

Weed Biological Control Pamphlet No. 9 September 2005

GORSE THRIPS

Background

Gorse is one of the most serious agricultural and environmental weeds in Tasmania and has now been declared a Weed of National Significance. Gorse is present throughout most agricultural and urban areas of Tasmania and is common in disturbed bushland, riparian environments and recreational areas. Biological control offers the possibility of a long-term solution to the gorse problem.

The gorse thrips, *Sericothrips staphylinus* Haliday, which was first released in Tasmania in January 2001, is the third biological control agent approved for release, following detailed tests to show that it feeds only on gorse. The gorse seed weevil, *Exapion ulicis* (Forster), was released in Tasmania and Victoria in 1939. Although now widespread it has, by itself, had no appreciable effect on gorse as it only attacks the spring crop of seeds, with the autumn crop being completely unaffected. The gorse spider mite, *Tetranychus lintearius* Dufour, is regarded as the most damaging agent on gorse in Europe. It was first released in December 1998. Although now well established and spreading in Tasmania and Victoria, populations have been restricted by predators in some areas.

A combination of these specialist biological control agents may significantly influence gorse vigour and its ability to spread, even if the impact on individual plants is not lethal. Field releases of gorse thrips in Tasmania are now underway to accelerate its spread.

Description

Gorse thrips (Fig. 1) range in size from about 0.7-1.2 mm in body length and appear black except for distinctive white rudimentary wing pads and a layer of shiny adpressed hairs on the abdomen. The juveniles are cream-yellow and similar in shape to the adults. Gorse thrips usually only have wing buds and rarely develop wings. They disperse by jumping or being blown by the wind.

Biology

On healthy young plants at 19°C females lay ca. 2 eggs per day and each lay a total of ca. 70-80



Figure 1. Adult gorse thrips
(Photo: W. Chatterton, TIAR)

eggs, although fecundity may be lower depending on gorse quality. Eggs are laid embedded in the gorse stem. The ovipositing females have a life span ranging from 28 to 37 days. At 19°C the total time of development from egg to adult takes ca. 42 days. The eggs take ca. 3 weeks to hatch into cream coloured larvae. After ca. 2 days they moult into a more robust, yellowish larval stage. The larvae feed and grow for about a fortnight and then moult into a pre-pupal form with short antennae that remains mobile but does not feed. The pre-pupae become immobile pupae after about 3 days. They can be distinguished by their longer antennae which curve back over their body.

The adults spend the winter on gorse plants and live for at least 10 months. They can probably complete two generations in a year, but the main period of activity is during late spring and summer.

Damage to gorse

Both adult and juvenile forms of gorse thrips feed by piercing the mesophyll tissues of gorse leaves,

spines and stems and sucking out the cell contents. High thrips densities produce pale, stippled areas on leaves, spines and stems that give the gorse a mottled, blotchy appearance. Feeding and egg-laying usually take place on new growth but older growth can also be attacked.

Gorse thrips has the potential to be damaging because it is not readily mobile and, under sustained attack, gorse will find it more difficult to compensate for the damage.

Establishment and dispersal

Because gorse thrips lack wings, they disperse slowly. Thrips dispersal can be accelerated by collecting them from established 'nursery' sites and transferring them to new sites. However, it could be five years or more after release before the population will have increased to a suitable level to enable harvesting. Beating individual sections of gorse foliage for about 10 seconds, over a white piece of cardboard can assess the collection site. If only a few thrips are collected, then at least another year may be required before harvesting commences. If hundreds of gorse thrips are dislodged, harvesting can begin.

Infested branches can be cut off with secateurs, placed in sealed plastic or paper bags and transported to a new site. A minimum of about 300 adults per site is usually sufficient to establish a new colony. At the new release site, firmly lodge the infested branch into the gorse so the thrips can move across.

Prospects for control

Gorse thrips will complement the effects of the already established gorse seed weevil and the more recently established gorse spider mite. Plans are also under-way to introduce another foliage feeding agent, the gorse soft shoot moth, *Agonopterix ulicetella* (Stainton), now that tests have been completed to ensure that it attacks only gorse. This agent, whose larvae feed on the new growth produced in spring, is scheduled for field release in 2006.

Research is also under-way to reduce the cost of gorse control through the development of strategies that integrate traditional and biological control methods.

It is important to remember that biological control is a long-term process that will not eradicate gorse. However, it is hoped that the combined impact of complementary agents could significantly reduce plant vigour, reduce seed output and make gorse more susceptible to grazing, weather stresses and herbicides.

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