



Garden Insects of Central WA

- Ruth Hardison
- Mike Bush
- Master Gardener
Training- January
27, 2016



A Little Taxonomy

- Kingdom = Animal
 - Phylum = Arthropoda
 - Class = Insecta or Hexapoda



J. Brunner, WSU Wenatchee



M. Bush, WSU Extension



M. Bush, WSU Extension

A Little Taxonomy



J. Brunner, WSU Wenatchee



M. Bush, WSU Extension

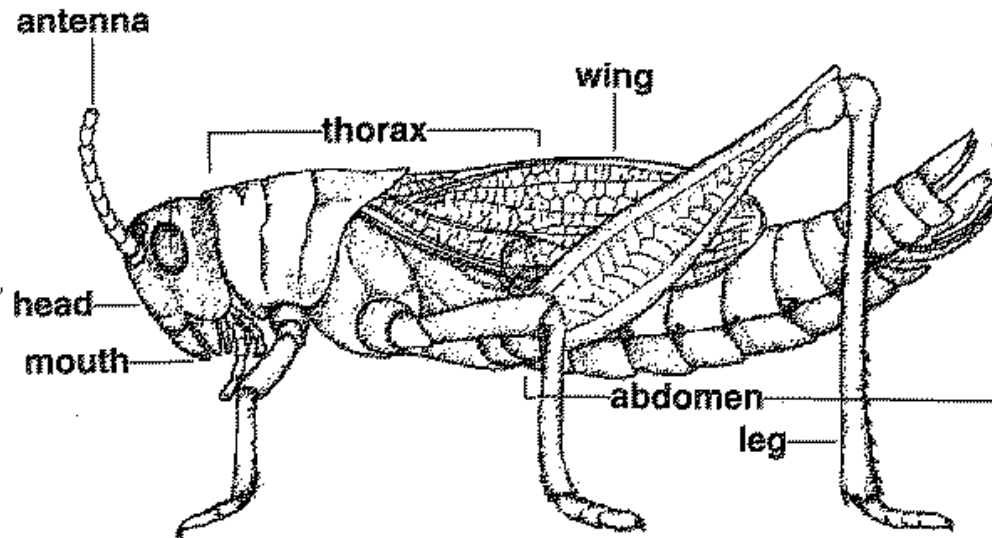
- **Order = Lepidoptera**
 - **Family = Tortricidae**
 - **Genus = *Cydia***
 - **Species = *pomonella***



J. Brunner, WSU Wenatchee

Common name = Codling Moth!

To Be or Not To Be An Insect?



- An exoskeleton
“Suit of Armor”
- Three body segments
 - Head
 - Thorax
 - Abdomen

How Not to Be An Insect!

