

# THE WORST GARDEN PESTS YOU'VE NEVER SEEN

In the soil, in the plants, these infiltrators work their woe sight unseen

By Scott Schell

Most gardeners quickly learn to recognize and deal with highly visible insect pests like tomato hornworms and grasshoppers. However, there are pests that are rarely seen and do significant damage – and get away with it.

These pests frequently live in the soil or tunnel inside valuable plants



Figure 1. Many root-feeding aphids in the genus *Pemphigus* secrete a white “wooly” looking substance that can be mistaken for fungal growth as seen on the roots of this turnip.

to avoid the attention of gardeners and predators. Even when these pests are suspected, people are often reluctant to confirm their presence as it requires digging up or dissecting plants. A farmer with 100 acres of corn thinks nothing of digging up a few feet of a row to examine germinating seeds or roots. A gardener is reluctant to destroy plants to diagnose a plant problem. A few feet of a vegetable row or a single berry bush may be a significant portion of his or her crop.

These reclusive insects are most likely seed/root maggots, root aphids, and borers. The root weevil is also hard to spot, very destructive, and common. Root weevils are covered in detail by Extension Bulletin B-1176 “Black Vine Weevil and other Root Weevils in Wyoming Gardens.” Go to [barnyardsandbackyards.com](http://barnyardsandbackyards.com).

Here are some elusive common Wyoming pests and the integrated pest management (IPM) tactics used for control.

## Seed and Root Maggots

The larvae of true flies in the insect Family Anthomyiidae are called maggots. These maggots use decomposing plant parts and germinating seeds, roots, bulbs, and corms (underground stems) of many garden plants for food. Common maggots in Wyoming are seed corn, onion, and sugarbeet root maggots. Table 1

lists the plants they attack and when damage can be seen. Spring weather conditions have a major effect. Anthomyiid maggots thrive when cold, spring soil temperatures inhibit germination of some garden crop seeds and when lots of moist, partially decomposed plant tissue is present in the soil. Losses can be so extensive that replanting is necessary. Replant after soil temperatures rise to levels suitable for rapid germination and growth of plants like sweet corn and beans. This is usually a minimum of 59 F to an ideal of 77 F at sowing depth.

IPM practices to limit damage include using completely composted organic matter for amending soil. Avoid incorporating old stalks and stems into the garden soil near planting time.

Plant only when soil temperatures and moisture are ideal for rapid seed germination and emergence. Using black plastic mulch in early spring to warm seed beds can speed germination and allow seedlings to outgrow the maggots.

Good soil tilth can prevent the cracks and crevices in seed rows that let these pests enter after planting. Incorporating lots of well-composted organic matter to your garden’s soil, especially soil with lots of clay, every fall will improve its tilth and texture and will help prevent easy access to seeds by pests.

Table 1. Common seed and root maggots (Order Diptera, Family Anthomyiidae) and their host plants.

Maggot common name	Scientific name	Plant host	Symptom	Season of damage	Cultural control	Mechanical control
Seedcorn	<i>Delia platura</i>	corn, beans	Seedlings never emerge	Early spring	Plant when soil is >50°F	Yellow sticky card traps and row covers
Onion	<i>Delia antiqua</i>	onions, chive, scallions	Small plants killed, big plants get bulb rot	Late spring	Dispose of any old, rotten onions. Don't saturate soil.	Yellow sticky card traps and row covers
Sugarbeet root	<i>Tetanops myopaeformis</i>	beets, spinach	Wilting tops	Summer	Remove all plants after harvest	Fluorescent orange card sticky traps

## Root Aphids

Some aphids feed on the roots of garden plants such as cabbage, lettuce, beets, aster, tulips, and corn rather than the leaves (Figure 1 page 18). Common root aphids and the plants they attack are in Table 2 (page 20). To a human, garden soil looks impossible to move through without tunneling like an earthworm or gopher. However, soil cracks, crevices, and other small holes offer creatures the size of aphids easy access to plant roots.

In some instances, ant species provide aphids with protection from some predators and rapid transport to the roots of favored plants. Their reward for this behavior is the honeydew (a sugary secretion) from the aphids. This cooperation between ants and aphids can really accelerate plant damage. Once aphids are on the roots, rapid asexual reproduction increases the population. Plants will begin to wilt and often lose greenness once aphids are on the roots and multiplying. Corn field ants (*Lasius alienus*) and corn root aphids (*Anuraphis maidiradicis*) have such a close relationship that, at the end of the growing season, the worker ants take the eggs of the aphids deep into



Figure 2. This mating pair of peachtree borers illustrates mimicking the coloration of stinging wasps for protection from predators. The black and orange female imitates a spider wasp, and the smaller male has markings similar to a paper wasp.

their nests to store and protect them from harsh weather over the winter.

