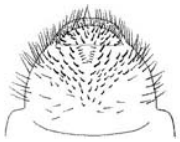
White Grubs (Japanese Beetle, May/June Beetle, Masked Chafer, Green June Beetle, European Chafer, Asiatic Garden Beetle, Oriental Beetle, Black Turfgrass Ataenius)

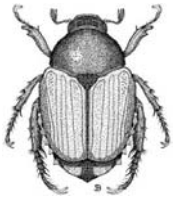
There are 8 different white grubs that are commonly known to cause turfgrass plant damage. They include the Japanese beetle, May and June beetle, masked chafer, green June beetle, European chafer, Asiatic garden beetle, oriental beetle, and black turfgrass ataenius. They all do the most damage in their larval stage, although some adults can also cause damage.

Japanese Beetle (*Popillia japonica*)


Japanese beetles are concentrated mostly in the northeastern and Mid Atlantic states. The Japanese beetle larvae are the primary cause of turf damage. They feed on turfgrass roots, which causes yellowing and a wilting, thinning appearance to the plants. Turf that has been damaged can easily be rolled or lifted back from the soil because the grubs have eaten through the fibrous roots.



Typical Japanese beetle raster pattern.



Typical Japanese beetle adult.

Pictures: http://creatures.ifas.ufl.edu/orn/beetles/Japanese_beetle_02.htm; http://extension.usu.edu/files/publications/factsheet/ENT-100-06PR.pdf; http://ohioline.osu.edu/hyg-fact/2000/2510.html
Text: Handbook of Turfgrass Insect Pests by Rick Brandenburg and Michael Villani

For more information on Japanese beetles:

Ohio State University Extension Fact Sheet – Japanese Beetle
http://ohioline.osu.edu/hyg-fact/2000/2504.html

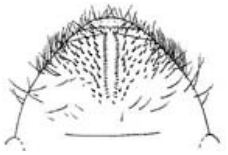
University of Maryland – Japanese Beetle
http://iaa.umd.edu/umturf/Insects/japanese_beetle.html

Utah State University Extension Fact Sheet – Japanese Beetle
http://extension.usu.edu/files/publications/factsheet/ENT-100-06PR.pdf

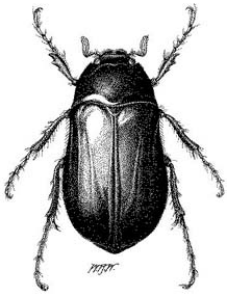
University of Florida – Japanese Beetle
http://edis.ifas.ufl.edu/IN630

May and June Beetles (*Phyllophaga* species)

May and June beetles can be found all across the United States. Both adults and larva can cause damage to turfgrass plants. The adults eat the leaves, but are often only considered a minor pest of turfgrass. However, the larvae can cause serious damage, which could result in the loss of an entire stand of turf. Grubs live in the soil where they consume plant roots. An identifying characteristic of grub damage is the ability to pull turf up from the surface. Turf will take on a drought stressed appearance as damage continues. Animals that feed on the grubs can also cause damage to the turf by digging it up in search of the grubs.



Typical May and June beetle raster pattern.



Typical May and June beetle adult.

Pictures: http://extension.missouri.edu/explore/agguides/pests/ipm1020mayjunebeetles.htm; http://ohioline.osu.edu/hyg-fact/2000/2510.html
Text: Handbook of Turfgrass Insect Pests by Rick Brandenburg and Michael Villani

For more information on May and June beetles:

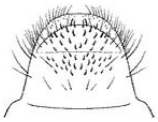
University of Maryland – May and June Beetles
http://iaa.umd.edu/umturf/Insects/May_June_Beetle.html

University of Minnesota – May/June Beetles
http://www.entomology.umn.edu/cues/Web/245MayJuneBeetles.pdf

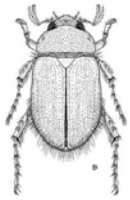
Masked Chafer

Northern Masked Chafer (*Cyclocephala borealis*)
Southern Masked Chafer (*Cyclocephala lurida*)

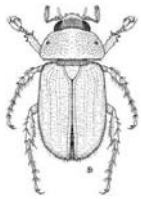

Masked chafers are concentrated mostly to the east of the Rocky Mountains in the United States. The northern masked chafer can be found in the northern part of the area where it can infest all cool season grass species. The southern masked chafer can be found in the southern part of this region. Both species live in the soil and feed on turfgrass roots during their larval stage. They eat the roots, which causes wilting, weakening and thinning of the turfgrass. Severely damaged areas can be lifted or rolled back. Predators cause further damage as they tear up the turf in search of the grubs for food.



Typical masked chafer raster pattern.



Typical adult northern masked chafer.



Typical adult southern masked chafer.

