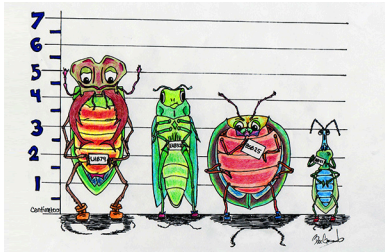


# Invasive Insects Lookalikes

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**Fig. 1** Proper species

identification is key to effective IPM.

## Building Identification Skills

Pest identification is the cornerstone of integrated pest management, but is a skill that can be difficult to master. Mistakes in identification are common, as many insects look and act alike, and/or can cause similar injury. Misidentifications could potentially lead to adverse consequences. A number of guides and websites can assist with insect identifications (e.g., [bugguide.net](http://bugguide.net) is complete with color photographs and links to identification keys). In addition, several state and federal agencies have diagnostic labs to help assess suspected insect injury; see "Contact Information" and "For Additional Information" at the end of this fact sheet for listings.

Here, we provide a quick identification reference guide for brown marmorated stink bug and Japanese beetle (both have been found in Utah) and emerald ash borer and Asian longhorned beetle (not yet detected in Utah). We focus on these four insects because they are often mistaken as other insects. We also briefly describe some similar species that can be mistaken for these insects.

**Note that this publication only covers the most common look-alike species and not ALL that resemble these invasives.**

Insect look-alike species are sometimes other pests, but they can also be beneficial insects. For example, the spined soldier bug (*Podisus maculiventris*) is a beneficial, predatory stink bug (Fig. 2), but can be mistaken for the

destructive and invasive brown marmorated stink bug (*Halyomorpha halys*). Similarly, the six-spotted tiger beetle (*Cicindela sexguttata*) is a predatory ground beetle (Fig. 3) that can be misidentified by some as the invasive Japanese beetle (*Popillia japonica*).



**Fig. 2** The spined

soldier bug is a beneficial, predatory stink bug that looks similar to the invasive brown marmorated stink bug. Image courtesy of Kansas Department of Agriculture Archive, Bugwood.org.

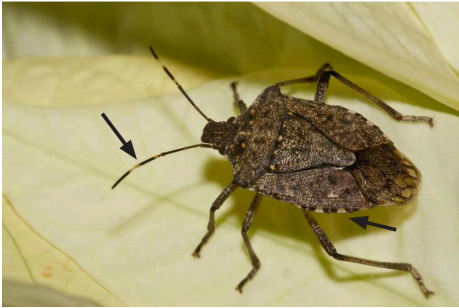


**Fig. 3** The six-spotted

tiger beetle is a beneficial, predatory beetle, but can be mistaken for the invasive Japanese beetle. Image courtesy of David Cappaert, Michigan State University, Bugwood.org.

## Brown Marmorated Stink Bug

**Brown Marmorated Stink Bug (BMSB; *Halyomorpha halys*)** (Figs. 4-6) is an invasive pest that is native to Asia and has been detected in 42 states, including Utah, in Salt Lake (since 2012), Utah (2013), Davis (2015), and Weber (2015) counties. BMSB is a significant pest of various crops, including fruits, vegetables, seeds, nuts, some field crops, and ornamental plants. It is also considered a nuisance pest as it overwinters in urban areas and releases a foul smelling odor when disturbed or crushed.



**Fig. 4** BMSB

adults are shield-shaped, 5/8-inch long, mottled brown, and have alternating dark and light bands on their antennae and along their abdominal edges (arrows in figure point to some of these features). The term “marmorated” means having a veined or streaked-like marble appearance. Image courtesy of Susan Ellis,



**Fig. 5**

Other characteristics that distinguish BMSB from look-alike species include rounded shoulder tips and a smooth edge along their pronotum (shoulders). Image courtesy of Susan Ellis,

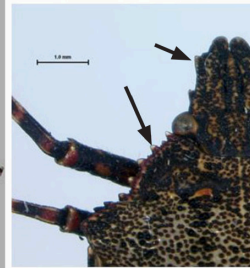


**Fig. 6**

BMSBs have brownish-gray undersides. Image courtesy of K.S. Matz.

