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Scary Looking Gentle Giants

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In this newsletter, we will cover two large, scary-looking insects that are actually quite docile and fascinating creatures. But do **not** be tempted to touch the impressive tarantula hawk. World renowned entomologist and adjunct faculty at the University of Arizona Justin Schmidt developed a Sting Pain Index to rank how painful insect stings are. Justin ranks female tarantula hawk stings as one of the most painful stings on the planet!

Tarantula hawk wasps (Pompilidae family)

These large dark wasps, also known as spider wasps, are commonly seen in landscapes from late spring through the fall in the desert southwest.

What do they look like? Measuring up to 2 inches in length as adults, these magnificent creatures are some of the largest wasps around (Figure 1).



Figure 1. Tarantula hawk (left) next to a paper wasp (right).
Photo: Robert Webster (Wikimedia Commons).

They have dark, shiny, black, or dark blue bodies, orange, black, or bronze-colored wings, very long, dark legs and antennae. Their bodies and wings are “iridescent”, meaning they appear to change color as you view them from different angles (Figure 2).



Figure 2. Tarantula hawk showing iridescent body and wings.
Photo: Pavel Kirillov (Wikimedia Commons).

Why are they in my yard?

The adult wasps feed on nectar (Figure 3 left), pollen, and juice from fallen fruit. Feeding on fermenting fruit can lead to drunken collapsing (Figure 3 right) and uncoordinated flight. So, if you have fallen fruit in your yard, they may be foraging on that. Female adult tarantula hawks hunt tarantulas as food for their offspring.



Figure 3. Left - a tarantula hawk feeding on flower nectar.
Photos: Dave Hood (Wikimedia Commons). Right- an intoxicated tarantula hawk (Desert USA).

Cool facts about tarantula hawks:

- ✦ The wasps are active during the day and males hang out in favorite perching locations watching for females.
- ✦ Females are superb hunters but occasionally get caught by the tarantulas they attack. However, tarantula hawks are seldom preyed upon by most insectivorous animals because of their large size, bright coloring, and potent sting. Roadrunners are their worst enemies (Figure 4).



Figure 4. A greater roadrunner in Tucson.
Photo: 123rf.com Chris Hill.

- ✦ Adult wasps are frequently seen during mid-summer, especially after monsoon showers.
- ✦ Female wasps can be seen flying near the ground locating male tarantulas out wandering, or female tarantulas in burrows.
- ✦ When a female tarantula hawk locates a tarantula, she will either sting it immediately, or if one is detected inside a burrow, the wasp will touch the webbing mat that the tarantula spins by the entrance, to entice the spider to investigate. Once the tarantula emerges the wasp will attack and sting. The sting paralyzes the spider in seconds, and it remains in this condition for the rest of its life. The tarantula hawk

then drags the spider back into the burrow (Figure 5) and lays a single egg in the spider's abdomen. The hatching larva feeds on the spider until it pupates and emerges as an adult from the spider's abdomen.



Figure 5. Female tarantula hawk dragging a paralyzed tarantula, which can be 8 times the wasp's weight back into the spider's nest.

Photo: Pierre Andre Leclercq (Wikimedia Commons).

Should I worry about them? Generally, no. The males may guard their favorite hang-out location but have no stinger and are completely harmless. The females can sting, and it really packs a punch, but they are quite reluctant to sting, unless provoked. If they are repeatedly disturbed or threatened, they can give an extremely painful sting which typically subsides soon afterwards. Prolonged reactions are extremely rare.

Giant mesquite bug (*Thasus neocalifornicus*)

When Arizona temperatures rise into triple digits, immature giant mesquite bugs move down from the upper branches of mesquite trees to cluster in groups on the main trunk escaping the higher temperatures as it is cooler closer to the ground. They are rarely visible when up in the tree canopy but can alarm people when the brightly colored red and black bugs cluster in large numbers on the lower trunks of mesquite tree. The adults are the largest true bugs in the world, reaching almost 2 inches in length. They are harmless to humans.

What do they look like?

The adults are dark gray, brown, or black in color, with small heads. The antennae are dark brown or black at the base, but the top two segments are colored dark orange or red and the second segment from the tip has a distinct flattened, leaf-like enlarged area. Legs are black, with dark red patches or bands, femora (thighs) of hind legs are enlarged, with spines along their inner edge. Wings have prominent orange or yellow veins on a dark background (Figure 5).