Pictures: http://ianrsearch.unl.edu/ianr/entomol/turfent/documnts/mchafers.htm; http://ohioline.osu.edu/hyg-fact/2000/2510.html
Text: Handbook of Turfgrass Insect Pests by Rick Brandenburg and Michael Villani

For more information on masked chafers:

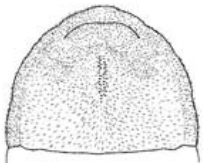
University of California IPM – Masked Chafers (White Grubs)
http://www.ipm.ucdavis.edu/PMG/r785301311.html

Ohio State University Extension Fact Sheet – Masked Chafers
http://ohioline.osu.edu/hyg-fact/2000/2505.html

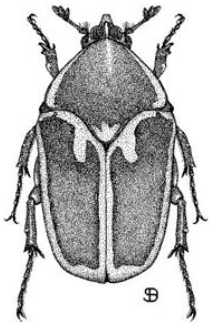
University of Maryland – Southern and Northern Masked Chafers
http://iaa.umd.edu/umturf/Insects/Masked_Chafer.html

Green June Beetles (*Cotinis nitida*)

Green June beetles can be found in the eastern part of the United States. Adults do not feed on turfgrasses; however, in their larval stage, they tunnel through the soil and feed on plant roots. This results in drought susceptibility and the ability to easily pull the grass away from the soil surface. Animals that feed on the larvae can also cause damage to the turf by digging it up in search of the grubs.



Typical green June beetle raster pattern.



Typical adult green June beetle.

Pictures: http://www.aces.edu/pubs/docs/A/ANR-0991/; http://www.ento.psu.edu/extension/factsheets/greenJuneBeetle.htm; http://ohioline.osu.edu/hyg-fact/2000/2510.html
Text: Handbook of Turfgrass Insect Pests by Rick Brandenburg and Michael Villani

For more information on green June beetles:

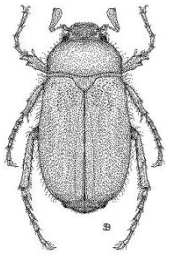
University of Maryland – Green June Beetle
http://iaa.umd.edu/umturf/Insects/Green_June_Beetle.html

Alabama Cooperative Extension System – Biology and Control of the Green June Beetle
http://www.aces.edu/pubs/docs/A/ANR-0991/

European Chafer (*Rhizotrogus* (*Amphimallon*) *majalis*)

The European chafer is concentrated mostly in the northeastern United States. The most damage is caused to turfgrass plant roots by European chafer grubs. The European chafer is a serious pest because it feeds late into the fall (August through November) and early in the spring (April through June). If temperatures are warm enough during winter months, they may also resume feeding. This creates a problem because turf is not actively growing during this time and cannot recover as quickly. Serious injury can also occur in drought situations. Entire turf areas may turn brown and pull away easily from the soil surface if heavily infested with the grubs.

Typical European chafer raster pattern.



Typical adult European chafer.

Pictures: http://berks.extension.psu.edu/Horticulture/FallEuroChafer.html; http://ohioline.osu.edu/hyg-fact/2000/2510.html
Text: Handbook of Turfgrass Insect Pests by Rick Brandenburg and Michael Villani

For more information on European chafers:

Purdue University – New White Grub Pests of Indiana
http://extension.entm.purdue.edu/publications/E-259.pdf

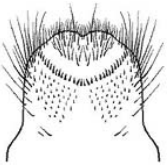
Ohio State – White Grubs in Turfgrass
http://ohioline.osu.edu/hyg-fact/2000/2500.html

Cornell University – Turfgrass Pest Management
http://ipmguidelines.org/Home/content/Book2/CH14/default.asp#_Toc167607360

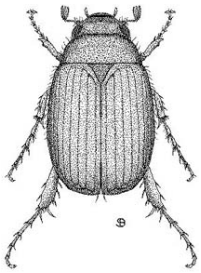
Penn State – Fall Management of the European Chafer
http://berks.extension.psu.edu/Horticulture/FallEuroChafer.html

Asiatic Garden Beetle (*Maladera castanea*)

The Asiatic garden beetle is concentrated mostly in the northeast. This beetle is a minor pest, but can still cause damage to turf areas. Adults may feed on grass blades, but most damage is caused by larvae, which feed on turfgrass roots. This causes the appearance of wilting, because the plants are unable to access water and nutrients in the soil. Turf can also easily be pulled away from the soil surface as the grubs feed on the root system.



Typical Asiatic garden beetle raster pattern.



Typical Asiatic garden beetle adult.