2 body segments

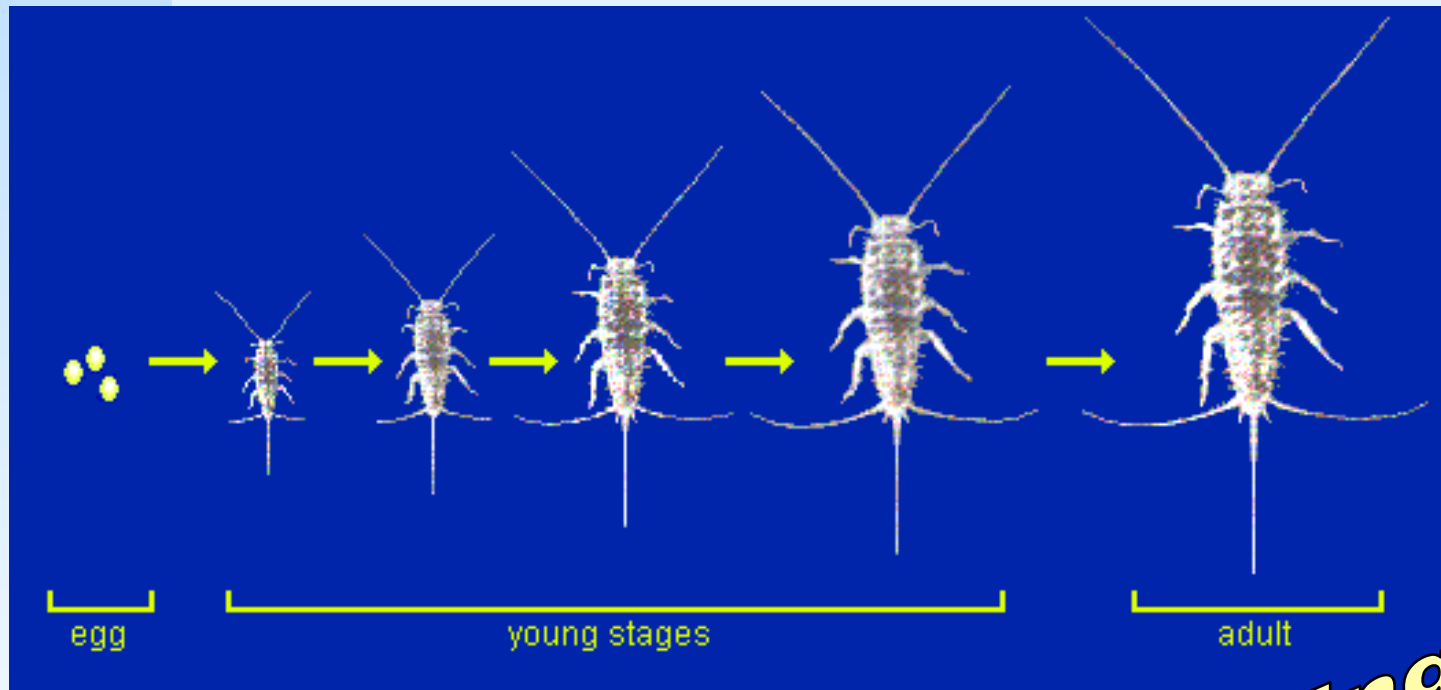
4 pairs of legs

Class Arachnida = Spiders
(not Class Insecta)



Insect Metamorphosis

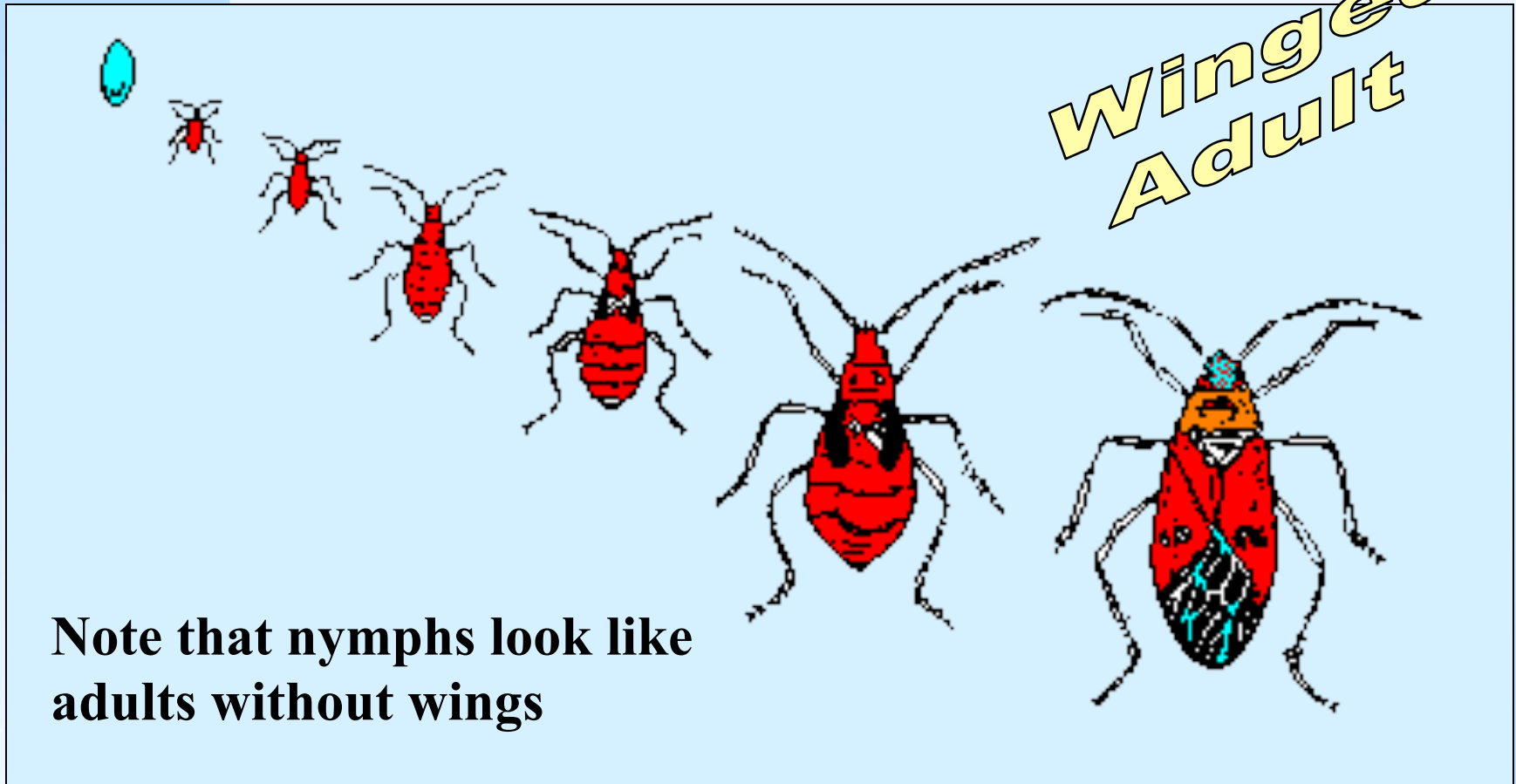
An insect's skeleton is on the outside so insects shed their "skeleton" between each growth stage!



