Common White Grubs Of Northeast Ohio Nurseries

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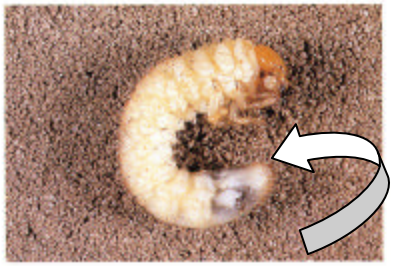
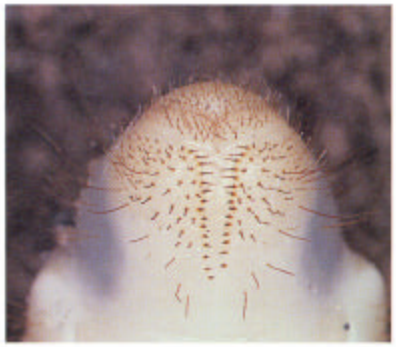
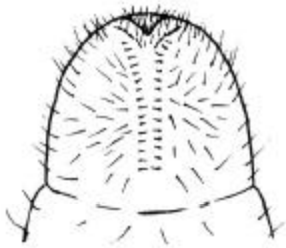
White Grub (Scarab) Identification by Rastral Pattern

A hand lens can be used in the field to identify white grubs by looking at the arrangement of spines and hairs on the last abdominal segment (the raster). The Northern masked chafer and Bumble flower beetle have random hairs that do not form a pattern (see photos on pages 7 and 8). See page 9 for a drawing of the Rose chafer rastral pattern.

