

GORSE SPIDER MITE

Tetranychus lintearius

The history of gorse spider mites in New Zealand

Gorse spider mites are native to Europe, and they were first imported from England by the DSIR in 1988. Following widespread release over the next few years they established well throughout New Zealand, except in the north of the North Island and the west coast of the South Island. The failure of gorse spider mites there prompted Landcare Research to import an additional five populations in 1993, from areas in Spain and Portugal where the climate more closely matched the warmer, wetter parts of New Zealand. Gorse spider mites are now established in all regions of New Zealand.

How would I find gorse spider mites?

Gorse spider mites live in communal webs on gorse bushes. They can be found all year round, but are easiest to find during the warmer months when the colonies are largest. Look for the fine



Gorse spider mites ready to migrate



Gorse spider mites

white webs that may be as small as a fist or large enough to cover several gorse bushes. The webbing is destroyed by rain, so it is most obvious after warm, dry weather. Look inside the webbing for the tiny gorse spider mites. During warm weather gorse spider mites move busily throughout the web. In colder weather gorse spider mites are more inclined to cluster at the centre of the web, often on the leeward side of stems, as protection from wind and rain.

The adults are brick red in colour. The females are smaller than the size of a pin head, and the males are even tinier and more triangular in shape. You are most likely to see the females as there are about five of them for every male. You will not be able to tell which stock the gorse spider mites came from, as they look identical and are likely to have interbred. New adults feed for a fortnight before they begin to breed. The warmer the temperature the faster gorse spider mites can breed, and this relationship is being described in a mathematical model. At

15°C the entire life cycle takes about 6 weeks, and at 23°C about half this time.

If you have a magnifying glass look for clusters of tiny round brownish eggs tucked in close to the gorse stems. Do not confuse the eggs with the much smaller black specks of frass (droppings). Each female can lay 30–40 eggs, usually at the rate of one per day. The eggs hatch after about a fortnight and moult through 6 juvenile stages (you may see the cast off white skins in the webbing). Juveniles are smaller and more orange in colour.

You may also see two predators that attack gorse spider mites. One is a small (about 2 mm long) black ladybird (*Stethorus bifidus*) that was accidentally introduced to New Zealand many years ago. The other is a mite (*Phytoseiulus persimilis*) that was intentionally introduced to New Zealand to attack pest mite species in orchards. These predatory mites are slightly larger and paler than adult gorse spider mites.

Gorse spider mites are easy to differentiate from other gorse biocontrol agents or insects on gorse.

See *Gorse colonial hard shoot moth*, *Gorse pod moth*, *Gorse seed weevil*, *Gorse soft shoot moth*, *Gorse thrips*, *Native insects that damage gorse*.

How do gorse spider mites damage gorse?

Gorse spider mites have sucking mouthparts that pierce the walls of individual gorse foliage cells and extract the cell contents. Even if the mites are no-longer present you can see where they have been feeding, as the foliage looks bleached (or even brown). Growth is reduced, and flowers may be aborted.

Will gorse spider mites damage other plants?

No, gorse spider mites will only damage gorse. Do not be fooled by another closely related species of mite that looks almost identical to gorse spider mite. These gorse spider mite lookalikes have recently been recorded in New Zealand on species of *Coprosma*, and may attack other plant species as well.

See *Insects commonly mistaken for biocontrol agents*.



Mite predator - *Stethorus bifidus*

How effective are gorse spider mites?

When present in large numbers gorse spider mites can cause considerable damage to gorse plants. The shoots that the mites have fed on are the worst damaged, but the growth of the entire bush may be affected. One study showed that if gorse spider mites attack a bush for only 1 year then the growth of the bush is stunted during that year, but it is able to recover and grow normally the following year. However, if gorse spider mites remain on a bush in large numbers for several years then the damage is more permanent. Whole shoots may be killed, and the bush cannot recover as quickly once the mites leave. In another study, bushes attacked by gorse spider mites for 2 successive years were on average 20% lighter than undamaged bushes. Although superficially they looked similar in appearance they were much less dense.

In theory, if gorse spider mites attack for long enough then they would eventually kill gorse bushes, but in practice this does not usually



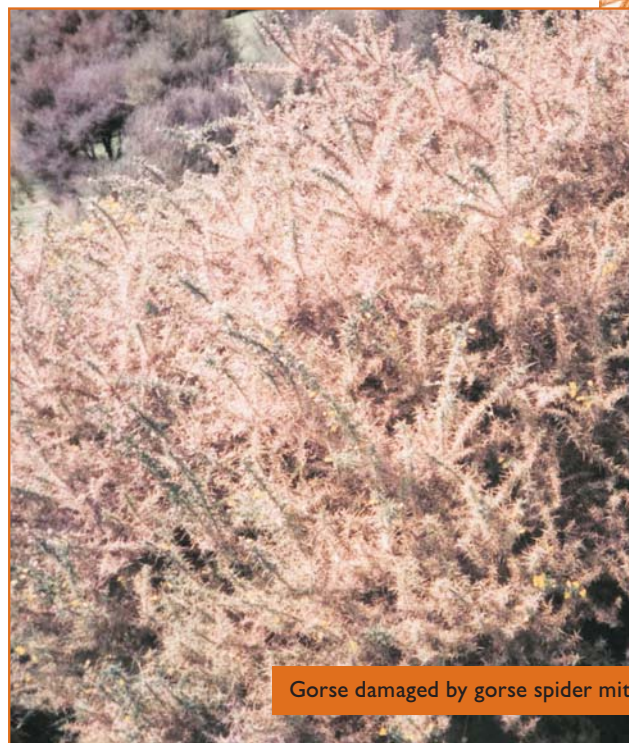
Gorse spider mites ready to migrate

happen. If you watch gorse spider mite colonies closely you will notice that the populations tend to grow for 2–3 years and then suddenly decline during mid-summer. Two factors appear to contribute to the population crash – heavy predation of the less mobile juvenile stages by a ladybird (*Stethorus bifidus*), and a mite (*Phytoseiulus persimilis*), coupled with mass migration by the adults.

Migration may be triggered by predator numbers, colony size, a plant response, or some other factor, and is an annual event. You can tell that gorse spider mites are about to migrate when large numbers congregate on the tips of branches – they may even drip from them like icicles. The gorse spider mites are blown in the wind to land on gorse further away, or they crawl onto neighbouring bushes and form new colonies. You may find these tiny satellite colonies about 1 year later, and often some distance away from the parent colony. Gorse spider mites seem to disperse in all directions but usually move fastest in the direction of the prevailing wind. The new satellite colonies grow and the boom-bust cycle is repeated.



Harvesting gorse spider mites



Gorse damaged by gorse spider mite

How can I get the most out of gorse spider mites?

Gorse spider mites are now well established throughout the country there should be no need to harvest and move them around.

How do I manage the release sites

Avoid using herbicide on bushes with gorse spider mites on them. If you wish to remove gorse spider mites from hedges you can spray them with an insecticide such as “Kelthane” or “Peropal”.

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