Ametabolous- None

**Wingless
Adult**

Insect Metamorphosis



Insect Metamorphosis

**Winged
Adult**

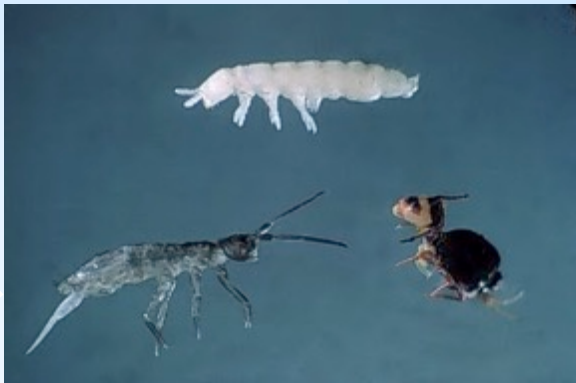


Radical change in shape and function. Larvae specialized for feeding; adults for mating & dispersal.

Garden Insect #1= Collembola



- Ametabolic metamorphosis
- Wingless with forked tail (they “spring” around)
- Primarily detritivores on soil surface, $>1/8$ ” long
- Moist situations



Garden Insect #2 = Hemiptera



- Simple metamorphosis
- Half- winged, sucking mouthparts,
- Sizes- 1/8 to 3/4" long
- Herbivores, predators, “vampires”.

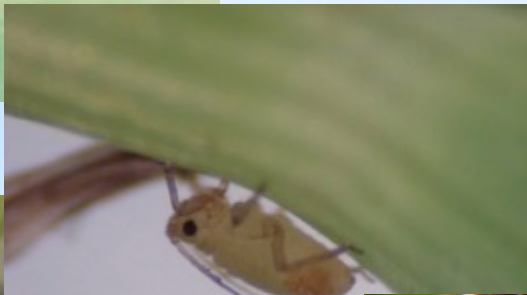


B. Higbee, USDA-ARS

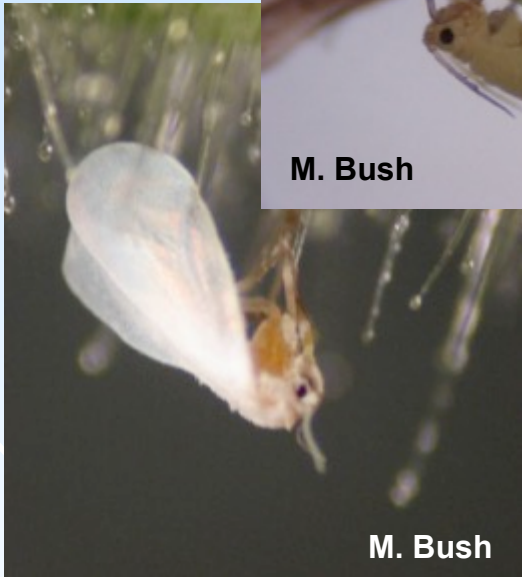


M. Bush, WSU Extension

Garden Insect #2 = Hemiptera



M. Bush



M. Bush

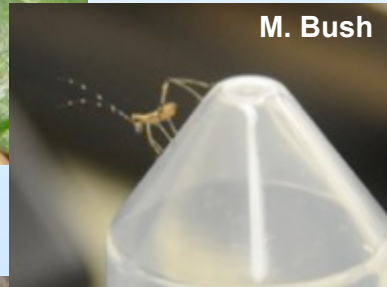


- Simple metamorphosis
- Sucking mouthparts
- Soft-bodied, many with cornicles, size 1/16 to 1/4"
- Herbivores, disease vectors

