Certified Turfgrass Professional Review: Turfgrass Insects of Importance in the MidAtlantic

Drs. Tom Kuhar, Rod Youngman, and PhD Candidate Sudan Gyawaly provide this review of the identification features of these surface and subsurface insects in preparation for the Turf and Pest Identification and General Core Knowledge portions of certification testing. Use this material in combination with the Turfgrass Certification Training Manual in preparation for this portion of the exam.
White grubs
(larvae of scarab beetles)
Grub Complex from Ohio, similar to VA but we lack European Chafer.

May/June Beetle
green June beetle

European chafer

Japanese beetle
Masked chafer

Oriental beetle
Asiatic garden beetle

Ataenius
White Grub Anatomy

- Head
- Legs
- Abdomen
- Raster
- Raster Pattern
White Grubs are easily identified by a pattern of spines on the Raster.
Common White Grubs of Virginia, and Raster Patterns

Asiatic garden beetle

Japanese beetle

Masked Chafer

May/June beetle
Common White Grubs of Virginia, and Raster Patterns

Black Turfgrass Ataenius

Green June Beetle
Japanese beetle, *Popillia japonica*

- Introduced from Japan in the early 1900s

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Image of a Japanese beetle on a leaf and a map showing the spread of Japanese beetles in North America from 1908 to 1998.
Raster setae, Japanese beetle

- Stout short setae ("spines")
- V-shaped pattern
- Setae, which form V pattern lie flat against body
White grub/Japanese beetle life cycle

- Adults emerge about mid-June
- Feed on plants, fruit trees and shrubs
- Aggregation pheromone and sex pheromone (Japonolure)
- Female burrows 2-4 inches in soil; lays 1-5 eggs in clutches over 2-3 wk period; 60-70 egg cap.
- Egg laying in mid-late August
White grub/Japanese beetle life cycle

• In the fall (Oct), grubs burrow 4-8 in. deep when soil temp (at 1”) drops below 60°F, grubs can survive 25°F
• Grubs return to surface in April when soil temp at 5-6” depth rises above 50°F
• Grubs feed until June; pupate in earthen cell 1-3” deep
• Adults emerge in late June to restart life cycle
White grub/Japanese beetle weak link

- **Soil moisture**: eggs need moist soil to complete development before hatching, eggs need to take up water – eggs will die if soil is too dry or if soil is waterlogged.
- Hatch in 8-9 days, 80-90°F
- First instar: 2-4 weeks
- Second instar: 2.5-7 weeks
- Tunnel laterally feeding on roots
Black turfgrass ataenius,
*Ataenius spretulus*

Small grubs and beetles
Black turfgrass ataenius, *Ataenius spretulus*

- Common in VA, but usually controlled by spring applications for annual white grubs
- 2-3 gen/yr
- 20-30 g/ft sq can cause damage to turf
- Grubs - check soil just beneath thatch layer
- Adults - visual inspection of thatch or use detergent drench
Black turfgrass ataenius

BTA has 2 generations/year in VA. Second gen. adults are non-damaging - represents OW stage in thatch layer.
Green June Beetle

- Common in most of Virginia
- Back crawlers, very short true legs
- Feed on rotting organic matter in addition to grass roots
Green June beetle

- Adult beetles active during summer and lay eggs
- Skunks, raccoons, crows love tearing up your fairways and lawns in the fall for these WGs as well as other WG species
Masked chafers

- 2 species, grubs cannot be separated by setae on raster
- Northern masked chafer, *Cyclocephala borealis*
- Southern masked chafer, *Cyclocephala immaculata*
- Beetle shown is NMC, note upright hairs (setae) on wing cover
Masked chafer, *Cyclocephala* sp.
Surface Feeders - Lepidoptera

- Armyworms
- Cutworms
- Sod Webworm
- All are caterpillars (larva), and have chewing mouthparts
- Generally easier to detect than grubs, time insecticides, and control due to exposed habit
- Usually notice damage first –
- You can use detergent drench to bring larvae to the surface.
Sod webworms  
( several species in the moth family Crambidae )

- **Adults** have characteristic elongated mouthpart that forms a snout and their wings are folded about the body in a resting position.

- **Larvae** have dark, circular spots and coarse hairs scattered over the body.
Fall Armyworm

- *Spodoptera frugiperda*
- Migratory moth and attacks in late summer or fall rather than early summer
Fall Armyworm

- Preferred hosts are Bermudagrass, ryegrass, fescue, and bluegrass.
- All plant parts above ground are consumed.
Black Cutworm

- Sporadic in VA
- More common in Tidewater area where it can usually overwinter
- Like other cutworms and armyworms, BCW is more common in dry years following a mild winter
- Cutworms are semi-subterranean
Chinch bugs

• Different species found on different grasses
  • Hairy chinch bug, *Blissus leucopterus hirtus*
  • HCB hosts: – bluegrass, red fescue, p. ryegrass, bentgrass, and zoysia
  • Common chinch bug, *Blissus leucopterus leucopterus*
  • Found in VA, but not commonly considered as pests
  • Adult is small, about 1/4” long (3.5 mm)

So. chinch bug, *Blissus insularis*, is not known to occur in VA
Hosts: warm season grasses – preferred host is St. Augustinegrass, but will
feed on bermudagrass, bahiagrass, centipedegrass, and zoysia as long as
in close association with St. Augustinegrass
Billbugs
Family: Curculionidae (weevils)
Sphenophorus spp.

- **Bluegrass billbug** - cool season turf - first appeared on creeping bentgrass greens in Williamsburg in 2007
- **Hunting billbug** - cool & warm turf – bermudagrass and zoysia
- Both have similar life history, 1 gen/yr; adults OW; become active in spring when soil temp. at 1” depth is 67-68°F
  - Found in VA, but rarely a pest
- Larvae (similar to tiny WGs but no legs)
- Adults: Initial feeding damage late Mar. - Apr.) treating at this time kills adults before peak egg-laying.