

# LivingWithBugs Guide

## identification, life cycles and management

### Spruce Spider Mites

updated: 6/06

**S**pruce spider mite (*Oligonychus ununguis*) is probably the most important spider mite pest on conifers. It occurs world-wide on spruce, hemlock, fir, arborvitae, juniper, larch, redwood, yew, cypress, false cypress, incense cedar, and other conifers.

Mite feeding initially causes stippling where the underlying green color is removed (Fig. 1). Continued feeding causes the needle to turn brown

and drop. Damage tends to be most severe in the lower parts of large trees. Small trees can be completely defoliated and killed. See our "Spider Mites" PestNote for general information about these mites.

Spruce spider mites are unusual because they pass the winter in the egg stage. In most other species only adult female mites survive through winter. Winter eggs hatch in mid-late spring when conifer buds begin to open. Development from egg to adult takes 2-3 weeks, depending on temperature, and there may be multiple generations each year (Fig. 2). Eggs are laid at the base of needles (Fig. 3) or other protected areas on the stem or

needles (Fig. 4). Eggs found in mid-winter are important indicators of summer infestation levels.

Spider mites employ a type of reproduction called *arrhenotokous parthenogenesis*. This means that unfertilized eggs develop into males while fertilized eggs develop into females. This has important

consequences for the development of insecticide resistance as well as allowing a single, unfertilized female to initiate a new colony.

Spruce spider mite populations are generally kept in check by a variety of natural predators. Insects like lady beetles, syrphid flies and lacewings prey on mites and other small, soft-bodied ar-

thropods. The most important predators, however, are other mites, the phytoseiids (Phytoseiidae). In the Pacific Northwest *Typhlodromus americanus* is the most common and effective phytoseiid predator of spruce spider mite. Phytoseiids have the advantage over insect predators in that their reproductive rate matches that of their prey. Their size and mobility allows them to hunt in the small spaces where spider mites are often found.

When outbreaks occur they can usually be traced to something that suppressed natural enemies, especially predator mites, or increased the reproductive potential of the spider mites themselves.

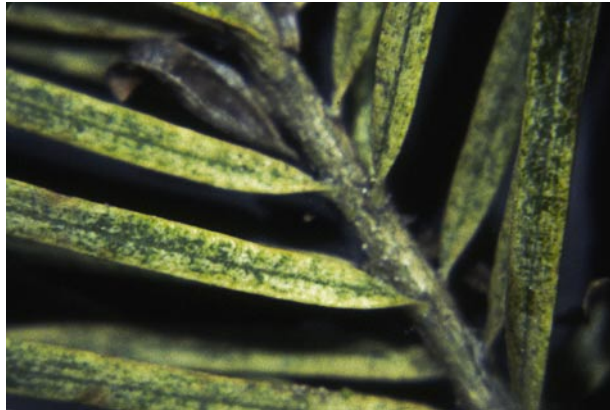


Figure 1. Spider mite feeding injury (stippling) on Douglas-fir needles.

Dry, dusty conditions both suppress predators and increase the nutritional value of the host plant.

Most important, most of the time, however, is the *use of non-selective pesticides that suppress or eliminate all predators*. When possible select pesticide products that target spider mites but have little or no impact on natural enemies, **and use them sparingly**.

See [www.LivingWithBugs.com](http://www.LivingWithBugs.com) for additional information.