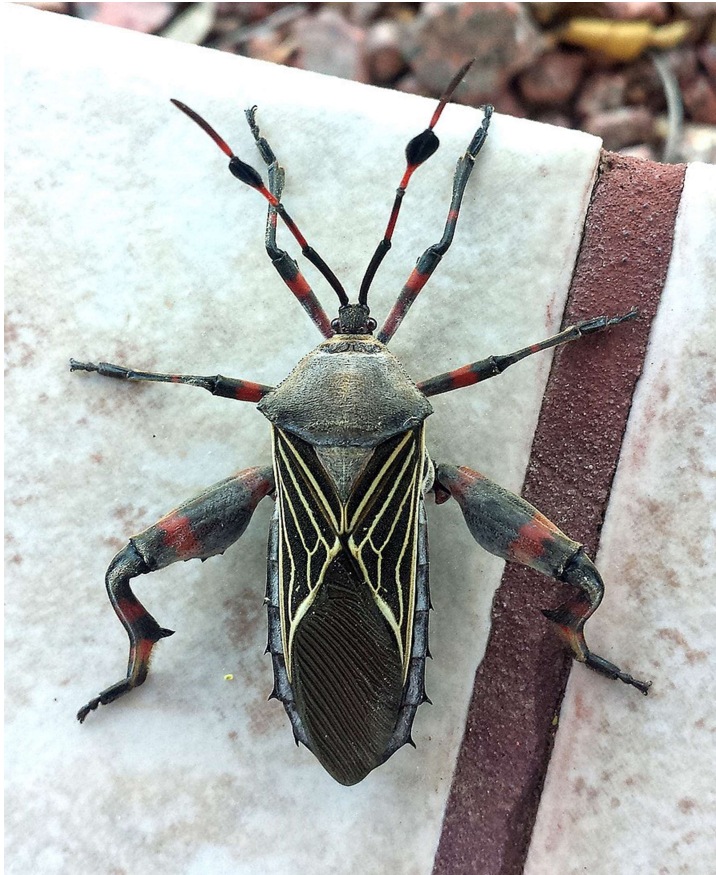


Figure 5. Adult giant mesquite bug, showing the distinctive body characters.
Photo: Alan Schmierer (Wikimedia Commons).

Nymphs (immatures) are patterned with vivid red, yellow, white, and black (Figure 6), and change patterns as they develop through five stages (instars). The leaf-like protuberance on the antennae is present in all stages.



Figure 6. Giant mesquite bug nymph, showing the distinctive body characters.
Photo: Patrick Dockens



Figure 7. A group of giant mesquite bug adults and nymphs on the trunk of a mesquite tree.

Adult mesquite bugs can cluster in small, loose groups. They are slow clumsy fliers. Nymphs (immatures) may occur in larger, tightly packed groups. Adults and nymphs may occur together on the same tree (Figure 7).

Why are they in my yard?

Giant mesquite bugs feed on mesquite pods and sap of mesquite trees. They may also be found resting on other garden and landscape plants but cause no damage.

Cool facts about giant mesquite bugs:

- ✦ Giant mesquite bugs may look fearsome, but are harmless to humans, and do not bite or sting.
- ✦ They have developed a unique relationship with mesquite trees and do not harm the mesquite trees at all. The mesquites serve as food for the bugs, and the bugs feeding is known to stimulate new tree growth.
- ✦ Female adults lay eggs during late summer and die, and the eggs overwinter and hatch around mid-April.
- ✦ The brilliant coloration of the nymphs serves to ward off predators. They can also emit a foul-smelling defensive secretion when threatened.
- ✦ During very hot days when the bugs move down from the canopy to the base of trees, this is a great opportunity to observe these amazing creatures (Figure 8). There is no need to kill or move them. The bugs are harmless and will disappear in a short time.



Figure 8. Giant mesquite bug adults and nymphs move down mesquite trunks to escape the heat.

- ✦ Adult giant mesquite bugs are preyed upon in large numbers by pallid bats. Read more in this article: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6284427/>.