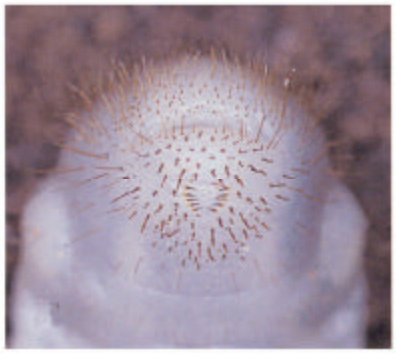


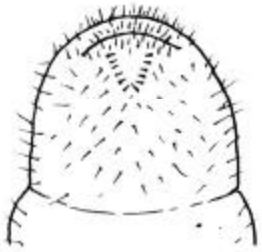
Location of raster on white grub



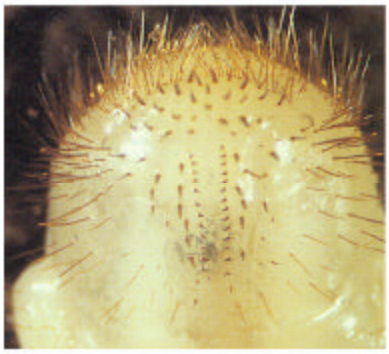


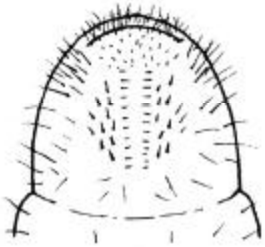
European chafer



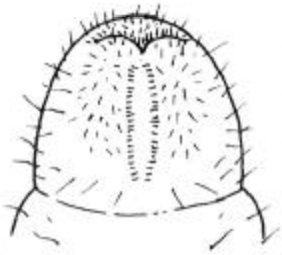


Japanese beetle

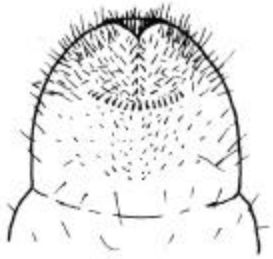




Oriental beetle



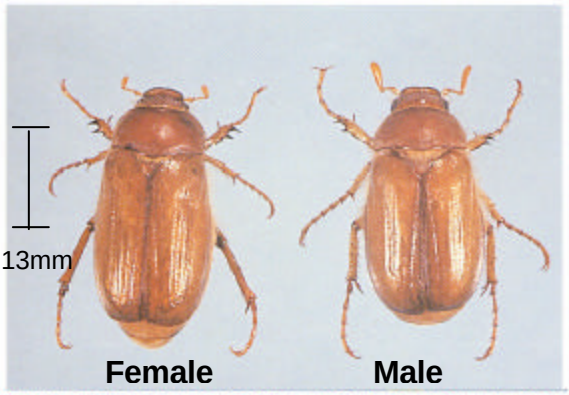
May-June beetle

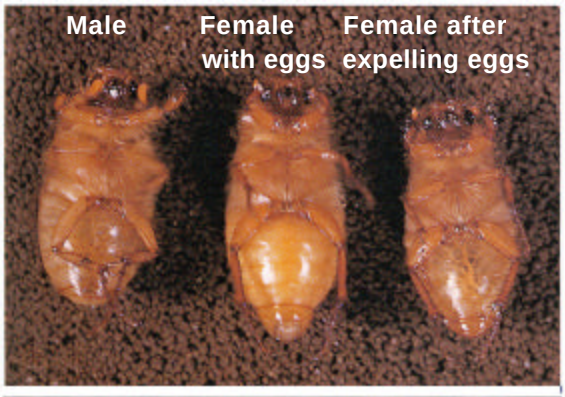


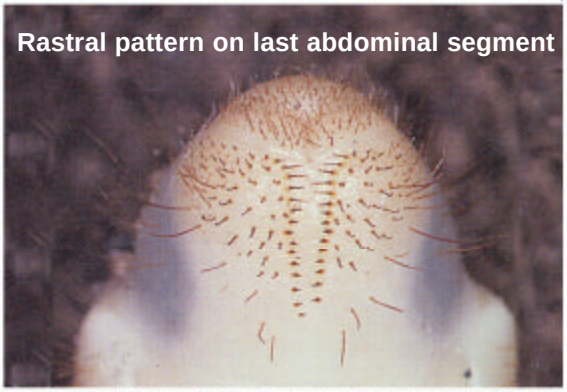
Asiatic garden beetle

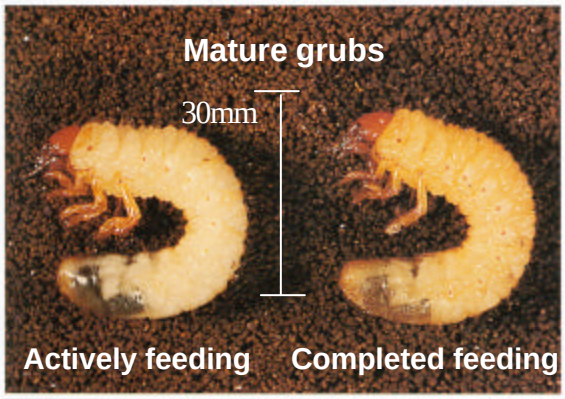
(Photos: NYSAES.)