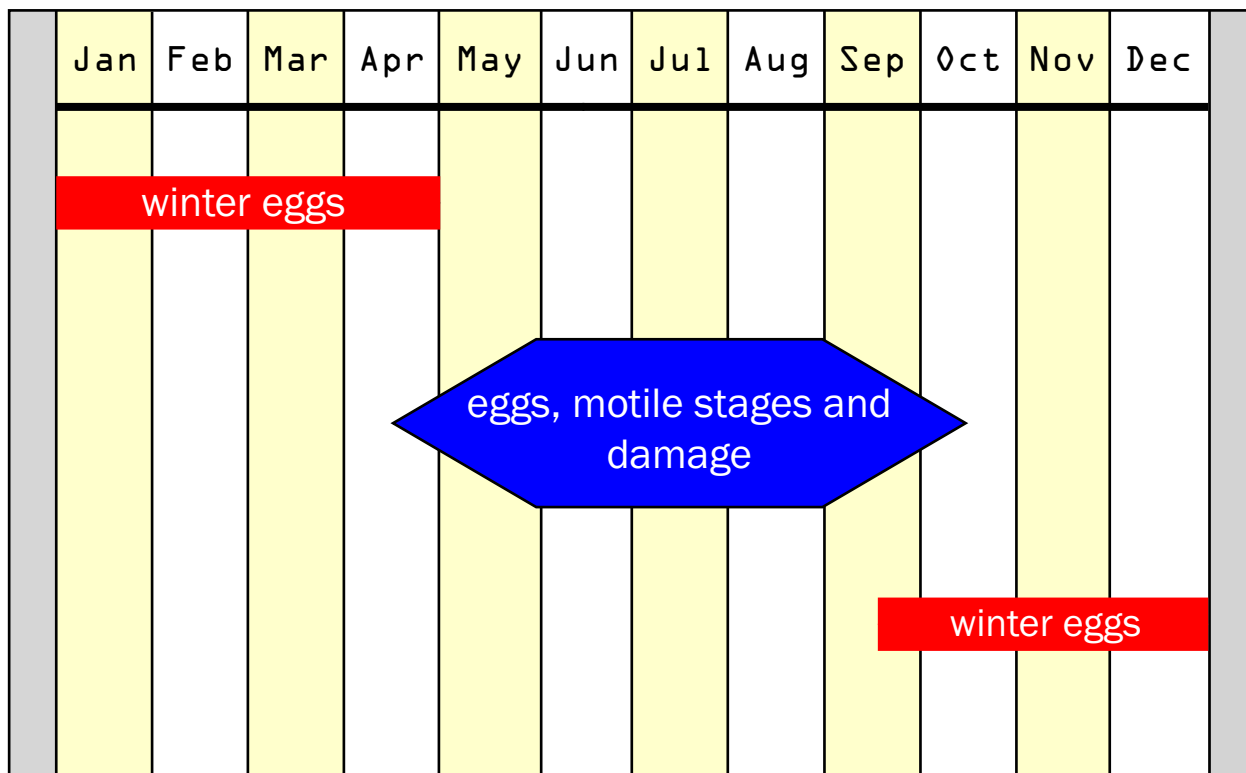


Figure 2. Life cycle chart for spruce spider mite. Winter eggs (red bars) are laid in the fall and begin to hatch in mid-late spring to coincide with conifer bud break. All stages are present throughout summer (blue bar).



Figure 3. Spruce spider mite egg (arrow) at base of Douglas-fir needle (magnified).

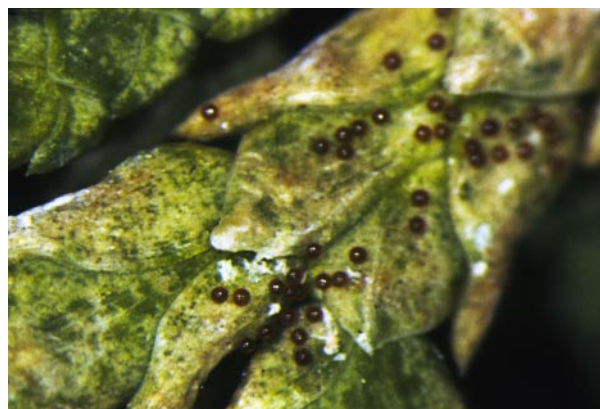


Figure 4. Spruce spider mite eggs on arborvitae. Note stippling on needles.