## Brown Marmorated Stink Bug Look-Alikes

**Rough Stink Bug (*Brochymena spp.*)** (Fig. 7) adults are considered both predators and pests, and are commonly mistaken for BMSB in Utah.



**Fig. 7** Rough

stink bugs, unlike BMSBs, have a “tooth” on each side of the face, a heavily toothed shoulder, less distinct abdominal bands, and no dark and light antenna bands. Image courtesy of Steven Valley, Oregon Department of Agriculture, Bugwood.org (left) and Antonio Guidotti, Royal Ontario Museum (right).

**Common Brown Stink Bugs (*Euschistus spp.*)** (Fig. 8) are pests of fruit, seeds, grains, and nut crops. They are very common in Utah, and can be easily mistaken for BMSB.



**Fig. 8** Brown stink

bugs are not as mottled in color as BMSBs, and have a small row of spines on the shoulders, no banding on the antennal segments, and a yellowish-green or pink underside (not shown in figure). Image courtesy of Antonio Guidotti, Royal Ontario Museum.

### Other Similar Species

- Green Stink Bug (*Acrosternum hilare*)
- Squash Bug (*Anasa tristis*)
- Conchuela Stink Bug (*Chlorochroa ligata*)
- Coenus Stink Bug (*Coenus delius*)
- Consperse Stink Bug (*Euschistus conspersus*)
- Western Conifer Seed Bug (*Leptoglossus occidentalis*)
- Spined Soldier Bug (*Podisus maculiventris*) - see p. 1
- Red-Shouldered Stink Bug (*Thyanta custator*)

## Japanese Beetle

**Japanese Beetle (*Popillia japonica*)** (Figs. 9-10) is an invasive pest that is native to Japan. It has previously been

found in Utah (Cache, Salt Lake, and Utah counties), but has been considered eradicated from the state. Despite this, reintroductions may occur at any time. Japanese beetles feed on more than 300 plant species, including numerous trees, ornamentals, vines, flowers, fruits, vegetables, weeds, and field crops.



**Fig. 9** Adults

are oval-shaped, 1/2-inch long, and have metallic green bodies, copper-colored wings, six white tufts of hair along each side of their body (including the tuft at the end of their wing covers), and clubbed antennae. Image courtesy of Russ Ottens, University of Georgia,



**Fig. 10**

Japanese beetles often congregate in groups. Image courtesy of M.G. Klein, USDA Agricultural Research Service, Bugwood.org.

## Japanese Beetle Look-alikes

Other scarab beetles, such as the **False Japanese Beetle (*Strigoderma arvicola*)**, **Hairy Bear Beetle (*Paracotalpa granicollis*)**, and **Green Fruit Beetle (*Cotinis mutabilis*)** (Figs. 11-12) are beetles that belong to the same family as the Japanese beetle and are common in Utah. False Japanese beetles are sometimes called sandhill chafers and rarely cause economic damage to crops. Hairy bear beetles feed on tree buds, blossoms, and leaves. Green fruit beetles feed on pollen, nectar, and petals, and overripe or damaged fruit, but are not known to cause damage to leaves, ripening and ripe fruit, or turfgrass.



**Fig. 11** False

Japanese beetles are dark tan to brown in color, and do not have distinct white hair tufts along their abdomens, as compared to the bright green and copper coloration and the distinct abdominal tufts of hair characteristic of Japanese beetles. Image courtesy of Whitney Cranshaw, Colorado State University,



**Fig. 12**

Hairy bear beetles (left) and green fruit beetles (right) can be distinguished from Japanese beetles by the prominent fuzz along their abdomen and the yellow-orange stripe on their wings, respectively. Image courtesy of Wikimedia Commons user Jengod via the Creative Commons Attribution.