M. Bush, WSU Extension, MG Clinic

Garden Insect #3 = Orthoptera

S. Spain, Yakima MG



M. Bush

- Simple metamorphosis
- Straight winged, legs for jumping, chewing mouthparts,
- Variable size- 5/8 to 1 1/2"
- Herbivores, Scavengers.

M. Klaus, WSDA- Yakima



M. Bush, WSU-Extension



M. Bush, WSU-Extension

Garden Insect # 4 = Mantodea



- Simple metamorphosis
 - Raptorial front legs, chewing mouthparts
 - Large- 1- 4" long
 - Insect PREDATORS



D. Pieti, Yakima MG

G. Thompson, Yakima MG



Mantodea – Praying mantids

Garden Insect # 5 = Thysanoptera



- Simple metamorphosis
- Fringed wings, rasping mouthparts
- Minute- 1/16-1/8"
- Herbivores,
- Pests



Garden Insect # 6 = Dermaptera

- Simple metamorphosis
- Skin-like wings, forceps-like cerci
 - Size = $\frac{1}{2}$ to $\frac{3}{4}$ inches long
 - Omnivores- feed on soft bodied arthropods & leaf/fruit tissues
- Nuisance- congregate in dark damp areas.

Photo- B. Beers, WSU



Bottom photos- M. Bush, WSU Extension

Garden Insects # 7

Diptera

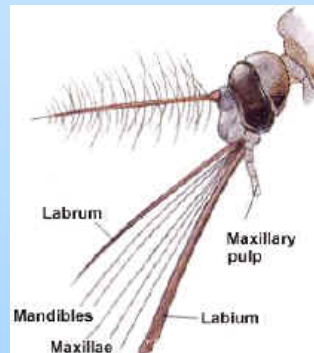
- Complete metamorphosis
- “Two” wings; 1/16 to 1” long
- Adults with sponging, piercing/sucking mouthparts.



M. Bush, WSU Extension



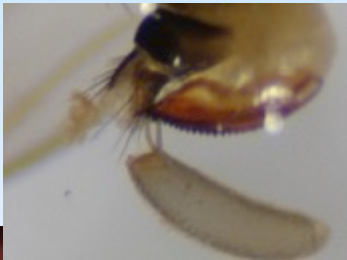
M. Bush, WSU Extension



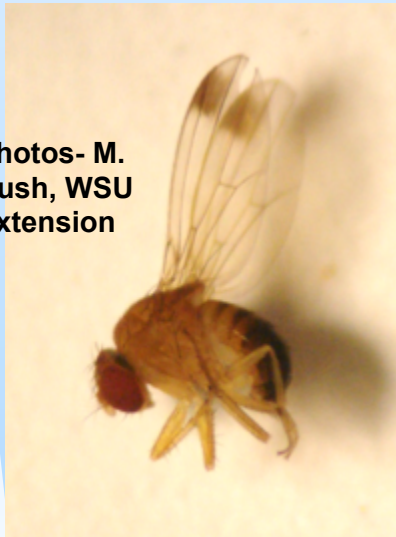
Garden Insects # 7

Diptera

- Complete metamorphosis
- Larvae = maggots
- Mostly found in aquatic or moist habitats



