

White Grubs & Other Turf Pests

PJ Liesch
UW-Madison Dept. Entomology
pliesch@wisc.edu
[@WisconsinBugGuy](https://twitter.com/WisconsinBugGuy)



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Managing Turfgrass Insects—Tips

- Be familiar with common pests, symptoms and how to scout
- Proper ID is critical (friend vs foe vs bystander)
- Understand the biology, life-cycles, and habits of turf pests
- Understand management options & caveats (Extension publications)

[UW Turfgrass Diagnostic Lab: tdl.wisc.edu](http://tdl.wisc.edu)

[UW Insect Diagnostic Lab: insectlab.russell.wisc.edu](http://insectlab.russell.wisc.edu)



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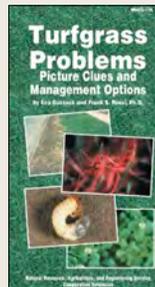
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Scouting & Tools

Turf damage isn't always easy to ID. Use scouting to find additional clues to narrow down the cause.

Tools

- Field Guides/apps
- Magnifier loupe (10x)
- Shovel or other digging tool
- Pocket knife/multitool
- Vials, etc. (for samples)

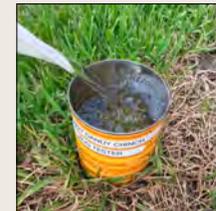


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Scouting for Turfgrass Pests

- Visual Inspection
 - Digging
- Coffee Can Method
- Soap Solution Method



[Turf insects: Looking for bugs in all the right places \(Pat Vittum, GCM Nov 2020\)](#)

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Main Turf Insect Pests in the Midwest

1. White Grubs
2. Black Turfgrass Ataenius
3. Billbugs
4. Annual Bluegrass Weevil
5. Cutworms
6. Sod Webworm
7. Armyworms
8. Chinch Bugs
9. Ants

White grubs are our most consistent and damaging turf insects



<https://hort.extension.wisc.edu/files/2021/11/A3714-1.pdf>



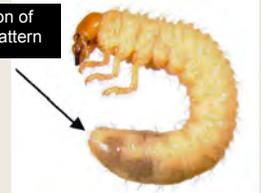
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White Grubs

- Larvae of Scarab beetles
 - C-shaped Bodies; orange head capsule
 - 3 pairs of legs
 - Chewing Mouthparts
- ~6 types are pests in Great Lakes Region
- Species ID'ed by raster pattern at posterior end of body
 - Pattern of spines/hairs

Location of raster pattern



Size varies by species and growth stage (instar)



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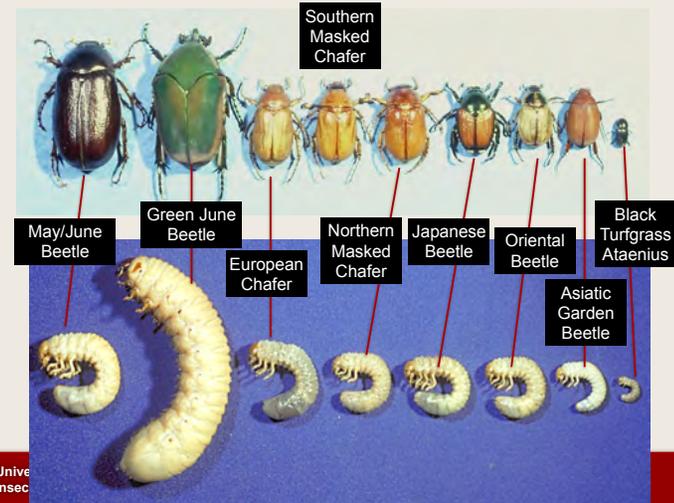
Grub Damage

