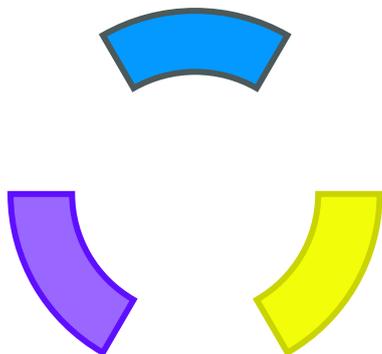


Common Pests and Diseases

In today's world of safety and caution, the array of chemicals and biological control methods are coming under increasing pressure and restrictions. As a result, we need to have several parallel strategies in place to manage the health and wellbeing of our bonsai. We tend not to have the knock-out chemicals that were commonplace yesterday and tolerance for their use has decreased anyways.



We need therefore to adopt a more holistic or integrated approach to our pest management. *Observation, Intervention and Prevention* are three cornerstones of this approach. By observing our bonsai closely, we will detect the pests and diseases at the earliest point in their attack. By Intervening with traps, barriers and biological controls, we should avoid in large part the need for chemicals. Where these become necessary, we will intervene early and decisively. The best approach is to maximise natural defences by keeping your bonsai strong and healthy to start with. This means feeding, growing under the best conditions, and space to maintain plants in strong and vigorous condition.

The following are among the more common pest and diseases that most of us are likely to encounter in the course of a growing season. This is neither intended to be a complete reference to identify all of the huge range of foes, nor their treatment.



Adult Vine Weevil



Vine Weevil Grub

Vine Weevil

Description:- A pest of two halves. The most visible is the adult form—a black /brown beetle no bigger than a penny. The most damaging is the grub, which is a root muncher without equal and looks like a large milky maggot with a light brown head.

Signs:- The adult form eats the leaves of plants and can be identified by the scalloped edge it leaves, as it chews the leaf for food. The Grub chews away at the roots and in extreme cases can eat enough to cause the tree to fail because it can't absorb sufficient nutrients and water.

Prevention:- The adult form can be trapped using a variety of devices; none are totally successful; the easiest stage to catch and manage this pest is at the grub stage.

Cure:- Chemically the only real measure available used to be Provado, a systemic insecticide which still provides protection against several other nasty tree munchers. Biological control is provided by a nematode which attacks the grub. *NOTE:* Nematodes require warm soil to be effective, say above 10°C, as otherwise the Vine Weevil grub is not active enough to attack.

Common Pests and Diseases



Caterpillar Dining

Caterpillars

Description:- A huge variety of caterpillars are out there munching away at the leaves of our bonsai. Caterpillars, be it from moth or butterfly parents, have a voracious appetite seemingly inversely proportional to their size. They come in all sizes and colours, and a herd of little caterpillars can eat all of the available green on a bonsai in a day or so.

Signs:- As you can see from the picture, they leave a scalloped edge to the leaf; they leave the skeleton and they curl the leaf up to form a chamber.

Prevention:- Barriers can work but become very intrusive. You can scan your trees and pick off individual caterpillars before they create too much damage. A heavy infestation can be hosed off. Not easy, but vigilance catches them before they have munched too much.

Cure:- Pyrethrin/Piperonyl-based insecticides seem to be the current chemicals available. Natural nematodes can be watered on. Small numbers of caterpillars can be picked off.



White Fly Infestation



Aphid Infestation

Aphids / White Fly / Green Fly / Black Fly

Description:- The descriptions are fairly self-explanatory. The aphids and flies come in a variety of colours and sizes and can be species-specific. These sap-sucking bugs are a big problem because they transport diseases from infected plants. They are generally small, between 0.5mm to 1.0mm

Signs:- In extreme cases, wilting; but you will hopefully have seen them well before that stage. Ants are often an indicator, because they feed on the dew produced by aphids.

Prevention:- None really, although smokers seem to suffer less attacks. Nicotine was once a very good treatment, and this could explain the repellent effect of cigarette smoke.