Should I worry about them? No. These bugs do not bite or sting humans. They feed only on mesquite pods. They can be mistaken for kissing bugs, squash bugs, and other large bugs. But the diamond-shaped antennal segment is a helpful identifying character. Figure 9 shows a comparison of sizes of some commonly observed bugs in our landscapes.

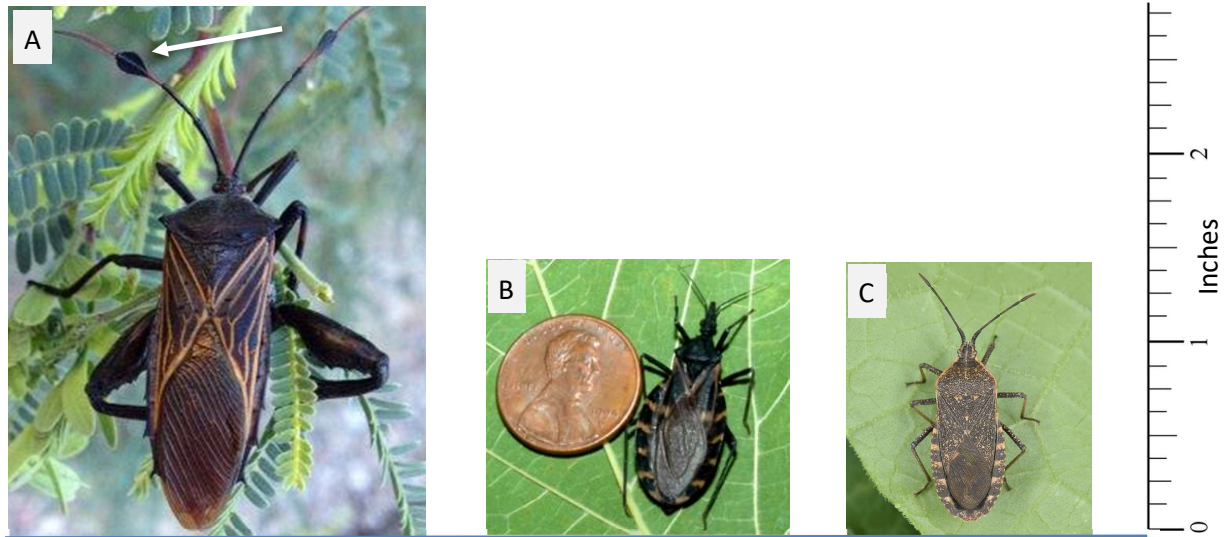


Figure 9. Compare sizes of commonly observed bugs:
A. Giant mesquite bug (Photo: Ursula Schuch); B. Kissing bug (Photo: S. Kios);
C. Squash bug (Photo: Christina Butler).

Read more about kissing bugs in our publication

<https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1787-2019.pdf>

Read more about squash bugs in our publication

<https://cals.arizona.edu/yavapai/anr/hort/byg/archive/squashbugs2017.html>

It is important to properly identify insects and other arthropods encountered in our environments before taking management actions. Many of these creatures are harmless or beneficial. When pests are identified taking an **integrated pest management (IPM)** approach is the most sensible, economical, and sustainable approach of managing pests in any situation, with the least possible risk to people, property, and the environment. IPM can be defined in numerous ways according to the situation, but common aspects in most definitions are prevention, regular monitoring and use of multiple compatible techniques (as opposed to relying on pesticide applications only) to reduce pest populations and maintain them at levels that do not cause injury or concern.

What the Heck was This!



Answer: *Varroa destructor* also known as the Varroa mite which is a parasitic mite that feeds on honey bees

Congratulations to Proficient Pest Detectives J. Santos Portugal, ABC Home & Commercial Services and Michael G. Hansen, Michigan Department of Agriculture and Rural Development.

What the Heck are These?



If you know what these are email the answer to Dawn at dhgouge@email.arizona.edu. You will not win anything if you are correct, but you will be listed as a “Proficient Pest Detective” in the next newsletter issue.