Photos- M. Bush, WSU Extension



Photos- M. Klaus, WSDA

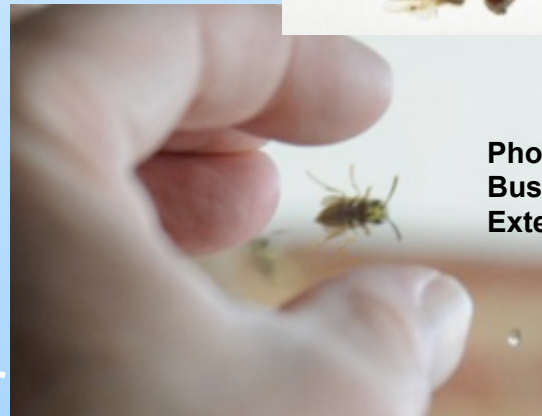
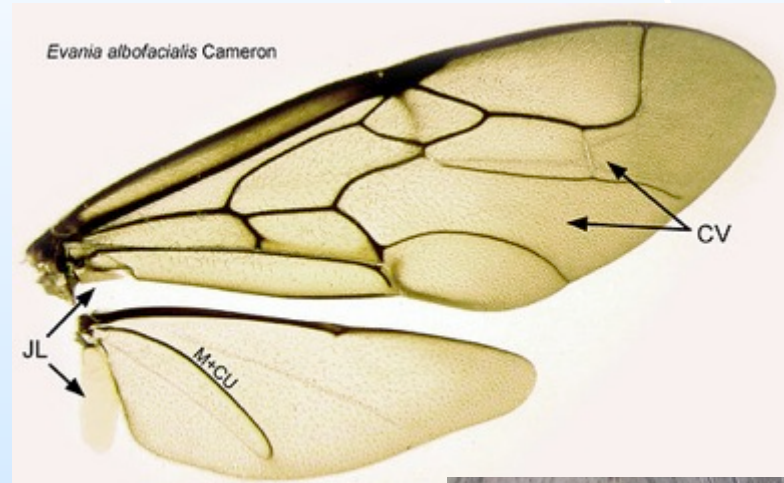


Photo- E. Beers, WSU Wenatchee



Garden Insects # 8- Hymenoptera

- Complete metamorphosis
- 4 wings, size= 1/16 to 1.5" long
- Narrow waste
- Chewing mouthparts
- Modified abdomen
- Solitary/social
- Predators, parasites & herbivores



Photos- M.
Bush, WSU
Extension

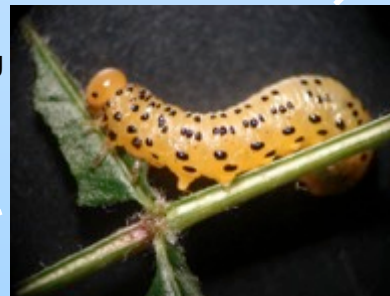


Garden Insects # 8- Hymenoptera

- Complete metamorphosis
- Solitary/social
- Predators, parasites & herbivores

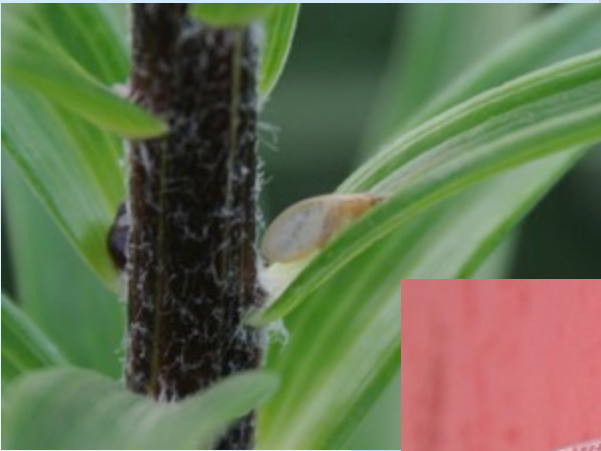


Photos- M.
Bush, WSU
Extension



Garden Insects #9 Neuroptera

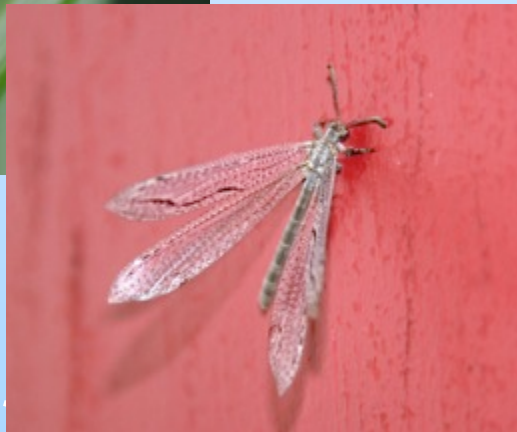
- Complete metamorphosis
- Nerve-winged (Lots of wing veins)
- Size 3/8- 1 1/4" long
- Predators