Scouting: visual inspection; digging



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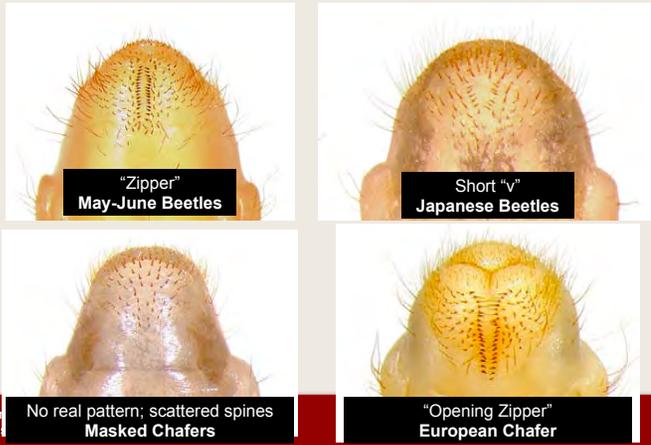
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White Grub Raster Patterns



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White Grub Pest Species in Midwest

- Japanese beetle (annual grub)
 - May/June beetle (3 years per generation)
 - Masked Chafers (annual grub)
 - European Chafer (annual grub)
 - Black Turfgrass *Ataenius* (2 generations per year)
- **Scouting:** visual inspection & digging

<https://hort.extension.wisc.edu/articles/grub-control-home-lawn/>

<https://extension.entm.purdue.edu/publications/E-271/E-271.pdf>



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Japanese Beetle (*Popillia japonica*)

- Scarab beetle native to Japan; New Jersey in 1916
- Found across much of eastern US; some pockets in West
- Adults: above ground foliar feeder (350+ plants!)
- Larvae: white grubs; below-ground turf pest



Adults: ~1/3" long; copper & green colored; white spots along side of body



Grubs
~1/2" long

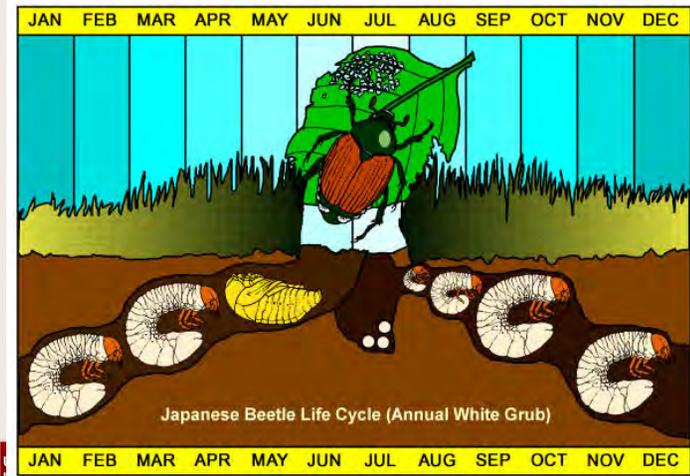


"V"-Shaped Raster Pattern



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Japanese beetles in WI

Approximate Northern extent of Japanese beetles in Wisconsin

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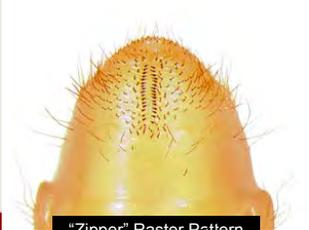
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May/June Beetles (*Phyllophaga* species)

- Native scarab beetles
 - Dozens of species in US—29 in Wisconsin alone!
- Adults: above ground foliar feeder (typically minor pest)
- Larvae: below-ground plant pest of turfgrass and other plants



Adults: Up to 1" long; brownish body



"Zipper" Raster Pattern



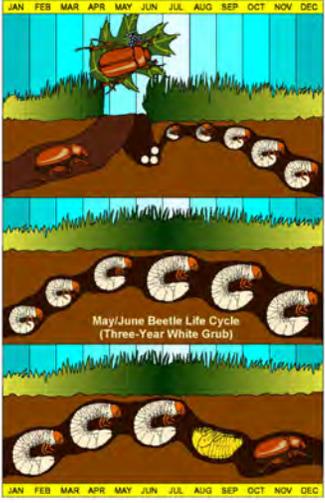
Grubs ~1+'' long

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May/June Beetles

- Can be very localized
- 3-year life cycle (most species)
 - Can have overlapping generations and mixture of sizes
- Our most challenging white grub to control!**



May/June Beetle Life Cycle (Three-Year White Grub)

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May/June beetles in WI

Can be found statewide...

