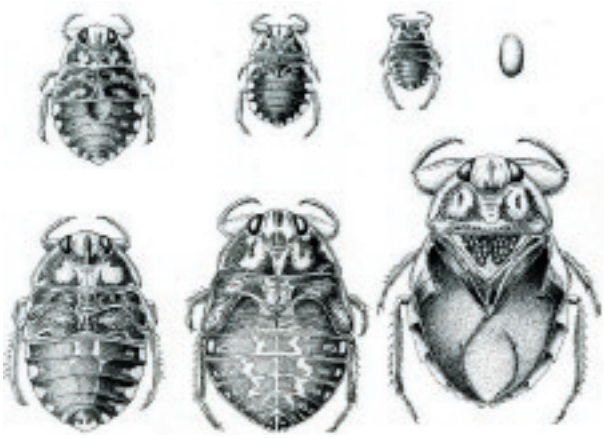
The Instar



Meet SASI's New Board Members on Page 6

SASI's Communication Quarterly * no. 40 Winter 2008

Critter of the Season
Taeniopoda eques, By Carl Olson

In the late summer in southern Arizona, we are graced with the appearance of many adult grasshoppers, but none as striking as the Horse Lubber. Common names are indeed interesting and I am always asked about this one. I've read where some believe the profile resembles that of a horse's head. So let your imagination run wild. These remarkably huge black and yellow-orange hoppers possess black and green forewings, and brilliant red hind wings. They lumber along desert roads as perhaps herds of wild stallions once roamed the prairie.

Unfortunately they don't move quite as swiftly, and are readily struck by cars, as people traveling to Madera Canyon or Sierra Vista may have seen. Their carcasses attract more of their kin, taking full advantage of a feast of readily available protein and moisture — if another car doesn't come along. Nature seldom wastes resources.

Farther south towards Mexico, the locals call these hoppers Mexican Generals, in reference to the striking colors of the Mexican army uniforms, although I reserve this common name for *Dactylotum varie*

Photo by Steve Prchal

gatum, the rainbow grasshopper. Why the bright colors, you may ask? Well, grasshoppers are notorious for sequestering or manufacturing a wealth of disgusting chemicals to hopefully turn off the desire of predators to eat them. The horse lubber is no different, and ties this bad taste to developing these outrageous colors, termed aposematic coloration, to advertise themselves.

Females don't fly, having an enlarged abdomen for egg production and shortened wings. But males are a graceful sight on the wing, described once to me as a flying rose. It's hard to miss them. Other grasshoppers take wing erratically and fly short distances when disturbed. The horse lubber may fly some 30 feet in the air, in a slow straight-line flight.

These hoppers feed on a variety of desert plants, and even with their huge size and great numbers, they don't overwhelm the landscape as true locusts once did in the United States. These are some of the true gentle giants of the Arizona landscape.

2008 Invertebrates in Education and Conservation Conference
by Emily Francis

This summer's Invertebrates in Education and Conservation Conference began with The Bugs in Bondage Mixer, held in Mesquite Gulch, sponsored and hosted by Zane and Maggie Greathouse of Greathouse Butterfly Farm. Renee Cooke and

Maggie came up with some great games and contests for the Conference, starting with a costume party at the Mixer. Zane gave out the prizes for best costume to Erin Sullivan and Melanie Nelson, $50 gift certificates to BioQuip. It was a great start to the Conference, getting together with so many old friends and meeting the new. We had 31 new attendees this year!

The Keynote Address was given by Raymond A. Mendez who founded Work As Play in 1980 after spending 14 years at the American Museum of Natural History as an Entomologist and then senior principal artist in Exhibits. Ray talked about the direction and future goals of invertebrate exhibits, a very lively discussion of how to engage the audience in this era of iPods and text messaging. The weather cooperated with all our outdoor events. We were able to have our Reception after the Keynote Address up on the Sunset Deck where we were able to view the gorgeous panorama of the Santa Cruz valley and surrounding mountains.

