

Hokie BugCamp Key to Insect Orders

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Pesticide Programs, June 2023*

Entomologists use “dichotomous keys” to help them identify insects. Learning how to use a dichotomous key can help you identify all sorts of plants and animals! This key will help you identify an insect to the level of “order” (a main group or type of insect).

To use this key, follow these steps:

- 1) Collect or take a picture of the insect you want to identify.
- 2) Go to question one of the key, and select the option that most accurately matches your insect.
- 3) Follow the result of your selection to another question.
- 4) Keep following steps two and three until you arrive at a result that gives the name of an insect order.
- 5) Compare your insect with pictures of the result. If it doesn't seem right, try going through the key again from the beginning.
- 6) If you still cannot find the right description, ask a professional entomologist for help!

This key was made specifically for Hokie BugCamp to identify insects caught in Blacksburg, Virginia. There are MANY orders of insects this key does NOT cover because they are either not common to Blacksburg or they are too small to pin for an insect collection. For help identifying insects not included in this key, consult one of these resources:

- The Insect ID Lab at Virginia Tech – our on-site experts can help answer your questions.
- BugGuide.net – a crowd-sourced insect identification website with great pictures!
- Hokie BugFest Facebook Page – send us a message with a picture of your insect.
- Field Guides – there are many printed books you can look to for more information about insects and where they live.



Orders Included In This Key

Insect Order	Insect Common Name
Blattodea	Cockroaches, termites
Coleoptera	Beetles
Dermaptera	Earwigs
Diptera	True flies (house flies, horse flies, crane flies, etc.)
Ephemeroptera	Mayflies
Hemiptera	True bugs (wheel bugs, stink bugs, etc.)
Hymenoptera	Ants, bees, wasps
Lepidoptera	Butterflies, moths
Mantodea	Mantids
Mecoptera	Scorpion flies, hanging flies
Megaloptera	Dobsonflies, alderflies, fishflies
Neuroptera	Lacewings, mantidflies, antlions
Odonata	Dragonflies, damselflies
Orthoptera	Grasshoppers, katydids, crickets
Phasmida	Stick bugs
Plecoptera	Stoneflies
Tricoptera	Caddisflies

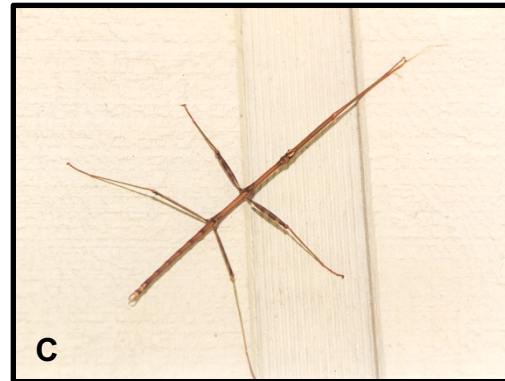
Description	Result
(1) How many legs does it have?	
3 pairs of legs (see A)	Go to (2)
Less than 3 pairs of legs or more than 3 pairs of legs (see B)	Not an adult insect



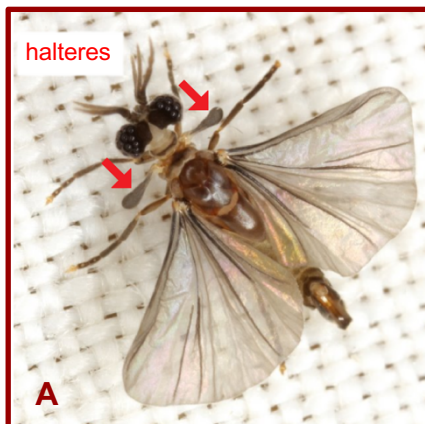
(2) Does it have wings?	
Yes (see A)	Go to 4
No (see B)	Go to 3



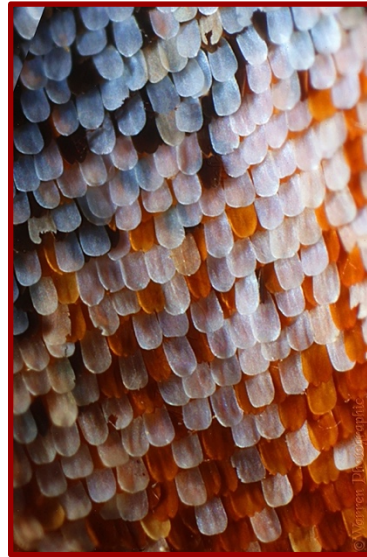
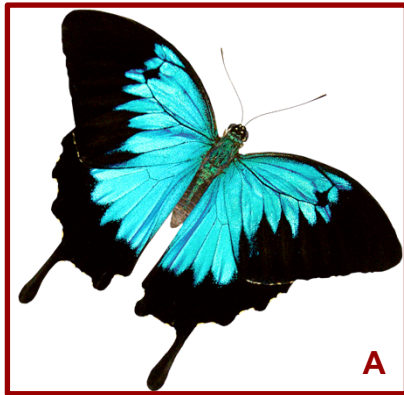
(3) What does its body look like?	
Narrowly constricted at the “waist” between the thorax and abdomen (see A)	Order: Hymenoptera
Very small and mostly soft-bodied with a light coloration, some with larger heads than others (see B)	Order: Blattodea
Looks like a stick and has chewing mouthparts (see C)	Order: Phasmida



(4) How many pairs of wings does it have?	
One pair of wings, some will have visible white knobs (halteres) behind the forewing (see A)	Order: Diptera
Two pairs of wings	Go to 5