### Other Similar Species

- Green Stink Bug (*Acrosternum hilare*)
- Festive Tiger Beetle (*Cicindela scutellaris*)
- Six-Spotted Tiger Beetle (*Cicindela sexguttata*) - see p.1
- Masked Chafer (*Cyclocephala* spp.)
- Bumble Flower Beetle (*Euphoria* spp.)
- Rainbow Scarab (*Phanaeus vindex*)
- May/June Beetle (*Phyllophaga* spp.)

### Emerald Ash Borer

**Emerald Ash Borer (*Agrilus planipennis*)** (Figs. 13-15) is an invasive beetle that is native to Asia and parts of Russia, and is considered to be the most destructive forest insect to ever invade the U.S. This beetle has not yet been found in Utah, but has been found in neighboring Colorado and much of the eastern U.S.



Fig. 13

Adults are metallic, green-colored beetles with a dorsoventrally flattened body. Image courtesy of David Cappaert, Michigan State University,



Fig. 14

Adults have an iridescent purple abdomen beneath their forewings. Image courtesy of David Cappaert, Michigan State University,



Fig. 15

Adults are about 1/2-inch long. Image courtesy of Eric R. Day, Virginia Polytechnic Institute and State University, Bugwood.org.

### **Emerald Ash Borer Look-Alikes**

**Flatheaded, Metallic Beetles (*Agrilus spp.*)**, such as the honeylocust borer (*A. difficilis*) and the bronze birch borer (*A. anxius*) (Fig. 16) are beetles that are closely related to the emerald ash borer, and are pests of honey locust and birch, respectively. Both species are common in Utah.



Fig. 16

Honey locust borers (left) have black bodies with white or yellow spots alongside their abdomen, whereas bronze birch borers (right) are more bronze in color. Image courtesy of Kansas Department of Agriculture Archive, Bugwood.org (left)

and Whitney Cranshaw, Colorado State University, Bugwood.org (right).

**Lilac-Ash Borer (*Podosesia syringae*)** and **Banded Ash Borer (*Neoclytus caprea*)** (Fig. 17) look nothing like the emerald ash borer as adults. However, both species commonly infest ash trees, and are mistaken as emerald ash borer, so much so that we feel it is important to mention them.



Fig. 17

When lilac ash borers emerge from the tree, they leave irregularly round exit holes (1/4-inch wide) and protruding empty pupal cases (left). Banded ash borers emerge from oval exit holes (1/4-inch wide) (right). Emerald ash borers leave D-shaped exit holes (1/8-inch wide) when they emerge from trees, and do not leave behind pupal skins on the outside of the tree. Image courtesy of Whitney Cranshaw, Colorado State University, Bugwood.org.

### **Other Similar Species**

- Gambel Oak Borer (*Agrilus quericola*)
- Rose Stem Girdler (*Agrilus rubicola*)
- Golden Buprestid (*Buprestis aurulenta*)
- Caterpillar Hunter (*Calosoma scrutator*)
- Flatheaded Apple Tree Borer (*Chrysobothris femorata*)
- Pacific Flatheaded Borer (*Chrysobothris mali*)
- Six-Spotted Tiger Beetle (*Cicindela sexguttata*) - see p. 1
- Banded Ash Borer (*Neoclytus caprea*)
- Japanese Beetle (*Popillia japonica*) - see p. 3

### **Asian Longhorned Beetle**

**Asian Longhorned Beetle (*Anoplophora glabripennis*)** (Figs. 18-19) is an invasive beetle that originates from Asia, and is currently found in a few eastern U.S. states, but has not been found in Utah. Adults feed on living hardwood trees, including ash, birch, maple, elm, and willow.



**Fig. 18** Adults are large (3/4 – 1 1/2-inches long) conspicuous beetles that have a glossy-smooth black body with irregular white spots, and a black scutellum (the region between the tops of the wings - note white arrow in figure). Image courtesy of Pennsylvania Department of Conservation and Natural Resources - Forestry Archive,



Bugwood.org. **Fig. 19** Adults have long black and white banded antennae that have 11 segments, each with a whitish-blue base. Some adults also have a bluish tinge to their feet. Image courtesy of Pest and Diseases Image Library, Bugwood.org.