...but distribution is "spotty" in both space and time



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Masked Chafers (*Cyclocephala* species)

- Native to North America—uncommon in Wisconsin
 - Northern Masked Chafer (far southern WI)
 - Southern Masked Chafer (not in WI*)
- Adults: above ground foliar feeder (typically a minor pest)
- Larvae: white grubs; below-ground plant pest (turf, etc.)



Grubs
~3/4+” long



Adults: ~1/2” long;
brownish body

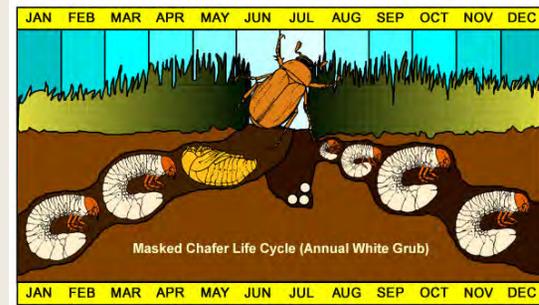


Raster: No real pattern; scattered spines

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Masked Chafer Biology

- Life cycle (timing) nearly identical to Japanese beetle!
- Grubs problematic in late summer



<https://learningstore.uwex.edu/Northern-Masked-Chafer-P1835.aspx>

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Masked Chafers in WI



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European Chafers (*Amphimallon majale*)

- Native to Europe—found in US (New York) in 1940's
 - Problematic in northeastern US
- Adults: resemble May/June beetles, but tend to be lighter color
- Larvae: white grubs; below-ground plant pest (turf, etc.)



Grubs
~3/4+” long



Adults: ~1/2” long;
brownish body



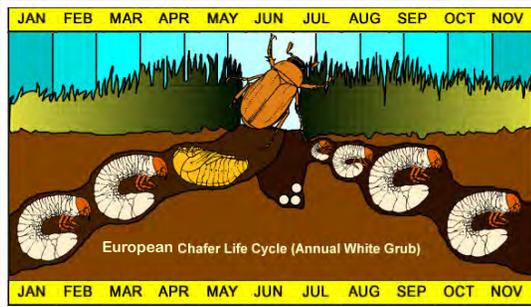
Raster Pattern: “Opening Zipper”

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European Chafer Biology

- Adults emerge a few weeks earlier than Japanese beetles
- Grubs problematic in late summer



<https://learningstore.uwex.edu/European-Chafer-P1831.aspx>



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European Chafers in WI



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White Grub Management

- Cultural/Physical**
 - Maintain turf health (fertilization, mowing, irrigation)
 - Don't use Japanese beetle traps!
 - Tolerate damage, re-seed or renovate after damage
- Biological**
 - Entomopathogenic nematodes, milky spore disease
 - Can be "finicky"; results often poor
 - Bacillus thuringiensis galleriae* (Btg) available for grubs
- Chemical**
 - Both preventative and curative chemical controls available



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Preventative vs. Curative

- | | |
|---|---|
| <ul style="list-style-type: none"> Like "insurance" Apply BEFORE or at egg hatch! Long-residual activity (> 100 days) Good control (90+% control) Often not effective against big grubs | <ul style="list-style-type: none"> "Reactive" or "Corrective" Applied once grubs are noticed Short-residual activity (<10 days) Best against smaller grubs |
|---|---|

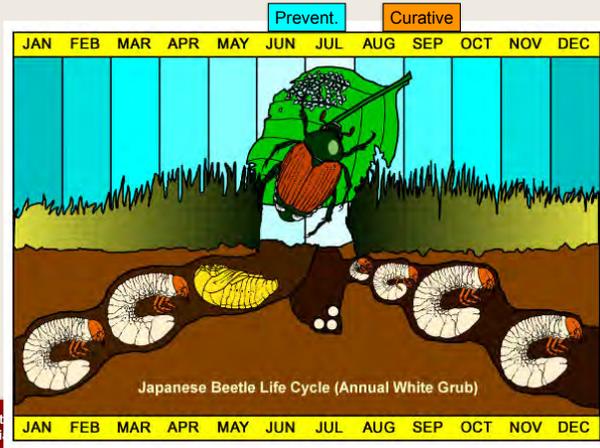
Examples:

