

● ALTERNATIVES

PESTICIDE-FREE SOLUTIONS FOR BILLBUG PROBLEMS

BY CAROLINE COX

In dry parts of the Pacific Northwest lawn owners are concerned about billbugs because this insect can cause dead spots in lawns as well as other damage. This article explains how to tell if billbugs are a problem in your lawn, and suggests environmentally-friendly techniques you can use to deal with billbugs if you need to take action.

What Is a Billbug?

Billbugs are weevils, beetles that as adults have long snouts that point downwards. The adults are between 1/4 and 1/2 inch long and vary in color.¹ They don't fly, but can crawl significant distances.² They feed on grass stems, but don't eat much or cause serious damage.³

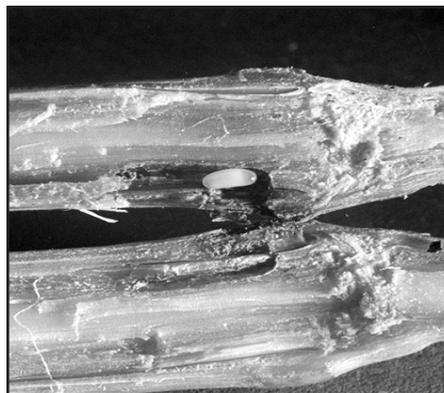
Immature billbugs are white, legless grubs with dark heads. They can grow to be 3/4 inch long.¹ Young grubs feed inside grass stems. When they are too large to feed inside stems, they move into root crowns or out into the soil, feeding on grass roots. You'll probably notice "frass" (insect excrement) that looks like sawdust.⁴ Billbug grubs sometimes cause significant damage to lawns.³

Types of Billbugs

There are three kinds of billbugs that have caused lawn problems in the Pacific Northwest. The bluegrass billbug is found in Washington, Oregon, and Idaho. The hunting billbug is found in Oregon, Washington, and California. The Denver billbug is found in Idaho and Montana.⁵ Hunting billbugs prefer zoysiagrass;⁴ bluegrass is a favorite variety of the bluegrass billbug as well as the other species.^{3,6} Management



Caroline Cox is JPR's editor.



Billbug adult (above) and a billbug grub (below). The adult is shown larger than actual size.

Whitney Cranshaw/Colorado State Univ.

ways around your lawn. (Counting adults is easier than counting grubs, since the grubs are usually hidden in soil or grass stems.) If you see more than six to eight adults in five minutes of searching you have enough billbugs to cause what the National Park Service calls a "moderate infestation"⁷ and should think about taking steps to deal with the problem.⁷

What Kinds of Damage Do Billbugs Cause?

Young billbug grubs cause grass stems to turn brown and die when they feed inside the stems.⁷ As they get older they damage grass roots. If you have a billbug problem in your lawn, you'll see dry dead spots that are irregularly shaped.

There are a variety of lawn problems that cause dead spots, so you'll want to be sure that billbugs are your problem. When the lawn is damaged by billbugs, the grass becomes dry and loose; typically it can then be peeled back without much effort and the grubs will be visible.³

Preventing Billbug Problems: Resistant Grass Varieties

Probably the most straightforward way to prevent billbug problems is to grow varieties of grass that are not susceptible to billbugs. In general this means growing grasses with high levels of endophytic fungi. Endophytes are "a type of fungus that live naturally within the grass plant, producing natural chemicals that are released in the grass plant,"³ according to Idaho extension agents Craig Baird and Hugh Homan. These natural chemicals kill many insect pests, including billbugs. Varieties of perennial rye grasses, fine fescues, and tall fescues with high levels of endophytes have been developed for home lawns. Because bluegrass is particularly susceptible to billbugs, but also a variety of grass that many people prefer, you can protect it from billbugs by planting a seed mixture that is about half bluegrass and half another variety with endophytes.³

More Prevention Tips

Lawns that have been stressed by lack of water are especially susceptible

techniques apply to all three species so you don't need to know which kind of billbug is living in your lawn.

