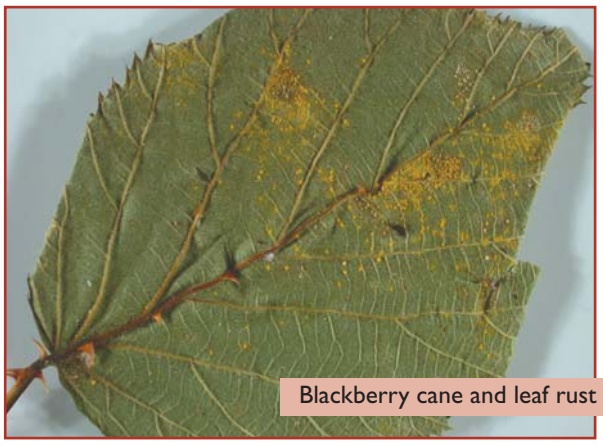
FUNGI COMMONLY MISTAKEN FOR BIOLOGICAL CONTROL AGENTS

Before biological control agents are introduced into New Zealand great care is taken to ensure that they will only damage their target weed (see *How safe are biocontrol agents for weeds?*). Sometimes there are other species present in New Zealand that look a lot like these biological control agents, or damage other plant species in a similar way. Often only people with a specialised knowledge of fungal taxonomy are able to tell them apart. Also some people are not aware that New Zealand native plants have natural enemies of their own and become alarmed if they notice any damage. All these factors can lead to false reports that biological control agents are damaging non-target plants. Below we describe some fungal species that can easily lead to this sort of mistake.

Rusts on exotic and native *Rubus* species

The underside of blackberry leaves infected with blackberry cane and leaf rust (*Kuehneola uredinis*) may at first glance look similar to leaves infected with the blackberry rust (*Phragmidium violaceum*). However, on closer inspection you can distinguish blackberry cane and leaf rust by its small, closely spaced, lemony-yellow-coloured spore pustules. Blackberry rust pustules are



Blackberry cane and leaf rust

Blackberry rust

usually larger, further apart, and yellowy-orange in colour. Blackberry leaves infected with blackberry rust also have distinctive purplish-brown spots on the upper surface of the leaf that correspond with pustules on the underside. Blackberry cane and leaf rust does not cause similar spots to appear on the top of the leaves, although areas of discolouration may occasionally be present. Also blackberry rust produces distinctive pustules of black spores on the underside of the leaves towards the end of the growing season, but blackberry cane and leaf rust never does this. You may notice a third similar fungus on blackberry. The septoria leaf spot (*Septoria rubi*) also causes similar purplish-brown spots on the leaves, but never has corresponding pustules underneath.

In New Zealand, blackberry cane and leaf rust has also been recorded on boysenberry and loganberry (North American *Rubus* hybrids), and once on bush lawyer (*R. schmidelioides*). Blackberry rust is only known from European blackberry species in New Zealand and has not been recorded on any of the other *Rubus* species that have naturalised here. Blackberry rust has also only been recorded once on a native *Rubus*

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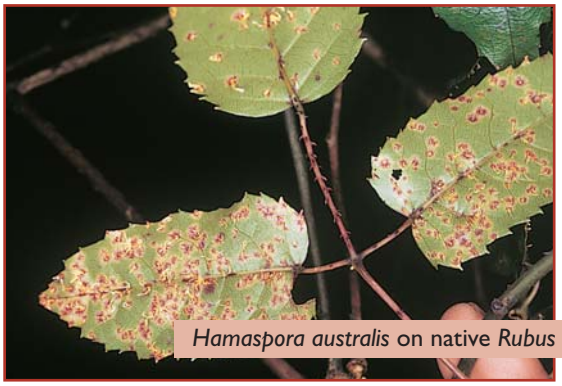
species (*R. cissoides*) and never on cultivated *Rubus* species in New Zealand. Laboratory tests in Europe suggest native and cultivated species may be susceptible. The susceptibility of native and commercially grown *Rubus* species would need to be carefully tested before any new strains of blackberry rust could be brought into New Zealand to improve biological control of blackberry.

You may notice another rust (*Hamaspora australis*) that is common on native *Rubus* species in New Zealand. Reddish-purple spots appear on the upper surface of leaves infected with this fungus, which are similar to the purplish-brown spots found on blackberry leaves caused by blackberry rust. However, you can easily identify *H. australis* because it often produces characteristic 'horns' of spores that stick out from the spots on the under surface of the leaf. This rust has not been recorded on cultivated or naturalised exotic *Rubus* species in New Zealand.

See also *Blackberry rust*



Hamaspora australis on native *Rubus*

Common diseases on *Ageratina* spp.

You may see Mexican devil weed (*Ageratina adenophora*) leaves that are infected with a leaf blight fungus (*Phaeoramularia eupatorii-odorati*). Do not confuse this with the white smut fungus (*Entyloma ageratinae*) that attacks its close relative mist flower (*Ageratina riparia*). The brown lesions on Mexican devil weed, caused by the leaf blight, do not have the white spore pustules on the underside of the leaves that are characteristic of the white smut. The leaf blight on Mexican devil weed has not been recorded on any other plant species in New Zealand and, while common, the damage it causes is largely cosmetic.

Mexican devil leaf blight

Another fungus may also be confused with the white smut on mist flower. A species of *Phoma*, commonly found on mist flower, causes reddish brown spots on the upper surface of leaves. However, they are more circular than the irregular lesions caused by the white smut. Turn the leaves over and check for pustules underneath. Spots caused by the *Phoma* never have the white pustules that are characteristic of the white smut. The damage caused by the *Phoma* is also largely cosmetic whereas the white smut can be extremely damaging.

See also *Mist flower fungus*

*The only species mentioned above that has been deliberately introduced as a biological control agent is the mist flower fungus (*E. ageratinae*). The blackberry rust is believed to have blown over from Australia.*

Identifying fungi

If you are uncertain about the identity of a fungal disease you find on one of our target weeds, or you are concerned that you have found one of our introduced biological control agents attacking a non-target plant, please feel free to contact us. We take safety extremely seriously and investigate all claims of non-target attack.

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