### Asian Longhorned Beetle Look-Alikes

**White-Spotted Sawyer (*Monochamus scutellatus*)** (Fig. 20) is a common wood-boring beetle found throughout the U.S., including Utah. This insect is not generally considered a pest, but closely resembles and is very commonly mistaken for the Asian longhorned beetle.



**Fig. 20** White-spotted sawyers, unlike Asian longhorned beetles, have a dull or bronze-black body, faintly banded antennae, and white

scutellum (the white spot located between the top of the wings - note the white arrow in figure). The number of white spots on the wing covers can vary between specimens. Image courtesy of Steven Katovich, USDA Forest Service, Bugwood.org.

**Banded Ash Borer (*Neoclytus caprea*)** (Fig. 21) is native to North America and is common in Utah. It is a pest of hickory, elm, and oak, but generally attacks only unhealthy trees.



**Fig. 21** Banded ash borer adults are black with yellow or creamcolored markings on their wings and antennae that are less than 1/2 the length of their body. Image courtesy of David Cappaert, Michigan State University, Bugwood.org.

### Other Similar Species

- Honeylocust Borer (*Agrilus difficilis*)
- Metallic Wood-Boring Beetle (*Agrilus walsinghami*)
- Western Eyed Click Beetle (*Alaus melanops*)
- Spotted Pine Sawyer (*Monochamus clamator*)
- Prionus Root Borer (*Prionus californicus*)
- Banded Alder Borer (*Rosalia funebris*)

### Contact Information

If you suspect one of the invasive species described here and have ANY doubts on identification, consult an entomologist or a trained specialist. Contact the [Utah Plant Pest Diagnostic Lab](http://utahpests.usu.edu/upddl/) (<http://utahpests.usu.edu/upddl/>), your local [Extension office](http://extension.usu.edu/) (<http://extension.usu.edu/>), or the [Utah Department of Agriculture and Food's Insect and Pest Program](http://ag.utah.gov/farmers/plants-industry/insect-and-pest-program/) (<http://ag.utah.gov/farmers/plants-industry/insect-and-pest-program/>) for assistance.

### For Additional Information

- Herbert, D.A., et al. 2014. Field guide to stink bugs of agricultural importance in the United States. Published by Virginia Cooperative Extension, Virginia Tech, and Virginia State University.
- Hodgson, E., D. Alston, and C.A. Stanley. 2010. Japanese Beetle (*Popillia japonica*). ENT-100-06PR. Fact sheet published by Utah State University Extension and Utah Plant Pest Diagnostic Laboratory. Click here for updated 2020 version.

- Jacobs, S. 2010. Brown Marmorated Stink Bug (*Halyomorpha halys*). Fact sheet published by the Department of Entomology, Pennsylvania State University.
- Petrizzo, E., and D.G. Alston. 2011. Brown Marmorated Stink Bug [*Halyomorpha halys* (Stål)]. ENT-144-11. Fact sheet published by Utah State University Extension and Utah Plant Pest Diagnostic Laboratory. Click here for updated 2017 version.
- Rebek, K.A., E.J. Rebek, and D.G. McCullough. 2005. Don't be fooled by look-alikes! Extension Bulletin E-2944. Michigan State University.
- Spears, L.R., R.S. Davis, and R.A. Ramirez. 2014. Emerald Ash Borer [*Agrilus planipennis* (Fairmaire)]. ENT-171-14-PR. Fact sheet published by Utah State University and Utah Plant Pest Diagnostic Laboratory.

Additional information/material can be found at [asianlonghornbeetle.com](http://asianlonghornbeetle.com), [invasive.org](http://invasive.org), [stopbmsb.org](http://stopbmsb.org), <http://www.emeraldashborer.info/>, [dontmovefirewood.org](http://dontmovefirewood.org), and [hungrypests.com](http://hungrypests.com).

## Related Research