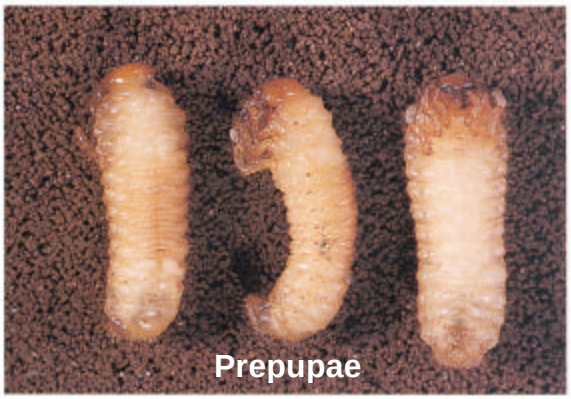
European chafer, *Rhizotrogus majalis*

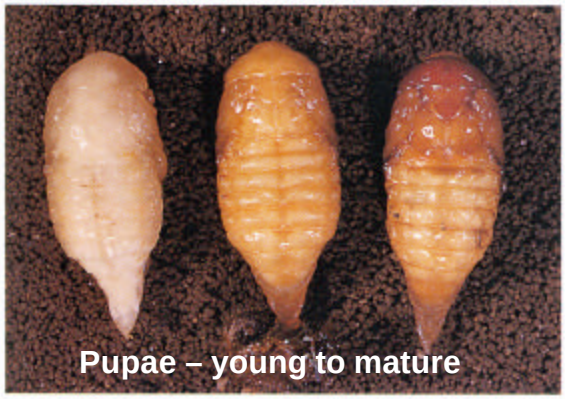






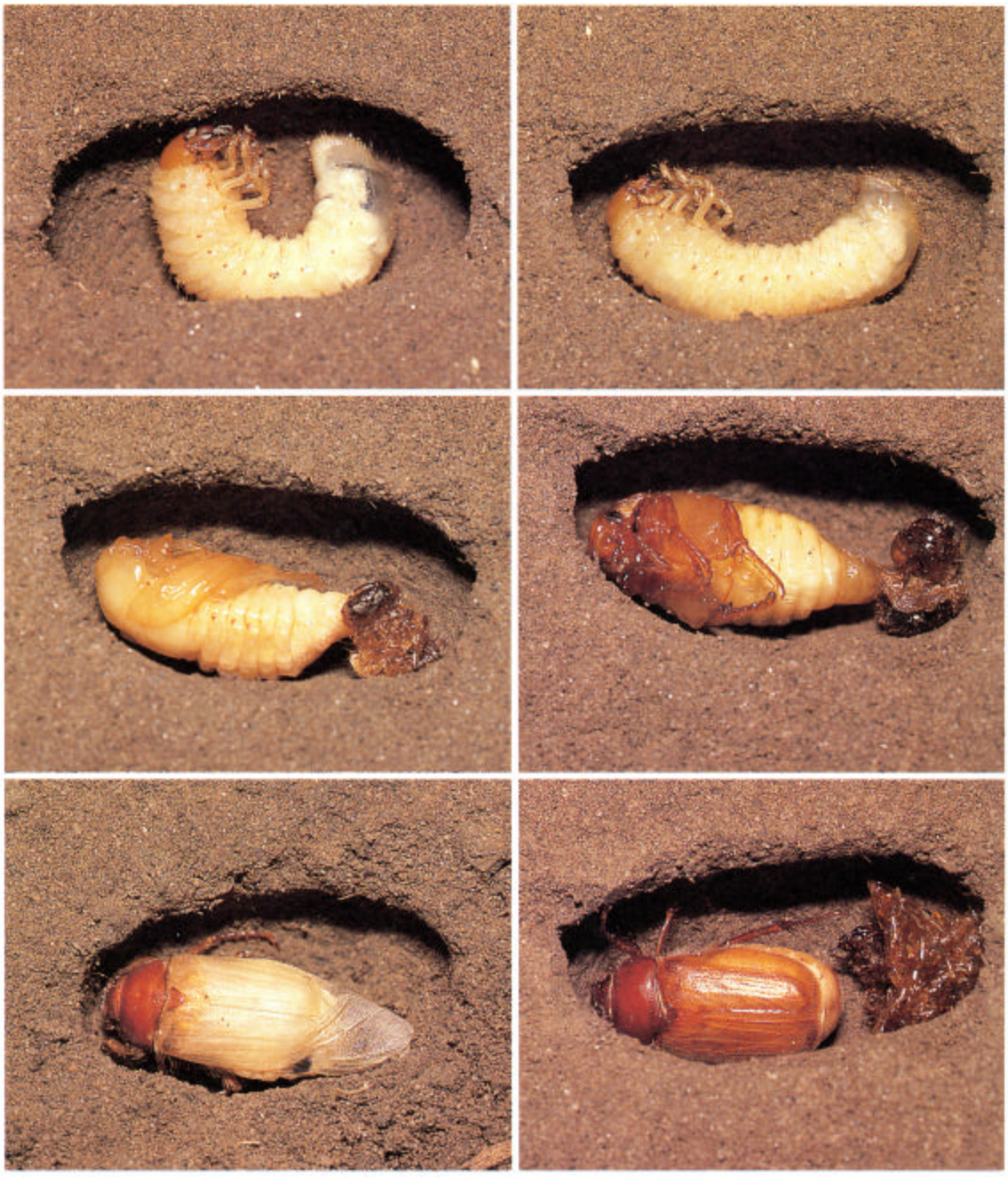






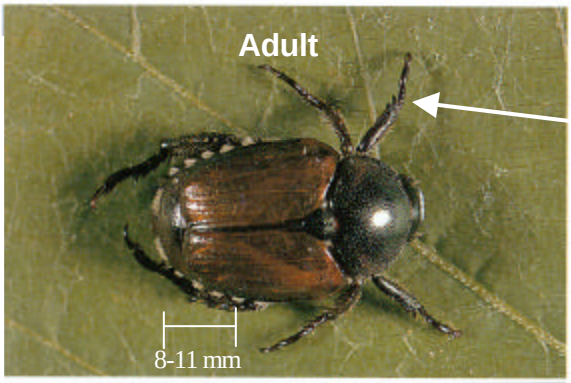
Photos: NYSAES

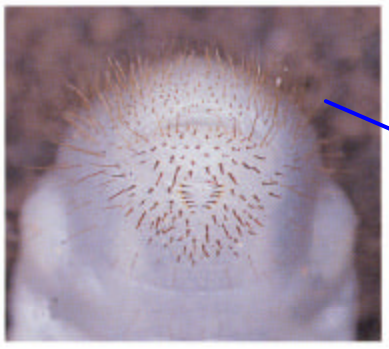
European chafer - larva to adult sequence



