STATUTORY SERVICES | INFORMATION SHEET

Dieback and Tree Decline

There are a range of environmental factors, pests and diseases that can cause trees to become stressed, lose their leaves, decline or die. These include drought, Phytophthora dieback, insects, and marri canker. Discussion of some of these factors and suggestions to improve tree health are described below.

Symptoms of Stress

Trees can become stressed due to a range of factors such as loss of understorey vegetation, soil erosion and compaction, waterway pollution, drought, salinity, insect attack and fungal disease. Depending on the causes, stressed trees can develop symptoms slowly over years, or very quickly within days or weeks. Common symptoms to look for include:

- discolouration or wilting of leaves;
- defoliation (more than normal);
- heavier than normal seed production;
- dying twigs and branches;
- peeling, splitting or shedding bark;
- presence of fungi on stems and branches;
- presence of insect galls or bore holes in branches and stems;
- abnormal new growth.

Identifying the source of stress can be difficult as decline may be due to a combination of factors over many years. A qualified arborist or dieback consultant may be required to confirm which diseases or factors are affecting tree health, and advise on treatment options.

Stressed trees showing discoloured leaves, defoliation and epicormic reqrowth

Drought

Rainfall has measurably decreased in southwest Western Australia over the last 40 years as a result of climate change. Combined with a rise in average temperatures and increased evaporation, this has resulted in reduced water availability.

Prolonged periods of low rainfall is termed ‘drought’ and can cause even old, established trees to decline or die due to lack of water. The effects of drought on tree health may not be obvious until years after a drought event. A reduction in vigour, leaf discolouration, leaf drop and excessive epicormic growth are typical symptoms. Drought stressed trees may also become more vulnerable to disease and insect attack.

Deep watering drought stressed trees should be undertaken in consultation with a qualified arborist.

To support drought affected trees on your property, deep watering during dry periods and other measures such as mulching to reduce moisture evaporation form the soil can help.

A qualified arborist should be consulted to determine if deep watering is likely to be beneficial and if so, recommend the most appropriate watering regime and other measures to slow tree decline.

Phytophthora **Dieback (previously called Jarrah Dieback)**

Phytophthora dieback refers to a plant disease caused by the introduced pathogen *Phytophthora cinnamomi*. It is a type of water mould that lives in soil and plant tissue that attacks the roots of plants, causing them to rot.

As a result, the plants can die very quickly as they are unable to take up water and nutrients.

Phytophthora dieback can be initially difficult to detect as the appearance of infected plants can be similar to drought.

Bushland affected by P.cinnamomi. Grass trees can die very quickly once infected.

P.cinnamomi can infect both native and non-native plants, including banksias, grass trees, roses and fruit trees. Some plant species are more resistant than others and can survive in dieback infested areas. While the disease has been called 'Jarrah dieback' in the past, jarrah trees are not the most susceptible and will usually not be the first to die.

Phytophthora dieback is spread via water, soil, and root-to-root contact between plants. Dieback infected soil is easily spread by human activity via muddy shoes, vehicles, earthworks, and equipment. Once plants and soil are infected, the disease can be treated but not cured.

If you suspect dieback is present on your property, you can:

- limit the spread of soil and water to uninfected areas by ensuring all equipment, vehicles and shoes are clean before entering and leaving infected areas and minimising earthworks and soil disturbance (soles of shoes can be disinfected with 70% methylated spirits);

Phytophtora dieback is commonly introduced into bushland along the edges of tracks, affecting nearby vegetation such as these banksias and grass trees.

- Protect trees and shrubs from Phytophthora dieback using phosphite (a biodegradable fungicide that boosts plants natural defences against the pathogen) as an injection into trees, or foliar spray.

To confirm the presence of *Phytophthora* dieback, a dieback consultant may be required with soil samples collected for laboratory testing. For more information visit the Dieback Working Group's website https://www.dwg.org.au/

Psyllid Infestation

Psyllids are insects that are housed in small scales or 'lerps' on the leaves of trees such as Flooded Gums (*Eucalyptus rudis)*. They feed on the nutrients stored in leaves, robbing the tree of essential nutrients.

A tree with psyllids may experience severe leaf discolouration and defoliation. Psyllids are naturally occurring in WA and most trees will recover after insects hatch and fly away.

If a tree is already stressed however, it may be unable to cope with an infestation.

An insecticide can be used for Psyllid treatment but should be a last resort as it will also kill other beneficial insects, such as bees and predatory insects that eat Psyllids.

A Flooded Gum tree with psyllid infestation may experience severe leaf discolouration and defoliation.

Marri Canker

Marri Canker is a fungal disease affecting marri trees or red gums (*Corymbia calophylla*), caused by the pathogen *Quambalaria coyrecup*. It also affects other species such as the red flowering gum (*Corymbia ficifolia*).

The disease causes ‘cankers’ - areas of bark and the tissue beneath to decay. Signs of canker include peeling and splitting bark, lesions on trunks, branches or twigs, and large amounts kino (gum) production which stain the limb or trunk a dark red colour. Once symptoms of canker are visible, trees are unlikely to recover.

There are currently no control or management options for marri canker, although trials using fungicides and nutrients are underway.

Growth of new tree seedlings can be encouraged by fencing off remnant stands of trees and planting understorey species.

For more information, see

Splitting and peeling bark and excessive kino (‘bleeding’) is a common sign of canker in Marri trees.

http://researchrepository.murdoch.edu.au/id/eprint/14753/1/marri_canker.pdf.

Suggestions to Improve Tree Health

Once symptoms of stress or decline become visible, it may be too late to stop or reverse the damage to a tree. Prevention is the best approach to eliminating stress to trees. However, if a tree is already showing signs of stress, much can be done to slow the rate of decline.

Routine care should be given to trees to ensure their health and vigour. This includes careful pruning, watering, fertilising, mulching and checking for presence of any insect or disease problems. Removing sources of stress (if possible) and improving soil health are key to maximising root health and uptake of water and nutrients.

If you are concerned about the health of trees on your property, strategies that can help improve tree health and vigour include:

- Removing weeds;
- Re-establishing the understorey with native shrubs to improve soil health and attract insects and birds that predate on Psyllids;
- Provide water to drought stressed trees in summer;
- Improving soil health (see below).

Adding a good quality mulch or compost can help to reduce soil moisture loss and increase beneficial soil biota that help trees access nutrients. Addressing soil compaction can help to increase oxygen in the soil and improve water penetration. Removing livestock and avoiding parking vehicles beneath trees is essential to reduce soil compaction.

Proper pruning is also an essential part of tree care and should be undertaken to remove dead, damaged or diseased branches. This should be done by a qualified arborist, who is trained to selectively eliminate problem branches, correct structural problems and control the shape of a tree.

Assistance

If the trees are on private property you can contact a qualified arborist or request help from the Shire's Environmental Officers to identify potential causes of tree decline. In some cases they will be able to provide advice based on a photo, or they may need to arrange to visit the site.

If you are seeing decline in street trees on local verges or within reserves, you can contact the Shire's Operations Service on 9290 6716 or make a report through the 'contact us' section of the Shire website at www.mundaring.wa.gov.au.

For suspected Phytophthora dieback, it is recommended that the initial diagnosis and treatment is undertaken by a dieback specialist. Residents wishing to apply phosphite tree treatment may contact the Shire to loan tree injector kits (please note the kits do not include a

drill or chemicals, which can be obtained from agricultural supply stores). To borrow the injectors please contact the Shire's Operations Services.

For more information contact:

Parks & Verges: Shire's Operations Service – 9290 6716

Private Land: Shire's Planning & Environment Service - 9290 6651