Serious Problems are Not Common

Billbugs "can damage lawns in residential and commercial sites,"² according to extension entomologist Whitney Cranshaw, but "problems are much more common in sod farms"² than on home lawns. "Serious infestations rarely persist at any site"² and turf "will usually recover from billbug injury."²

If you think you have a billbug problem, you can keep track of how many billbugs you have by counting adults on sidewalks, patios, or drive-

Rainbird



Lawns without adequate water are susceptible to billbug damage. If you live in an area where billbugs are common, you can prevent problems by careful watering.

to billbug damage.⁴ Keep your lawn healthy by careful watering. For tips about how to water effectively and efficiently, see “Taking Care of Your Lawn without Using Pesticides,” <http://www.pesticide.org/lawns.html> or JPR 23(4):8-9.

Adult billbugs prefer lawns where they are protected from winter weather and predators. Lawns with thatch buildup, and lawns with nearby leaves, pine needles, or mulch provide protection for billbugs. You can remove these materials to make your lawn less attractive to billbugs.⁷

The adults also prefer to lay eggs near places that conserve heat in early spring: sidewalks, driveways, asphalt paths, and concrete or brick walls. The adults prefer sunny lawns for the same reason.⁷ If you have a persistent problem with billbugs you can think about modifying your landscape so you're not growing grass near these warm areas.

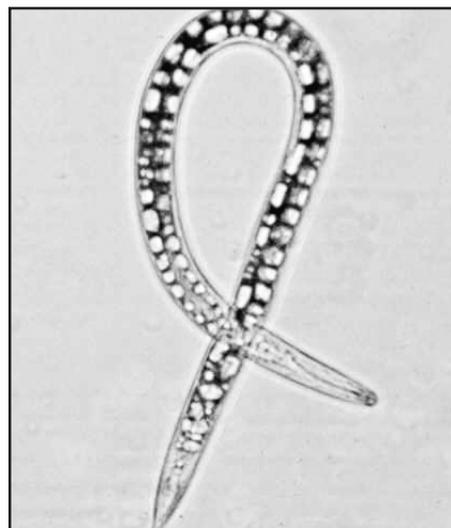
Using Nematodes to Reduce Billbug Problems

Nematodes are microscopic roundworms. Some kinds of nematodes attack a variety of insects including billbugs. The juvenile nematodes penetrate inside the billbug grub and release a bacteria that causes rapid death of the insect. The nematode then feeds

on the bacteria and the dead insect.⁸ Nematodes that prey on billbugs can be purchased from a number of commercial suppliers. (See http://www2.oardc.ohio-state.edu/nematodes/nematode_suppliers.htm for a list of suppliers.) Check with local experts (your extension agent, for example) about which species of nematode will work best in your area. Some tests have found that nematodes are more effective at killing billbugs than conventional insecticides, and golf courses in Japan have found that nematodes are more effective than other control measures.⁹

To make a nematode application effective, take the following steps:

- Apply nematodes in the spring.¹⁰
- The soil temperature needs to be above 50 degrees for the nematodes to be successful.⁹
- Since they are killed by sunlight, apply nematodes in the early morning or late evening.¹¹
- Make sure soil is moist. If dry, irrigate with 1/8 inch of water before applying the nematodes.¹¹
- Mix nematodes with water when applying them so they don't dry out. Between two and five gallons per thousand square feet of lawn works well.¹¹
- Irrigate with 1/8 inch of water after application. Do the watering within 30 minutes if the weather is warm



Rutgers Univ.

Beneficial nematodes effectively reduce the number of billbugs in your lawn. Nematodes are microscopic; this photograph is highly magnified.

and dry, or within two hours if the weather is cool and moist.¹¹

Disease

Another effective method for managing billbugs is *Beauveria bassiana*, a fungus that causes disease and death in insects. The fungus is available commercially.¹² If you are considering use of this product, be aware that when asked by NCAP, the product's manufacturer declined to identify most of the ingredients in this product.

Summary

You can prevent billbug problems by planting varieties of grass that discourage billbugs and watering your lawn as needed to keep it healthy. If billbugs are damaging your lawn, beneficial nematodes are an effective, pesticide-free solution to this problem. ♣

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