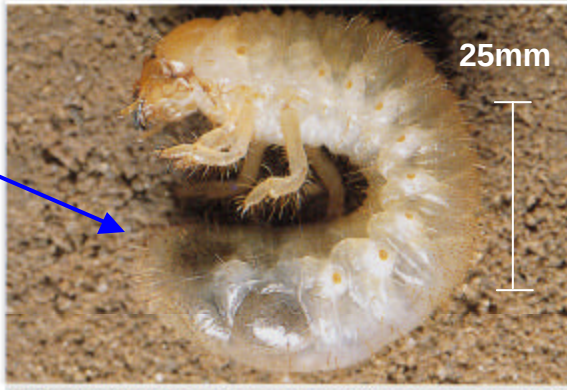
Photos: NYSAES

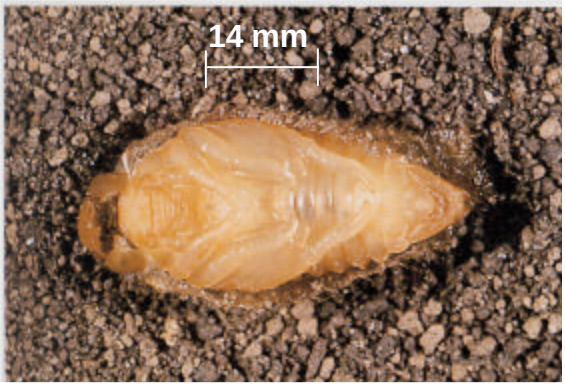
Japanese beetle, *Popillia japonica*





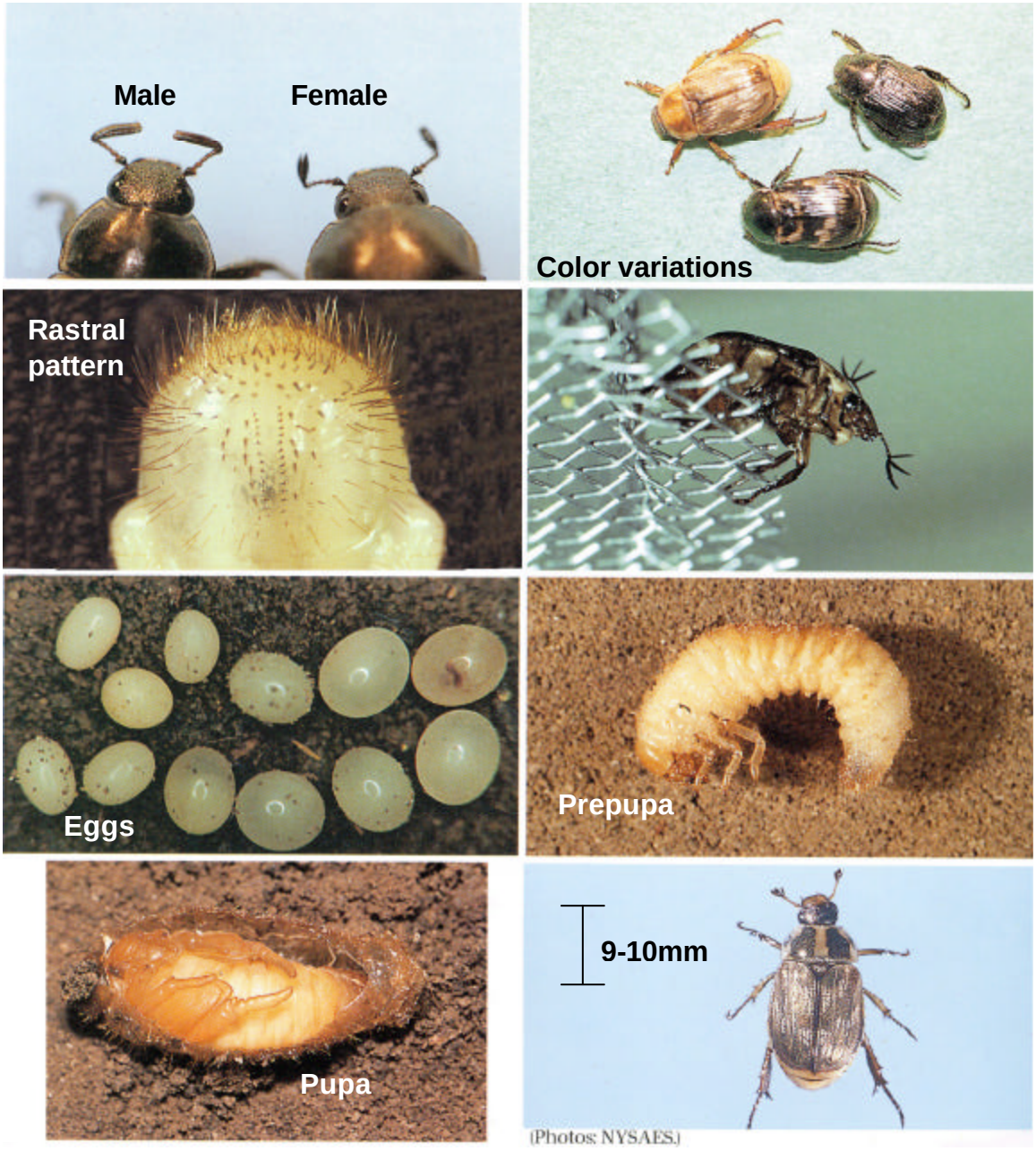
Rastral pattern on last abdominal segment