Cure:- Pyrethrin/Piperonyl-based insecticides seem to be the current chemicals available. A solution of soft soap and water will wash off/kill the pests and there are a range of wasps that attack these unwelcome guests.

Common Pests and Diseases



Red Spider Mite

Red Spider Mite

Description:- A very small red mite; very difficult to see although just about possible with good eyes—the mites are circa 0.1mm. The photo opposite is much magnified.

Signs:- Pale yellow mottling and premature leaf drop are the usual signs. In a large attack, you sometimes see the mites en masse but this is a very severe attack.

Prevention:- Prevention is definitely the easier course. Red Spider Mite hates any humidity in their environment, so if you suspect an attack, shower your trees and provide trays, etc to increase humidity.

Cure:- Biological controls are available, but require good light and temperatures above 21°C, which means we need a good summer. Chemically, bifenthrin will control red spider mite, provided it has not gained resistance. Alternatively, there are sprays containing vegetable oils or fatty acids which will kill on contact, and therefore need repeated application.



Mould

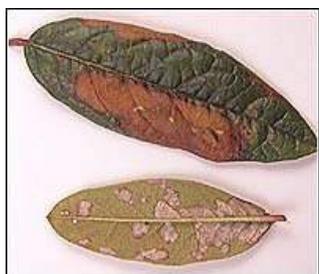
Moulds and Mildew

Description:- Mould is normally evidenced by a grey furry covering, whereas mildew tends to be more like a black film. See photos opposite. There are a variety of moulds and mildews all varying slightly in appearance, but conforming in general to this description. Moulds are fungi of the *Botrytis spp* while mildews are fungi from the *Bremia spp*.

Signs:- Initially discoloration, and as the colony multiplies, characteristic grey fuzzy coverings and black slimes become more evident.

Prevention:- Ventilation is the principle preventative measure, although reducing humidity is also effective.

Cure:- Non-chemical control is about observation, as is removing and disposing of the parts that have been attacked, debris and dross to prevent spread and initial footholds. Fungicides based on mancozeb are effective and early attacks can be reduced with sulphur. Bordeaux solution is a traditional palliative treatment to attack the spores before they attack your trees.



Mildew

Common Pests and Diseases



Snails



Slugs

Slugs and Snails

Description:- Shelled and slimy, or just slimy; everyone recognises these critters.

Signs:- Munching of leaves and soft stem growth can devastate new growth or accent plants. Slime trails is another giveaway sign.

Prevention:- Copper, egg shells and cocoa shells are all supposed to act as barriers, but only seem to have a limited life. Kanuma dust has in practice proved to be a good deterrent. Torch and midnight hunts can prove effective in small areas.

Cure:- Biological nematodes are available, and beer traps, egg shells are said to be effective at deterring slugs and snails. Traditional pellets have a fear factor in that the metaldehyde is persistent and can cause harm to pets and wildlife if ingested; these will be banned from Spring 2020. Aluminium Sulphate in pellet or drenching liquid is a little less threatening to animals and small people. Now that they are more widely available, nematodes are becoming the favoured way to deal with slugs and snails.



Blackbird

Blackbirds

We sometimes want to keep some of the pests, although reducing the scavenging that Blackbirds, etc, do on our nicely developed moss or dinner plate (depending on your perspective) is always a challenge.

Toothpicks arranged hedgehog fashion, fleece as a blanket, and chicken wire as a cage—each of these has proven effective. Personally, I let the Blackbird eat.

Remember, chemicals are dangerous. If in doubt, ask. Apply at full strength, following the manufacturers' instructions to the letter. Use them wisely to keep them effective.

Further Information: most of the information is generic and will need to be interpreted for bonsai. With that understanding, try the following:-

- Local Bonsai Nursery or Local Garden Centre
- Royal Horticultural Society enquiries for Members or their website
- <http://www.rhs.org.uk/advice>
- Bayer Chemicals for a full view [Bio]
<http://www.bayercropscienceus.com/products/>
- Bayer Chemicals for an amateur view (gardening) [PBI]
<http://www.bayergarden.co.uk/>