



Turf Tips

for the homeowner

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Bluegrass Billbug: Biology and Control

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The bluegrass billbug (*Spenthorus parvulus*) is a common turf insect pest which occasionally causes extensive damage to home lawns in Michigan. These beetles are named because of their long snout or "bill" which ends in a set of small mandibles or jaws (Fig. 1). They are usually seen in the spring (April-early May) or late fall (September-October) wandering about on sidewalks, driveways, or patios.

The presence of billbugs in the lawn is generally not detected until the first signs of damage appear in July. This bulletin should assist you in the diagnosis and treatment of this turf pest.

Hosts: The bluegrass billbug is almost always found attacking Kentucky bluegrass (*Poa pratensis*) but can be found in some fescue and perennial rye grass lawns. The bluegrass varieties Merion and Nugget are especially susceptible to injury while Delta, Park, Ram I, and Touchdown appear to show some resistance to billbug injury.

Damage: Circular to irregularly shaped dead patches of turf scattered throughout the lawn in July and August (Fig. 2) are characteristic of billbug damage.

Similar Damage: Damage caused by large numbers of billbugs is similar to that caused by white grubs (beetle larvae). However, grub damaged turf can be pulled up like a carpet to reveal the C-shaped larvae. Billbug damage is usually more localized and may first appear near curbs or driveways.

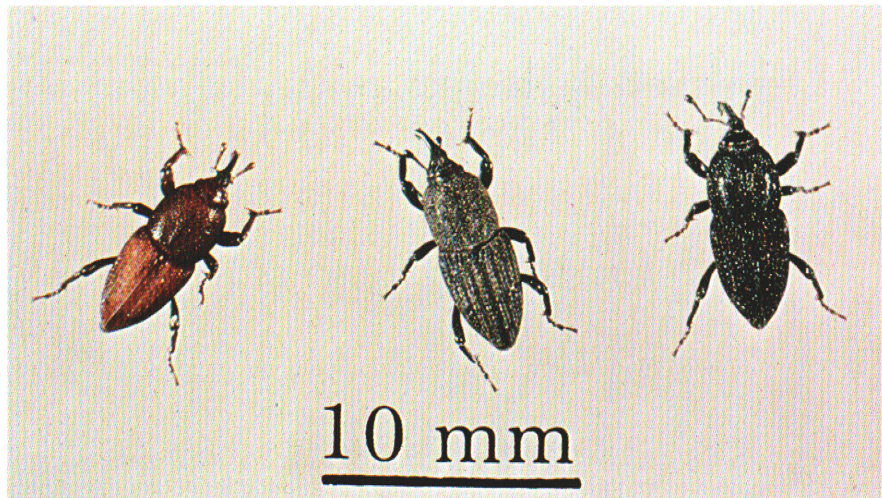


Figure 1. Color phases of adult billbugs. Left, newly emerged adult; Center, adult several days old; Right, adult several weeks old (note: shiny appearance due to loss of scales). (From *Insects Of Turfgrass In The Northeast* by H. Tashiro and G. Catlin, Cornell University, N.Y.S. Agric. Exp. Station, Geneva, N.Y.).



Figure 2. Billbug damage (From *Insects Of Turfgrass In The Northeast* by H. Tashiro and G. Catlin, Cornell University, N.Y.S. Agric. Exp. Station, Geneva, N.Y.).

Damage from fusarium blight is also similar to early billbug injury, but the diseased areas are larger and usually have live patches of

green grass in their centers. Initial billbug damage sometimes resembles early stages of stripe smut. Heat injury during very dry periods can