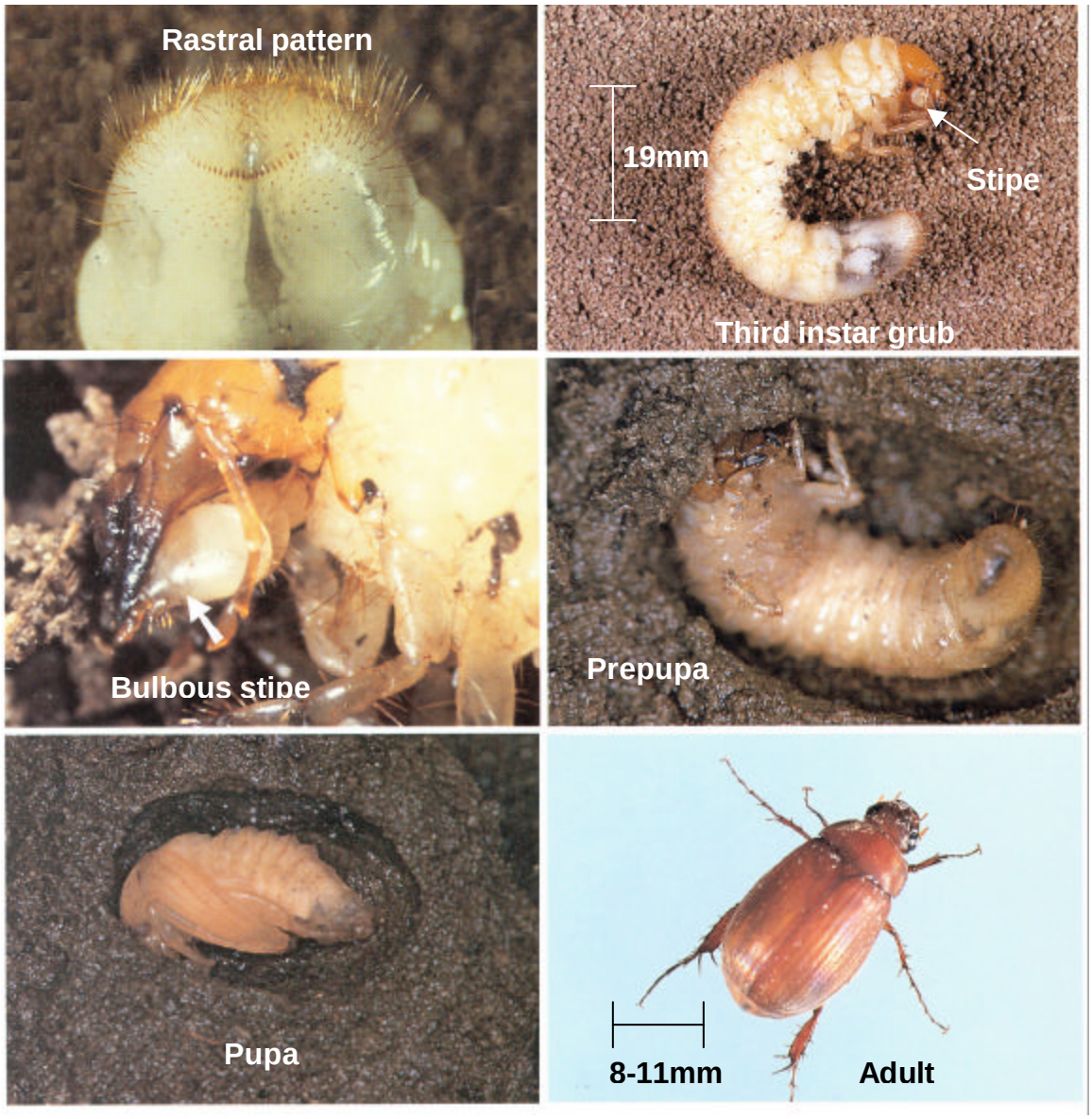
(Photos: NYSAES.)

Oriental beetle, *Anomala* (=*Exomala) orientalis*



Asiatic garden beetle, *Maladera castanea*

The bulbous stipe on the maxilla is a characteristic that distinguishes the Asiatic garden beetle larva from other white grubs.

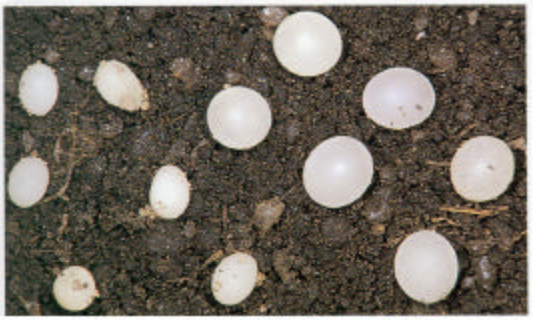


(Photos:NYSAES.)

