conclusive but all should be considered susceptible. Bleeding cankers are relatively common on *Tilia* species (limes), and can also occur on *Acer* (maples), *Betula* (birches), *Liquidambar* (sweet gums), *Quercus* (oaks) and *Salix* (willows) although there has not been an increase in reports of infection on these species so the causal agent/s may be different.

This disease has been found in all areas of England, Wales and Scotland in both rural and urban locations.

SYMPTOMS

Externally, rusty-red, yellow-brown or almost black gummy liquid oozes from the bark on trunks of infected trees. It may run down the tree or finish near the exit point in the bark. The exudate dries to a dark coloured brittle crust. Cankers may also occur in the bark, with or without exudates, and secondary fungal infections have been observed in these. Bleeding may occur on the main trunk and sometimes on branches.

Internally the tissue beneath oozing patches is usually dead. It is an orange-brown colour and often clearly mottled or zoned. The wood may be stained blue-black. White fungal mycelium under dying bark, may indicate the presence of Honey fungus, a secondary infection of the dead and dying material.

Infection can become more extensive in the internal tissue over a number of years, and then large areas of bark may break away from the wood. Tree crown

symptoms show as yellowing of the foliage, thinning of all or parts of the crown, and in severe cases, tree death. Large trees can be killed, but younger trees in the 10 – 30 year old range seem to be at greatest risk. Trees can be killed in as little as three years with some observations of seemingly healthy trees failing to come into leaf in spring and bleeding symptoms only appearing at this stage.

BIOLOGY AND SPREAD

There is little information currently available on the means of spread of this pathogen. However, it seems likely that infection is spread by wind and rain and can enter the tree through both healthy bark (via lenticels) and damaged bark (directly through wounds).

MANAGEMENT AND CONTROL

There is currently no chemical control available which kills or controls bleeding canker. Currently the best hope for the future is that Horse chestnuts are genetically diverse, and although many succumb to this disease, a number have survived and are either immune to or better able to tolerate this pathogen. It may be possible in the future to breed more resistance in these trees.

Young trees generally do not significantly contribute to the landscape, and infected trees should be removed. This is particularly important where young trees with infection exist near to mature healthy specimens to reduce the risk of spread of the disease. Severely infected older trees, and those already dead, should also be felled to reduce the spread of infection and for safety reasons. Both the aerial parts of the trees and their root systems should be removed.

Low levels of infection appear common on many Horse chestnut trees. On these trees, regular inspections should be carried out to monitor condition and assess for further action. If the lesions become extensive enough to girdle the entire trunk the tree will inevitably die and the tree should be removed before it becomes unsafe. Similarly, if major branches show dieback, removal as a safety measure should be considered.

After felling, diseased material should be destroyed away from other trees, either by burning or burying to prevent these providing a reservoir of the disease. If disposal cannot be undertaken immediately the material should be stored away from other trees. It is not recommended that logs from diseased trees are kept for firewood. Chipping of infected material on site should be avoided as this might spread the disease by creating aerosols of inoculum.

Equipment used on infected trees should be sterilised before being used on other trees.

Replanting Horse chestnut trees on sites where infected trees have been removed is not recommended.

HISTORIC AND WIDER LANDSCAPES

Horse chestnut trees are often important features in historic landscapes as individual specimen trees, groups or avenues. Every effort should be made to save existing healthy trees by identifying and felling those with extensive infection that are dying and/or pose a significant threat to public safety.

Avenues present a particular problem. Possibly the best course of action where many trees are infected, dying and already dead, is to remove the whole avenue, and replant with other species that will have a similar final size and appearance to Horse chestnut. Any such decision can only be taken after the detail of the site and level of infection is fully understood and appropriate consultation has been undertaken. The potential benefits of any trees not infected or

better able to withstand infections should also be considered.

ADVICE AND NOTIFICATION

Bleeding canker is not a notifiable disease. However, where Horse chestnuts with bleeding cankers are near to a site where Sudden Oak Death has been confirmed, there is a slight possibility that *P. ramorum* may be involved. In such cases advice should be sought from the Food and Environment Research Agency, for more information see Landscape Advice Note: Sudden Oak Death (Ramorum Dieback).

REFERENCES

English Heritage 2014 *Landscape Advice Note: Sudden Oak Death (Ramorum Dieback)*. Product Code: 51903

Forestry Commission
www.forestry.gov.uk/fr/INFD-6KYBGV

Webber, J and Thorpe, C 2004 *Tree Damage Alert No.92. Horse chestnut bleeding canker*. Farnham: The Tree Advice Trust



FRONT COVER

A late summer photograph at Hailes Abbey shows clear chlorosis (yellowing) in the crown of the centre tree, compared to the surrounding horse chestnuts. Although not solely indicative of Bleeding Canker this is a sure sign that the tree is under severe stress © Alan Cathersides

IMAGE 01

Staining from bleeding on a mature Horse chestnut tree © Alan Cathersides

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This guidance has been written and compiled by Alan Cathersides and Emily Parker.

Published by English Heritage 2014
Product Code: 51911

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