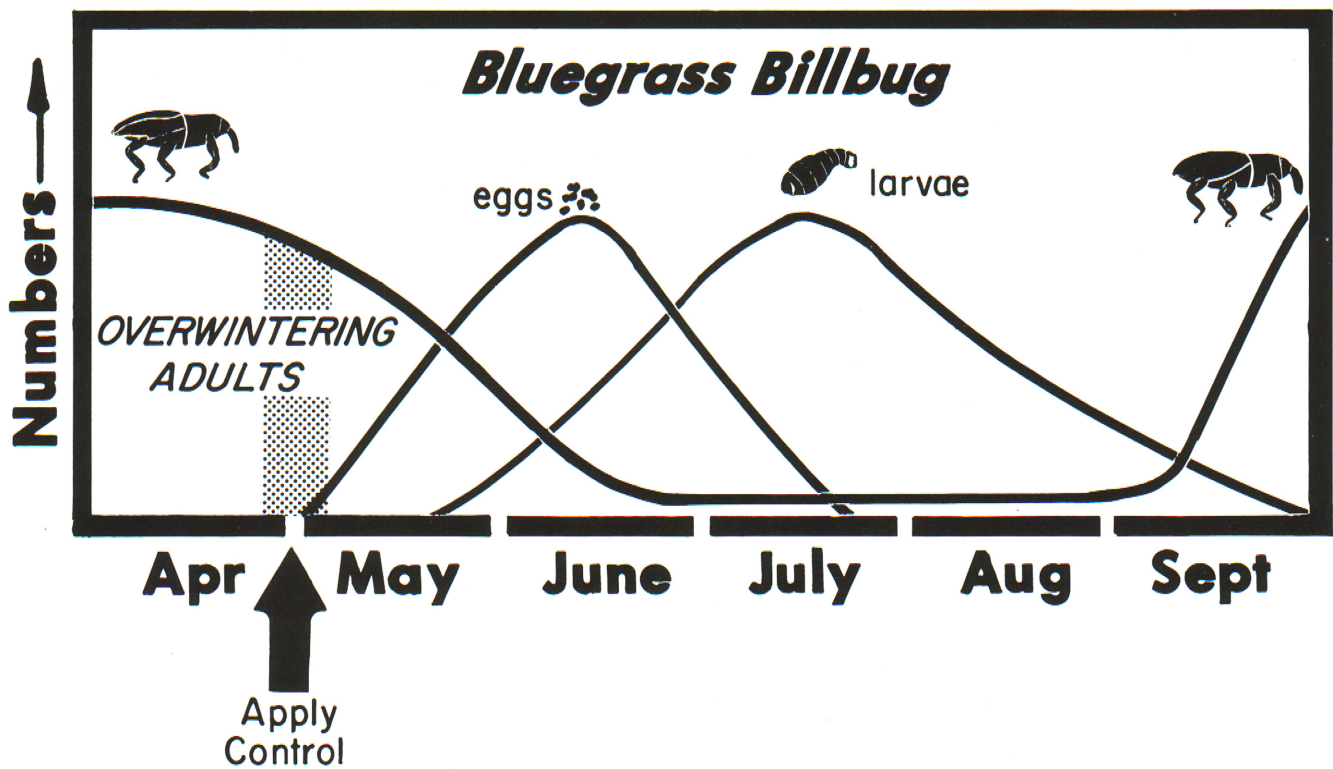


Figure 4. Life cycle of bluegrass billbug.

also be confused with billbug damage, especially if the stressed grass is shallow rooted on thatch or clay. Always check for the presence of billbug larvae and/or adults and other diagnostic characteristics (see "How to Diagnose Billbug Damage" below).

How to Identify: Adult billbugs are dull grey to black or brown beetles, $\frac{1}{4}$ - $\frac{1}{2}$ " long, with a snout or bill (Fig. 1). They have scaly textured wings but seldom fly. Billbug larvae are white, legless, $\frac{3}{8}$ " long, humpbacked grubs with a yellow to brown head capsule (Fig. 3, Page 4) which is harder in texture than the soft white body.

Destructive Stages: Adults feed on grass blades or stems, but the major damage is caused by larvae feeding in the stem pith and root system.

Life Cycle: Billbugs overwinter as adults and become active as temperatures begin to warm in April. Although some eggs are laid in grass stems in early May, most are deposited in early June (See Fig. 4).

Egg hatch occurs in one to two weeks, and the larvae tunnel down through the grass stems into the crown and eventually settle in the roots. Mature larvae frequently feed across the plant crown severing the root system.

Larvae may be present throughout the summer in small numbers, but peak density occurs in early to mid-July. Old adults (those which overwintered and laid eggs) may persist all summer but the new generation of adults (which will lay eggs next spring) begins to emerge in late August or early September. Soon after emergence these new adults seek out sheltered areas to spend the winter and can be observed walking around driveways, patios, near ground cover, etc. at this time. There is only one generation/year.

How to Diagnose Billbug Damage: The following signs can be used to diagnose billbug injury:

1) Circular to irregular patches of dead grass, especially near sidewalks or curbs.

2) Grass in dead areas of lawn pulls easily and has hollow stems.