## Borers

Living inside a plant protects an insect from bad weather and most predators. Some of the most destructive borers that utilize this strategy are from the clearwing moth insect Family, Sesiidae. Their lifecycle starts as tiny eggs placed on host plants. They then develop into tiny caterpillars, which make inconspicuous entrance wounds in host plants. They feed inside the plant and, one or two years later depending upon the species, emerge as adults. Clearwing moths are most noticeable in the adult stage. Their coloration mimics that of stinging wasps (a protection from predators) (Figure 2). Peachtree, currant, raspberry crown, and lilac/

## FOR ADDITIONAL INFORMATION

<http://extension.usu.edu/files/publications/factsheet/greater-peachtree-borers07.pdf>

<http://oregonstate.edu/dept/nurspest/PTB%20Mating%20Disruption%20Brochure.pdf>

<http://www.ext.colostate.edu/pubs/insect/05530.html>

<http://www.ipm.ucdavis.edu/PMG/GARDEN/VEGES/PESTS/seedcornmaggot.html>

<http://www.ext.colostate.edu/mg/gardennotes/213.html>

<http://www.ext.colostate.edu/pubs/insect/05573.html>



Table 2. Common root aphids (Order Hemiptera, Family Aphididae) and their host plants.

Aphid	Scientific name	Plant host	Symptom	Season of damage	Cultural control	Biological and chemical controls
sugarbeet root	<i>Pemphigus populivenerae</i>	beets, turnips	Wilting, poor growth, yellowing	Late spring	Improve soil tilth, regular watering to prevent soil cracking  Fine mulches can help exclude the aphids.	Applications of the insect killing fungus <i>Beauveria bassiana</i> ;  Drenches of insecticidal soap solutions;  Imidacloprid or dinoterfuron insecticides can be used if the plant and aphids are on the label and pre-harvest interval is followed.
lettuce root	<i>Pemphigus bursarius</i>	lettuce, carrots	"	Late spring	"	"
Western aster	<i>Aphis armoraciae</i>	many flowers in the Aster Family	"	Spring and summer	"	"
tulip bulb	<i>Dysaphis tulipae</i>	tulips, iris, celery, gladiolus	"	Early spring	"	"

Table 3 Common clearwing borers (Order Lepidoptera, Family Sesiidae) and their host plants.

Clearwing borer	Scientific name	Plant host	Symptom	Season for adult activity and control	Cultural biological chemical controls
peachtree	<i>Synanthedon exitiosa</i>	peach, plum, cherry	Larvae tunnel under bark near crown	Late June-September	Try to maintain or improve tree health and vigor. Pruning and destruction of infested plants is necessary.  Avoid wounding the bark with mowers and string trimmers as that is attractive to borers.  Insect parasitic nematodes ( <i>Steinernema</i> species) applied as a drench occasionally work well.  Pheromone traps can monitor for adults, and mating disruption lures can work in orchards > 1 acre.  Preventative bark treatment on the trunk and stems before the larvae get under the bark can reduce damage if timed correctly.
currant	<i>Synanthedon tipuliformes</i>	currant, gooseberry, sumac	Attacked canes develop small, yellow leaves before dying back	Late May-June	"
raspberry crown	<i>Pennisetia marginata</i>	Black and red raspberry	Crown attacked, which causes the entire plant to wilt and die	Mid-July-August	"
lilac/ash	<i>Podosesia syringae</i>	Lilac, ash, privet	Girdling under the bark can kill the main stems and trunk	April-June	"

ash borers attack valuable fruit and ornamental trees and shrubs in Wyoming. Their host plants and seasonality of damage to each is in Table 3. Their presence isn't usually noticed until the plants start wilting, oozing sap, or breaking in strong winds.

Control is difficult. Sprays of broad spectrum insecticides applied to plants when adult clearwings are

actively producing eggs can reduce the population but are not effective against species with a very long period of activity. Applications of paradichlorobenzene (the active ingredient in mothballs) in late summer can kill larvae under the bark but can also harm the plants if not done correctly. Insect parasitic nematodes are available from organic gardening supply

stores and online and can be applied, usually with garden hose end spray applicators. The application is directed to where the borer larvae typically enter the trees and shrubs. However, the nematodes have not always provided consistent, adequate control in field condition studies.