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Managing Obscure Turfgrass Pests

Cockroaches In Your Mind



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*Out of Sight, Out of Mind—
Until It's Too Late!*

Managing Obscure Turfgrass Pests

Adam G. Dale, PhD



**Hunting billbug adult
on St. Augustinegrass**



**White grub larvae
on soil surface**

MOST lawn and ornamental professionals manage what they can see, and most clientele complain about what they can see. When it comes to insects, you may see yellowing turfgrass and dozens of little chinch bugs crawling around amidst the damaged plant tissue. Or a camellia shrub may have a bunch of yellow leaves that when flipped over, are covered in brown and white waxy tea scale insects. In both cases it's pretty simple to connect cause and effect.

However, when there isn't an obvious culprit associated with plant damage, things get a little more challenging. This is often the case when it comes to subterranean insects, or those that live and feed predominantly underground.

There are several key insect pests of turfgrasses that spend at least a portion of their lives feeding on plant tissue beneath the soil surface. These include mole crickets, white grubs, billbugs, and ground pearls. In many cases, the plant damage associated with these insects

does not appear until well after the insects have infested the area and been feeding on the plants undetected. Moreover, signs of plant damage often mean that the optimal treatment window has passed for reducing populations of the pest responsible for the damage. For these reasons, belowground pests can be some of the most challenging pests to manage in turfgrass systems.

Obscure Turfgrass Beetle Pests

Hunting billbugs and several white grub species can be damaging and difficult-to-detect turfgrass pests. White grubs are the larval stage of scarab beetles and come in multiple sizes depending on the species and maturity of the larva. Grubs damage turf by consuming roots within the soil, disabling the turf from being able to uptake water and nutrients. What you or the client sees appears to be drought stress, until you look beneath the surface and find no roots and/or C-shaped white grubs lying in the soil. *Continued on Page 11*

At this point the damage is done, and curative approaches to pest management may be necessary. For this reason, the conventional approach to white grub management is preventive insecticide applications to turf areas with a history of white grub infestations. Fortunately, there are several newer insecticides such as chlorantraniliprole, tetraniliprole, and novaluron that can provide effective preventive control while posing substantially less risk than traditional insecticides to beneficial organisms also living in turfgrass areas.

HUNTING BILLBUGS are weevils (beetles with “snouts”) with a unique life history compared to many other turfgrass-feeders. They spend each life stage in a different part of the turfgrass profile. The eggs and young larvae occur in turfgrass stems, older larvae and pupae occur around the soil surface, and adults live and feed in the turf canopy.

Hunting billbugs have recently been a leading topic of conversation in the southeastern turfgrass industry. Beginning in late summer and continuing through the fall, sod growers, golf course superintendents, and pest control professionals alike notice patchy dieback that resembles drought stress, but without drought. Similar to white grubs, once drought stress signs begin to show up, the damage has been done for that season.

Effective hunting billbug management requires targeting spring populations that are emerging from the cooler winter months and the young larvae that begin to develop in the spring. Billbugs tend to spend the winter as adults in weedy areas or along



▲ Closeup of ground pearl nymphs next to a ruler. Hairlike mouthpart can be seen emerging from the right of the far-right pearl.

Photo at top: Lyle Buss
Photo at left: Justin Cret



Hunting billbug side view

forest edges where there is more complex and diverse vegetation to seek refuge. Once the weather warms and days lengthen, billbug adults migrate into turfgrass stands where they can begin to reproduce and actively feed.

Hunting billbugs will feed on any warm-season turfgrass but are most damaging to zoysiagrass, except for ‘Diamond’ zoysia, which is reportedly resistant.

A critical tool for detecting adult billbug spring activity are pitfall traps. In February – April, depending on region, place a Solo cup or something similar into the soil so that the lip of the cup is level with the soil surface. As billbug adults walk across the soil they will fall into the cup and become trapped. Their frequent presence in the cups is a key indicator that spring activity has arrived and it is the most effective time to target them with insecticides. If yellow or brown turf foliage is noticed, do a “tug test” on that tissue by lightly tugging on it from the top. If it breaks in half and the stem is filled with a sawdustlike material, billbug larvae were likely feeding in it.

Hidden turfgrass sap-feeders

One of the most obscure and difficult-to-manage subterranean insect pests of turfgrasses in the South are ground pearls. These sap-feeding insects are scale insects, like the ones you see on ornamental plants, that live in the soil and feed on turfgrass roots. Ground pearl nymphs look like pearls — hence their name — with a hairlike mouthpart tapped into root tissue. The only way to find ground pearls is by digging them out of the soil, which is certainly not ideal for preserving an intact turfgrass lawn.

Ground pearl damage most frequently occurs in centipedegrass lawns and will appear as rings of yellowing foliage. Unfortunately, there is no way to know you have a ground pearl infestation until the damage shows up.

These insects are very patchily distributed, so blanket insecticide applications to entire lawns is inefficient and likely ineffective. Therefore, spot-treating damaged areas with systemic insecticides and/or contact-toxic products that are aggressively watered in is the primary approach to control.



Ground pearl adult near center and nymph near bottom of quarter used to indicate size

Insect photo:
Larry Williams



Northern mole cricket closeup

Photo at right: Mole cricket species that occur in the Southeast.

Photos by USGS (top) and Lyle Buss (right)



Northern

Shortwinged

Tawny

Southern

Invasive mole crickets

The final group of subterranean turfgrass insect pests are invasive mole crickets. There are three invasive mole cricket species in the southeastern United States: the southern, tawny, and shortwinged mole cricket.

As their name implies, mole crickets tunnel through the soil like moles, uprooting plants and feeding on root tissue. This can be problematic for high-maintenance turfgrass areas that need uniform playing surfaces, like golf courses and athletic fields. It can also thin out turfgrass stands, facilitating weed invasion and an overall decline in turfgrass performance.

Mole crickets prefer low-lying, wet soils and are highly attracted to lights kept on at night. Therefore, turning off night lights and targeting low-lying turfgrass areas with monitoring and management efforts is recommended.

Monitoring is a critical component of mole cricket management. The most effective survey method is a soapy water flush, where you pour a dish detergent solution onto a turfgrass area with suspected mole cricket damage. Any mole crickets inhabiting that soil will come to the surface for fresh air, telling you their presence/absence, density, and life stage.

The optimal time for mole cricket intervention with

insecticides is also in the spring, when young nymphs about one-half inch long make up most of the population. For any insect enthusiast, mole crickets are hands-down the most fascinating turfgrass pests out there.

The bottom line on belowground bugs

When it comes to managing turfgrass insect pests, those that live and feed out of sight can be the most challenging pests to manage. Out of sight frequently means out of mind, which often results in plant damage and more expensive intervention. Therefore, I highly recommend becoming familiar with the belowground pests that may occur in your area and in the turfgrass types that you're managing.

Once you know what could show up, you can actively monitor for them and stay ahead of the damage. **PP**

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