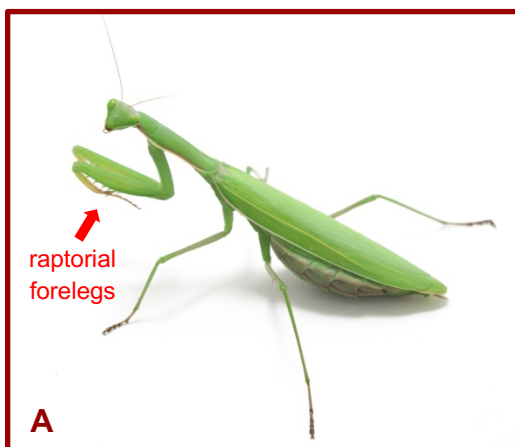


(5) What do the wings look like?	
Large wings covered in tiny scales, may have some clear areas (see A)	Order: Lepidoptera
Other	Go to 6



A

(6) Does the insect have a very long “neck” region and raptorial forelegs?	
Yes (see A)	Order: Mantodea
No	Go to 7



(7) Are the forewings hardened and mouthparts made for chewing?	
Yes (see A)	Order: Coleoptera
No	Go to 8

A



A



(8) Does it have thin “tails” coming out of the end of its abdomen?	
Yes (see A)	Go to 9
No (see B)	Go to 10

A



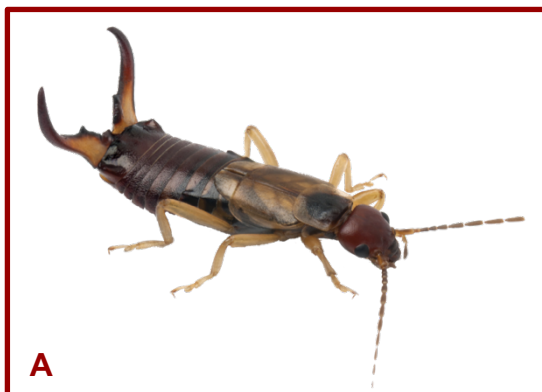
B



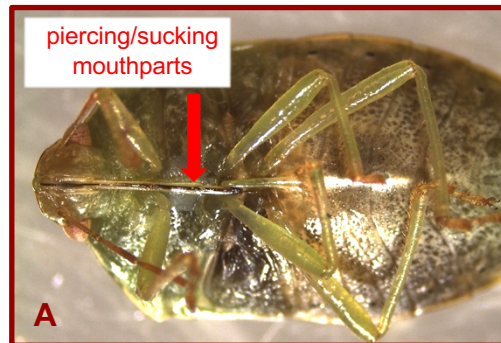
(9) How many “tails” does it have?	
2 and holds its wings flat over its back (see A)	Order: Plecoptera
3 and holds its wings upright over its back (see B)	Order: Ephemeroptera



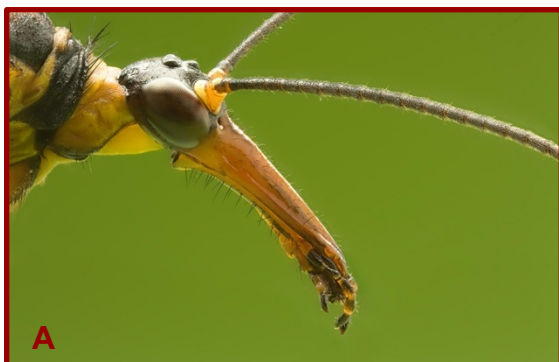
(10) Does it have a set of “pincers” on its rear end?	
Yes (see A)	Order: Dermaptera
No	Go to 11



(11) Does it have piercing/sucking mouthparts?	
Yes (see A)	Order: Hemiptera
No	Go to 12



(12) Does the insect have an elongated head (beak-like in appearance)?	
Yes (see A)	Order: Mecoptera
No	Go to 13



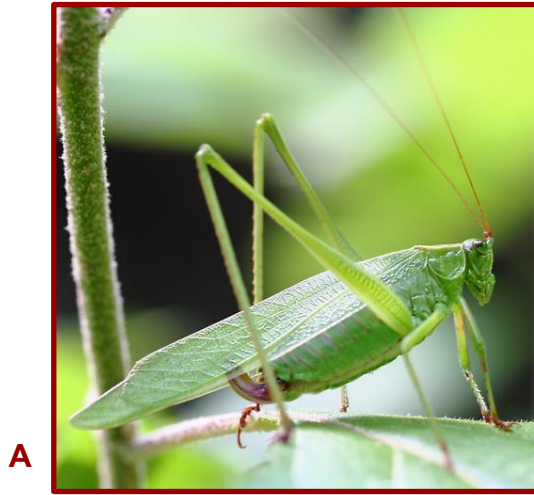
(13) Do they have a long thin body with a pair of equally sized wings and very short antennae?	
Yes (see A)	Order: Odonata
No	Go to 14



(14) Are the wings transparent, a similar shape and size, and with MANY criss-crossing veins?	
Smaller, with chewing mouthparts (see A)	Order: Neuroptera
Larger, with large protruding mouthparts (see B)	Order: Megaloptera
Neither of these	Go to 15



(15) Does the insect have large hind legs for jumping?	
Yes (see A)	Order: Orthoptera
No	Go to 16



(16) Do the wings have tiny hairs on them?	
Yes (see A)	Order: Trichoptera
No	Go to 17



(17) Is the body oval shaped and somewhat flattened?	
Yes (see A)	Order: Blattodea
No (see B)	Order: Hymenoptera