- | | |
|---|---|
| <ul style="list-style-type: none"> Diamides: chlorantraniliprole + cyantraniliprole Neonicotinoids: clothianidin, dinotefuran, imidacloprid, thiamethoxam | <ul style="list-style-type: none"> Organophosphates: (Dylox) trichlorfon Carbamate: (Sevin) carbaryl Neonicotinoids: (Arena) clothianidin*, thiamethoxam* |
|---|---|



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Treatment Timing for Whiter Grubs



Importance of Irrigation for Grub Control:

- Any chemical treatment must be watered in to reach target area!
- Try to use water volume of >1 gallon/M
- Irrigate, or apply just before a gentle rainfall (~1/4")



Information on controlling turf pests while also conserving pollinators

<https://hort.extension.wisc.edu/files/2022/07/A4128-1.pdf>

Bluegrass Billbug (*Sphenophorus parvulus*)*

- A type of weevil (beetle with a "snout")
- Adults: ~ 1/4" long, black colored beetles
- Larvae: pale legless grubs ~1/4" long; chewing mouthparts
- Common, but often a minor pest
- Overwinter as adults; 1 generation per year



Billbug Damage

- Prefer highly maintained bluegrass areas
- Damage often seen in June-July
- Damage (brownish patches) resembles drought stress, diseases, or injury from other turfgrass insect pests
- Adult billbugs chew holes in grass stems, *damage is minor*
- Eggs are laid within grass stems near the crown
- Larvae tunnel inside the stem; *ultimately feeding on the crown*



Damage:
Irregular
Brownish Patch



Billbug Scouting

- **Scouting:** visual inspection; digging; pitfall traps; “tug test”



Brown patches of turf



Tug test



Larvae in root zone
and in stems/tillers



Wandering
Adults



Billbug Management

- Several approaches to managing billbugs:
 - *Will be influenced by site history and scouting*
 - 1. Target adults prior to egg laying with short-term residual
 - 2. Target larvae similar to curative white grub treatments
 - 3. Systemic products for season-long control
- **Carbamate:** carbaryl
- **Diamides:** chlorantraniliprole, cyantraniliprole
- **Neonicotinoids:** chlothianidin, thiamethoxam, dinotefuran, imidacloprid
- **Pyrethroids:** bifenthrin, cyfluthrin, cypermethrin, lambda-cyhalothrin...



Cutworms in Turf

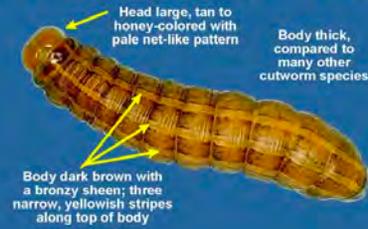
- Several cutworm caterpillars can be occasional turf pests
 - Appearance, life cycle, and habits vary by species
 - Caterpillars reach lengths of up to ~ 2”
- Use chewing mouthparts to physically eat grass
 - Damage: Brownish strips and patches
- Often nocturnal—*hide during the day*



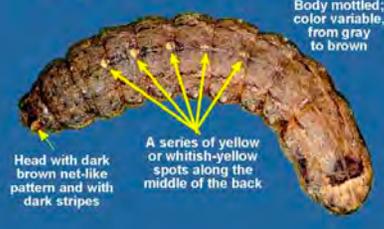
Cutworms: Common Generalists

- Sporadic/occasional turf pests
- Can feed on a wide range of grasses; sometimes other plants (vegetables, etc.)

Bronzed Cutworm Identification



Variiegated Cutworm Identification



Winter Cutworms

- Most often spotted in fall/winter/spring
- Common, but generally not a turf pest



Black Cutworms: Golf Course Turf

- Migratory pest: arrive in spring and have 2-3 generations
- Strongly associated with bentgrass = pest of golf course turf, but not home lawns



Black Cutworm Identification



Sod Webworms (Family Crambidae)

- Many different species (12+) in our area (similar habits & control)
- Adults: slender pale moths; w/distinctive snout (~3/4" long)
 - Readily flutter up from lawns but don't cause damage
- Larvae: pale caterpillars w/spots; up to ~1" long; **chewing mouthparts**
 - Live in silk-lined tunnels in thatch layer