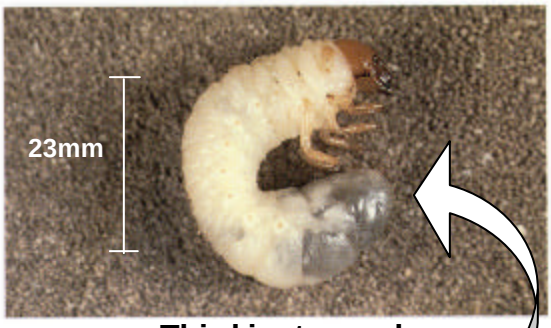
Northern Masked Chafer, *Cyclocephala borealis*

male

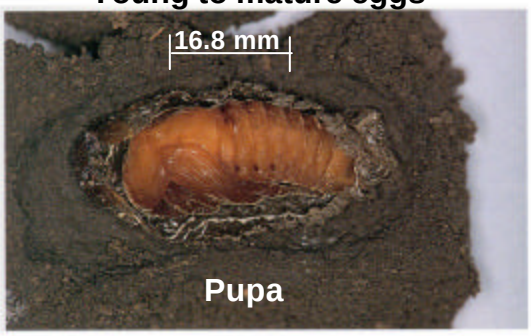
female



Young to mature eggs



Third instar grub

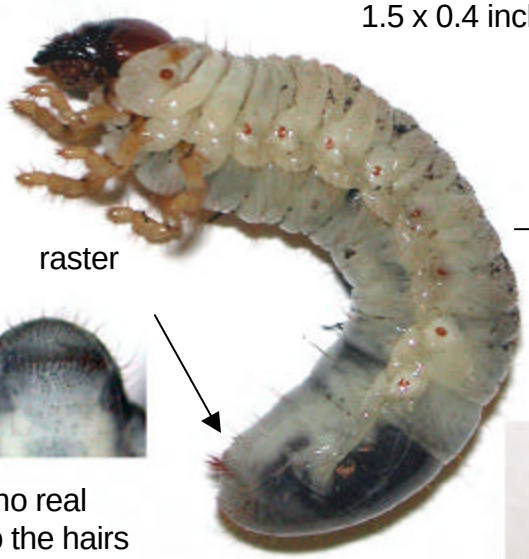


Rastral pattern on last abdominal segment

Bumble Flower Beetle, *Euphoria inda* L.

Third instar larva

1.5 x 0.4 inches



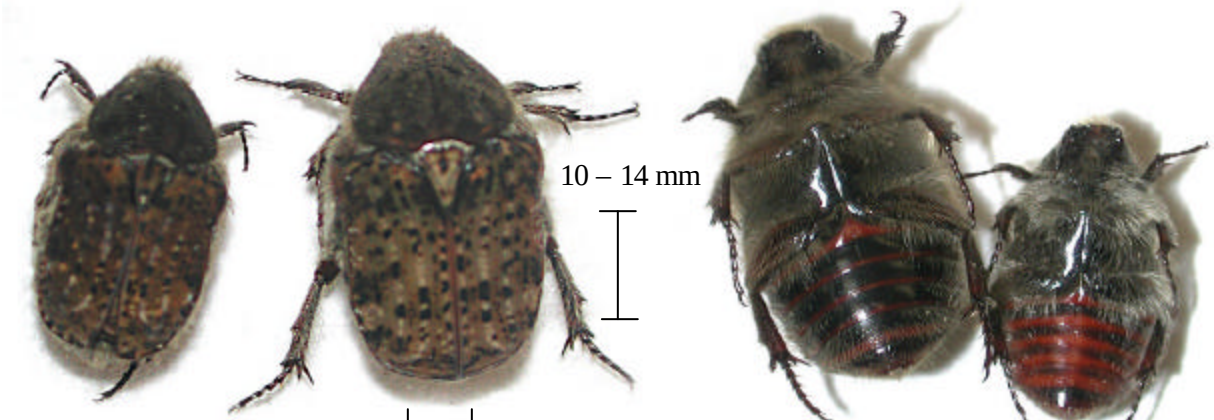
raster

There is no real pattern to the hairs on the raster (the last abdominal segment).