Pictures: http://www.ipmimages.org/browse/detail.cfm?imgnum=5171063; http://ohioline.osu.edu/hyg-fact/2000/2510.html
Text: Handbook of Turfgrass Insect Pests by Rick Brandenburg and Michael Villani

For more information on Asiatic garden beetles:

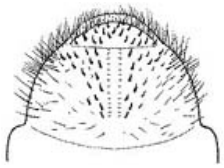
Ohio State University – Asiatic Garden Beetle
http://bugs.osu.edu/%7Ebugdoc/Shetlar/factsheet/turf/Asiaticgardenbeetle.htm
White Grubs in Turfgrass
http://ohioline.osu.edu/hyg-fact/2000/2500.html

Purdue University – New White Grub Pests of Indiana
http://extension.entm.purdue.edu/publications/E-259.pdf

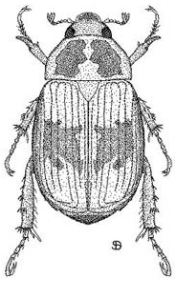
Cornell University – Turfgrass Pest Management
http://ipmguidelines.org/Home/content/Book2/CH14/default.asp#_Toc167607360

Oriental Beetle (*Exomala orientalis*)

The oriental beetle is concentrated in the northeastern United States. Although the adults cause minimal damage to turfgrass plants, the larvae can be serious pests. They feed on turfgrass roots and can cause complete destruction. Identifying characteristics are the ability to pull turf away from the soil surface because roots have been severed.



Typical oriental beetle raster pattern.



Typical oriental beetle adult.

Pictures: http://extension.entm.purdue.edu/CAPS/pestInfo/orientalBtl.htm; http://ohioline.osu.edu/hyg-fact/2000/2510.html
Text: Handbook of Turfgrass Insect Pests by Rick Brandenburg and Michael Villani

For more information on oriental beetles:

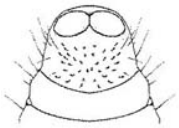
University of Minnesota – Oriental Beetles
http://www.entomology.umn.edu/cues/Web/247OrientalBeetle.pdf

Purdue University – New White Grub Pests of Indiana
http://extension.entm.purdue.edu/publications/E-259.pdf

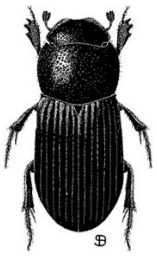
Cornell University – Turfgrass Pest Management
http://ipmguidelines.org/Home/content/Book2/CH14/default.asp#_Toc167607360

Black Turfgrass Ataenius (*Ataenius spretulus*)

The black turfgrass ataenius has been found all across the United States, but is most prevalent in Midwestern states, the Central Plains and northeastern states. Susceptible grasses include a variety of turf species with the most common being annual bluegrass, Kentucky bluegrass, and bentgrasses. Symptoms of black turfgrass ataenius infestation include wilting and gradual thinning of the turf, even when supplied with adequate water. These insects feed on the roots and thatch, which destroys the root system and allows the turf to be easily pulled or rolled back.



Typical black turfgrass ataenius raster pattern.



Typical black turfgrass ataenius adult.

Pictures: http://www.ipm.ucdavis.edu/PMG/r785300511.html; http://extension.missouri.edu/explore/agguides/pests/ipm1020blackturfgrassataenius.htm; http://ohioline.osu.edu/hyg-fact/2000/2510.html
Text: Handbook of Turfgrass Insect Pests by Rick Brandenburg and Michael Villani

For more information on black turfgrass ataenius:

University of California IPM – Black Turfgrass Ataenius
http://www.ipm.ucdavis.edu/PMG/r785300511.html

University of Maryland – Black Turfgrass Ataenius
http://iaa.umd.edu/umturf/Insects/Black_Turfgrass_Ataenius.html

Texas A&M – Black Turfgrass Ataenius
http://aggieturf.tamu.edu/aggieturf2/insect/blackturfgrass.html

University of Minnesota – Black turfgrass *Ataenius*
http://www.entomology.umn.edu/cues/Web/234BlackTurfgrassAtaenius.pdf

For more information on all the white grubs mentioned above:

Ohio State University Extension Fact Sheet – White Grubs in Turfgrass
http://ohioline.osu.edu/hyg-fact/2000/2500.html
Identification of White Grubs in Turfgrass
http://ohioline.osu.edu/hyg-fact/2000/2510.html

University of Georgia – White Grub Pests on Turfgrass
http://pubs.caes.uga.edu/caespubs/pubcd/l428-w.html

University of Kentucky – Controlling White Grubs in Turfgrass
http://www.ca.uky.edu/entomology/entfacts/entfactpdf/ent10.pdf

University of Nebraska – White Grubs in Turf
http://www.ianrpubs.unl.edu/epublic/live/g1619/build/g1619.pdf

Rutgers University – An Integrated Approach to Insect Management in Turfgrass: White Grubs
http://www.co.somerset.nj.us/pdf/JapBeetleFS.pdf