3) A white, legless, humpbacked larva present in or under the plant crown or in the soil as deep as 1 inch.

4) Brown sawdust-like frass in the root zone (Fig. 5, Page 4).

5) Adults present in adjacent grass.

Control

Although billbugs can be controlled in the larval stage, the most successful control has been directed at the adults in late April and May before they begin to lay eggs. However, a yearly preventative treatment for adult billbugs is not recommended for Michigan lawns since two to three years are usually required for billbugs to develop large populations. Recognition and treatment of early billbug populations will effectively control this pest for several years unless large numbers reinfest the lawn from adjacent areas. Generally, small damaged areas of lawn will recover with proper water and fertilization once the pest is controlled, but larger

areas may need to be seeded or resodded.

Treatment is recommended when there are 5 or more larvae/ft² of lawn. Spot applications to localized damaged areas may provide control without the need to treat the entire lawn.

When to Treat: Controls for adults should be applied in late April or early May before egg laying begins. Larval controls should be applied in mid to late June or July when early injury may be apparent.

How to Treat: *Adults* can be controlled with a liquid or granular material (see Table 1 for chemicals). Follow these steps for optimum adult control:

- 1) Make certain adult billbugs are present in the lawn.
- 2) Mow the lawn and remove clippings.
- 3) Apply insecticides in the early morning or late afternoon/early evening.
- 4) Delay watering for 2-3 days if liquid is used; water lightly following granular application.
- 5) Keep children and pets off treated area for 24 hours.

Larvae can be controlled with a liquid or granular insecticide. However poor larval control frequently results because the insecticide never reaches the root zone in an adequate quantity. Heavy irrigation following the application will help some but control may still be varied.

Table 1. Chemicals for Control of Bluegrass Billbugs in Home Lawns

Chemical Name	Trade Name	Formulation**	Company Available From* **
Carbaryl*	Sevin	WP	Bonide
Diazinon	Diazinon or Spectracide	G, EC	Blackleaf Bonide Ciba-Geigy Faesy & Besthoff Fertilome Ortho Pratt Science Scotts

*Other formulations of carbaryl are available but are not registered for billbug control. Make sure billbug is on the label when purchasing this material.

**D = Dust
G = Granular
EC = Emulsifiable Concentrate (liquid)
WP = Wettable Powder

***Companies listed are those whose products are commonly available in Michigan lawn and garden centers and their inclusion does not constitute an endorsement. Many of the same chemicals are sold by other formulators and will perform equally well. Additional companies were not listed here because of the unavailability of chemical labels.

CONSULT THE PESTICIDE LABEL FOR APPLICATION RATES AND SPECIAL INSTRUCTIONS

Follow the steps below to insure optimum results (check Table 1 for chemicals).

- 1) Make certain billbug larvae are present.
- 2) Mow the lawn and remove clippings.
- 3) Lightly water dry lawns before applying a liquid chemical; apply granules to dry lawns.
- 4) Apply insecticides in the early morning or late afternoon or evening (see insecticide label for rates).
- 5) Irrigate lawn with 4-5 gallons

of water for every 1000 square feet (a 20 x 50 area) immediately following application (liquid or granular).

- 6) Keep children and pets off treated area for 24 hours.

Liquid materials can be applied with a hose-end sprayer or compressed-air hand sprayer. Granular materials can be applied with a fertilizer spreader or whirlybird spreader. See label instructions for rates.

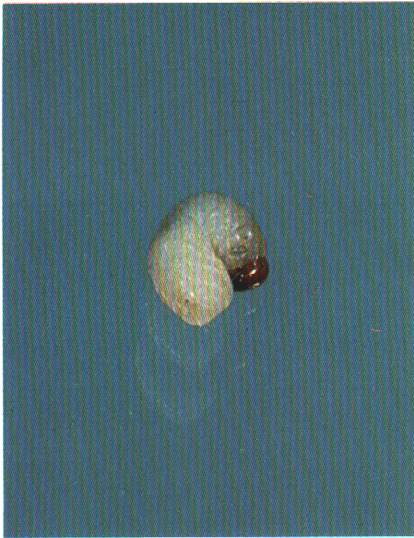


Figure 3. Billbug larva.



Figure 5. Frass of billbug larva (From *Insects Of Turfgrass In The Northeast* by H. Tashiro and G. Catlin, Cornell University, N.Y.S. Agric. Exp. Station, Geneva, N.Y.).

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