Sod Webworm Biology & Damage

- Many species in Midwest; typically with 2+ generations per year
- Tend to overwinter as caterpillars
- Caterpillars live in silk-lined tunnels in thatch; feed at night
- Damage: patches of brownish, thinning dead turf
 - If severe: large irregular brown patches of closely-cropped grass
 - Attack just about any cool-season turfgrass

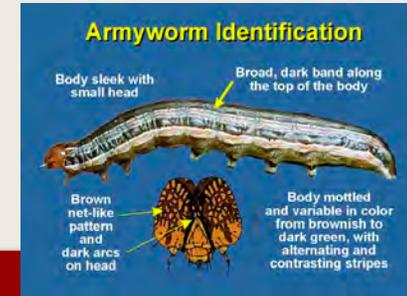


True Armyworms (*Mythimna unipuncta*)

- Occasional turf pest—also attack corn, wheat, etc.
- Adults: beige moth (~1.5" long); tiny white spot on each wing
- Larvae: black caterpillars w/ orange and white stripes; up to 1.5" long
 - **Chewing mouthparts**
- Doesn't overwinter in WI; arrives and goes through 2-3 generations



Adult TAW Moth



True Armyworm Damage

- Feed on all turf grasses—also corn, wheat and some other crops
- Occasionally "march" in large "hordes" during outbreaks
 - *Pay close attention near ag fields*
- Consume entire above-ground portion of turfgrass
- Not a common turf pest
- **Scouting**: visual inspection; soap solution. *Late July**



True Armyworm Activity: July 2025



Fall Armyworms

- Migratory pest—tropical/subtropical species
 - Rarely problematic in Wisconsin
- Caterpillars (1.5+”) are damaging life stage
 - **Chewing mouthparts**
- **Scouting:** visual inspection; soap solution



Egg mass



Adult FAW Moth



Fall Armyworm Caterpillar



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Caterpillar Management in Turf

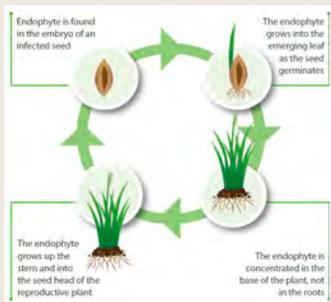
- **Cultural/Physical**
 - Maintain turf health (fertilization, mowing, irrigation)
 - Tolerate damage, re-seed/renovate after damage
 - **Scouting:** visual inspection; soap solution
- **Biological**
 - Endophyte-infected turf grasses help control (SWW)
- **Chemical**
 - Conventional contact insecticides if needed (liquid/granular)
 - Some professional turf products provide long-term control



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Endophyte Infected Turfgrass



- **Endophyte:** specialized fungus that lives within plant
- Produces compounds toxic to other organisms



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Chinch Bugs (*Blissus leucopterus*)

- Tiny B&W insects with **sucking mouthparts**; ~1/8” long
- Simple metamorphosis: adults and nymphs look similar and cause similar damage
- Overwinter as adults in turf; 2 generations per year
- Attack just about any cool-season turfgrass
- Thrive under hot/dry conditions



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Chinch Bug Damage

- Suck fluids from leaves, stems and crowns
- Result: yellowing and eventual browning; plant death possible
- Damage most common in sunny areas during **hot/dry weather**
 - Damage resembles drought stress
 - Often noted in July/August



Chinch Bug Scouting

- Coffee can method:
 - Use metal cylinder (empty coffee can w/both ends cut off)
 - Press onto ground, fill with water, swirl with hand



Coffee Can
Float Method



Chinch Bug Management

- **Cultural/Physical**
 - Maintain turf health (fertilization, mowing, irrigation)
 - Tolerate damage, re-seed/renovate after damage
- **Biological**
 - Endophyte-infected turf grasses help control
 - Perennial ryegrass & tall fescue
- **Chemical**
 - Conventional insecticides provide adequate control if needed
 - Some systemic products offer long-term control
 - Contact insecticides (pyrethroids, etc.) offer short-term control
 - Both granular and liquid formulations work



Ants

Some ants species can be a nuisance in home lawn and on golf course turf—
context matters!



Turfgrass Ant
Lasius neoniger



Field Ant Nest
Formica sp.
(Big nests: 12'+ wide!)