Ongoing and Upcoming Events

Outbreaks of Pests Workshop

The Inter Tribal Council of Arizona, Inc. and Arizona Pest Management Center present “Emergency Preparedness for Outbreaks of Insect and Arthropod Vectors and Communicable Pests Workshop”. It is a two-day virtual workshop on Tuesday, May 25, 2021 & Wednesday, May 26, 2021. The workshop will offer 6 Arizona Structural (PMD) CEUs. For more information, please contact Ms. Monique Tsosie at Monique.Tsosie@itcaonline.com

Registration Link: <https://forms.gle/mF2AJx93DXVaBVs69>

Registration closing date: Monday, May 24, 2021 at 5:00 PM MST

4th Arizona School IPM Conference

The 4th Arizona School IPM Conference is being offered ONLINE April 19-May 31, 2021. The conference is a great opportunity for continuing education, professional development, and awareness building; consisting of engaging presentations for all persons involved with schools, childcare and similar facilities, and other sensitive environments; and anyone with an interest in ensuring safe, healthy learning and working environments. Listen to talks by experts on various aspects of school IPM, share your experiences and questions, and find solutions to pest issues your school is facing. Give feedback on topics you would like to see in future events. The conference will offer 6 or 12 Arizona PMD CEUs, 6 Arizona AG CEUs and 12 NEHA Registered Sanitarian Credits.

Registration and more information <https://acis.cals.arizona.edu/community-ipm/events/arizona-school-ipm-conference>.

Who can attend? Anyone with an interest in safe and effective pest management in schools, childcare and similar facilities. Typically, our audience includes school and other administrative staff, maintenance and operations staff, grounds and landscape managers, teachers, principals, nurses, parents, and pest control technicians, food service staff, facility managers, superintendents, medical professionals, students, and many others.

30th Annual Desert Horticulture Conference Arizona OPM, ISA, ADA CEU Credits

May 21, 2021, Live online 3 Tracks available until June 20, 2021.

The Desert Horticulture Conference is the premier annual conference for all members of the southwest green industry: landscape architects, designers, growers, retailers, contractors, maintenance personnel, suppliers, and educators. Presenting timely and research-based information relevant for designing, building, maintaining, and producing plants for urban landscapes in the arid Southwest.

Registration is open at: <https://cals.arizona.edu/deserthort/>.

Upcoming EPA Webinars offering Arizona CEU Credits

Mosquitoes: Right Trap, Right Place. May 18, 2021, 11:00 AM - 12:45 PM MST.

Vector control for mosquitoes is a science and involves strategies for trapping, monitoring, identifying, and sorting the mosquitoes to better understand the types of species in your community. On May 18, EPA will host a free webinar on the importance of matching traps to the specific mosquito variety. Learn from experts about the importance of mosquito monitoring, how to develop a comprehensive plan for trapping, proper identification, and how trapping protocols vary across the country. This presentation will provide information on sound surveillance and identify trends, patterns and hot spots to protect the public health of communities. The question and answer session will feature the presenters and panelists from the American Mosquito Control Association. See registration link for details. This 90-minute webinar will offer 1.0 Arizona PMD CEU. Full attendance and taking a quiz will be required for those needing CEUs. To register: <https://register.gotowebinar.com/register/5521347585029339916>.

Vector Preparedness Virtual Workshop

Open now for on-demand CEs. To register contact Dr. Lucy Li
lucyli@email.arizona.edu

The Vector Preparedness Virtual Workshop is a great opportunity for anyone with an interest in learning information on mosquito ID, surveillance, management, and insecticide resistance in public health pests.

This workshop will present:

- 1) Basic aspects of mosquito biology and ecology, vector disease risks, and identification of a few important problematic mosquitoes in Arizona.
- 2) Extensive information on integrated mosquito management.
- 3) Why it is important to trap mosquitoes, different types of traps that are available, and tips on how to use them.
- 4) Insecticide resistance, types of resistance (using bed bugs as examples), Integrated Pest Management (IPM), and public health pests IPM including bed bugs, head lice, German cockroaches, mosquitoes, flies, etc.

Arizona certified structural pesticide applicators can earn **4 CEUs** from the AZ Department of Agriculture's Pest Management Division (PMD) after completing the entire workshop. This course will be effective through August 30, 2021.

Check out upcoming Integrated Pest Management Webinars at <https://www.epa.gov/managing-pests-schools/upcoming-integrated-pest-management-webinars>. For more information about the EPA Schools program: <http://www.epa.gov/schools/>.

To view all our previous newsletters, visit: <https://acis.cals.arizona.edu/community-ipm/home-and-school-ipm-newsletters>.

Acknowledgements

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