Photos- M. Bush, WSU Extension



Photo- BugGuide



Garden Insects #9 Neuroptera

- Complete metamorphosis
- Immatures are
- All predators



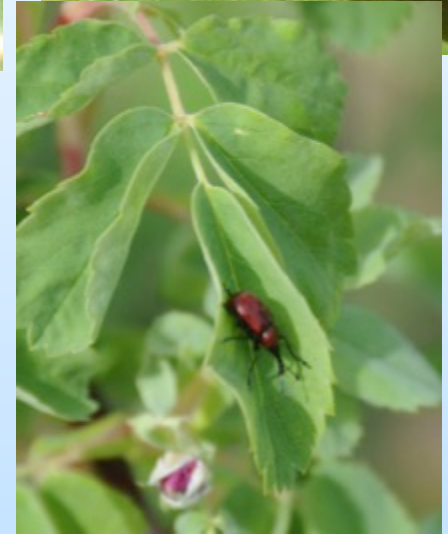
Photos-
M. Bush,
WSU
Extension



Photo- E. Beers, WSU

Garden Insect #10= Beetles

- Complex metamorphosis
 - Well developed wings with forewing hard & meeting in line down middle of back
 - Chewing mouthparts
 - Predators, herbivore, crop pests
-
- Variable size-
 - 1/16 to 2 1/2" long



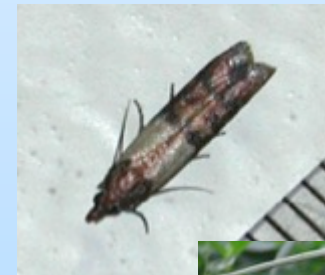
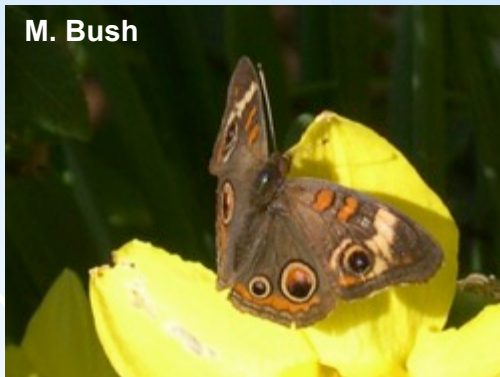
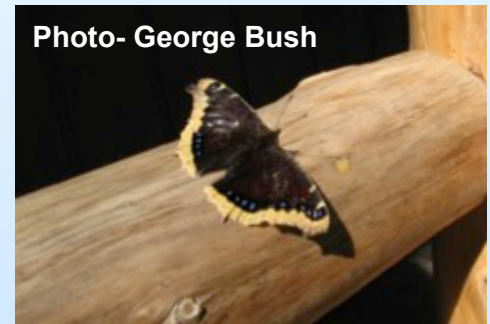
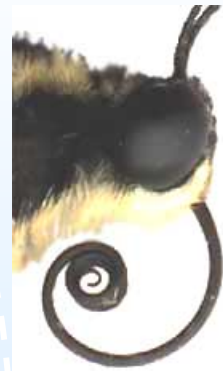
Garden Insect #10= Beetles

- Complex metamorphosis
- Well developed wings with forewing hard & meeting in line down middle of back
- Chewing mouthparts
- Predators, herbivore, crop pests



Garden Insect #11= Butterfly & Moth

- Complex metamorphosis
- Well developed wings with minute scales
- Siphoning mouthparts
- Adults are pollinators & beautifully harmless



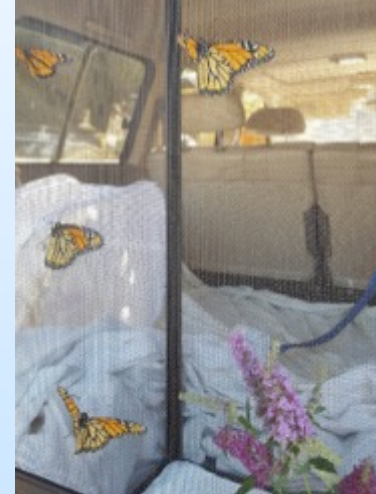
Photos by M. Bush



- Size variable $\frac{1}{4}$ to 8" long

Garden Insect #11= Butterfly & Moth

- Complex metamorphosis
- Larvae evolve to eat; thus our most serious crop & plants pests are from this order.



D. Kroon, Yakima MG



Conclusion

- **Conclusion-** It is not just about flowers and food, your garden is full of herbivores, detritivores, predators and occasionally “bugs!”

Photo- P. Shearer, OR State U



M. Bush



Photo- J. Loyd, WSU Extension