prepupa

pupa

Adults emerging from pupal cells



10 – 14 mm

male

female

6 – 8 mm

female

male

(Photos: USDA/ARS, Horticultural Insects Lab, Wooster, OH)

Grubs have been found in nursery containers in a couple of ways. Workers in this nursery tried to determine why some of the top-dressed pots were missing newly applied fertilizer. When the taxus on the left was lifted from the pot, grubs were found under the root ball, as seen below. Grub movement up and down in the pot apparently incorporated the fertilizer. Another way these grubs have been discovered in nursery containers has been by looking in the potting media of plants uprooted by skunks.

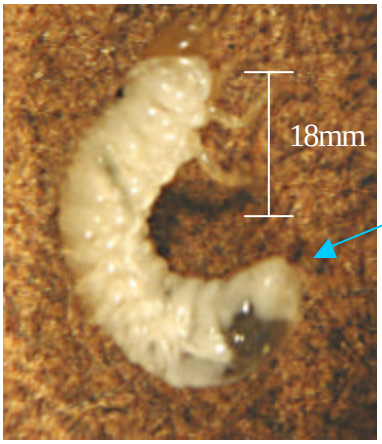
(Photos: USDA/ARS, Horticultural Insects Group, Wooster, OH)

Adults have been seen flying in northeast Ohio at various times. Literature suggests Bumble flower beetles mature in late summer and can be observed flying in the fall. They overwinter as adults and fly again in early spring. The adults are known to feed on flowers, ripe and rotting fruits such as grapes, apples and peaches and on sap from tree wounds and sunflower stalks. The larvae feed on decaying wood and plant material and are found in mulch, manure piles, and rotting vegetable waste. The larvae are distinctive in that they crawl on their backs like green June beetle larvae but differ by not having a defined raster pattern. The green June beetle has two parallel rows of hairs on the raster that resemble a zipper.

Rose chafer, *Macrodactylus subspinosus*

Rose chafers are a serious pest of many plants including rose, grape, apple, cherry, strawberry, hydrangea, peony and many other ornamentals and vegetables. They feed on leaves, skeletonizing them much like Japanese beetles do, and severely damage flowers and fruits. The adults emerge in June and lay their eggs in grassy sandy areas. Upon hatching, the larvae feed on roots of grasses and overwinter as larvae.

Adult



Larva

Larval rastral pattern

Comparison Table of Common White Grubs

Common Name	Scientific Name	Size of Adult (LxW)	Mature Grub (inches)	Time of Adult Activity	Adult Feeding	Oviposition
European chafer	*Rhizotrogus majalis*	0.6 x 0.3 in.	1.2	evening	no	light sandy loam
Japanese beetle	*Popillia japonica*	0.3-0.5 x 0.25 in.	1	day	yes – nursery	prefer loam soils
Oriental beetle	*Anomala orientalis*	0.36-0.41 x 0.25 in.	0.98	day/evening	no	wide range of soils
Asiatic garden beetle	*Maladera castanea*	0.3-0.4 x 0.2 in.	0.75	night	yes-garden	prefer loam soils
Northern masked chafer	*Cyclocephala borealis*	0.45 x 0.26 in.	1	night	no	prefer loam soils
Rose chafer	*Macrodactylus subspinosa*	0.4 in. (L)	0.71	day	yes-flowers	sandy
June beetle	*Phyllophaga spp.*	0.3-2.5 x 0.15-1.25 in.	1-2.5	night	yes-foliage	prefer loam soils
Bumble flower beetle	*Euphoria inda*	0.5-0.6 x 0.3-0.4 in.	2	day	yes-fruit	highly organic