The variety of paper presentations was great this year, topics that focused on husbandry, education, exhibits, butterflies, and conservation. The workshops were diverse, too. Nancy Greig and John Watts led a workshop focused on plant ID, to help find the plants that the bugs liked. Another, led by Melanie Nelson, was a curriculum for early childhood development, another, by Faith Kuehn and Heather Harmon, on native bee conservation, identification and education and John Watts led another one on pinning specimens to preserve their scientific value. There was even one by

Craig Goldstien, M.D., for invertebrate collectors and caregivers exposed to the variety of poisonings and envenomations that comes with the job, with advice on the medical aspects of such hazards. Fred Sherberger and Lydia Attard led an informal workshop to learn to sex tarantulas under a microscope.

Six field trips led the Conference-goers to the many diverse areas of southern Arizona. All day trips included butterfly hunting with Jim Brock, butterfly busting with Mark Deering and Martin Feather and getting muddy with Randy Morgan and aquatic insects. Jim Melli led a trip to the border and Mark Deering and Martin Feather led one to the light sheets. Brent Karner led the families at the Conference on a scavenger hunt and picnic.

TITAG (Terrestrial Invertebrate Taxon Advisory Group) held another Silent Auction in the Exhibit Hall. Everyone brought such great items for the auction it was hard to decide what to bid on. At the Banquet, bidding reached it's height and the proceeds benefited both SASI and TITAG with a total of over $1900, split half 'n half. Thanks to all who participated in our efforts to raise funds for these two unique organizations!

I want to thank everyone who presented papers, workshops and round tables, led field trips and/or organized extra curricular activities. Your participation in the Conference helped to make it even more fun. This is, after all, your Conference and the more who get involved the greater the experience for all.

Every year our Sponsors make a tremendous contribution, not only financially but also with enthusiastic support and encouragement, and along with SASI's Professional Members, deserve our most heartfelt thanks. Their support allows us to continue to offer discounts to our presenters and low registration fees for our participants. I also want to thank the dedicated Conference Committee and the many volunteers who, year after year, give of their time and energy to help plan and implement all the different aspects of the Conference.

Thanks to all of you, for your participation is invaluable to the Conference and me! I look forward to next summer and more great memories.

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Bugs in Bondage Mixer
Greathouse Butterfly Farm
Neck Wallets
The Butterfly Farmers
Neck Coolers
Rachel Williams
Refreshment Service
Butterfly Dan's
Silent Auction Organized by
TITAG

Conference Committee
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Craig Goldstein
Chip Hedgcock
Brent Karner
Randy Morgan
Mitch Magdich
Gina Phillips
Steve Prchal
Fred Sherberger
Jamie Sincage
Celia Whitman
Rachel Williams

Volunteers Extraordinaire
Mark Deering
Martin Feather
Mary Ann Hamilton
Kim Hoskins
John Matuszek
Jim Melli
Lou Perrotti
Barbara Reger
Ed Somers
Erin Sullivan
Doug Taron
Mike Weissmann
And many, many more!

Thank you all!

SASI Community Days

The 4th Saturday of each month is SASI's Community Day. From 9 AM to 3 PM, the gate in Gates Pass Road is open and admission is free. Donations are gratefully accepted.

9:15 - 10:15am Nature Walk
Each Community Day begins with a nature walk to different areas of the Tucson Mountain Park surrounding SASI's facilities.

10:30 - 11:30am Presentations
Informative talks from local experts in many fields about and related to arthropods and our environment.

12:00 - 1:00pm Potluck Lunch
Bring a dish to share (but don't worry if you don't, we'll still feed you!)

12:00 - 3:00pm Activity Tables
Fun, educational activities for all ages.

1:00 - 2:00pm Live Arthropods
Each week we will bring specimens from our collections to talk about their natural history.

2:00 - 3:00pm Workshops
Workshops are designed for all ages and include making habitats for arthropods, creating your own collections of live and/or pinned specimens, and much more.

Current information for each month's activities may be found on our website.

Desert Phenomenon By Carl Olson

It is always interesting to find out how the public discovers change in their local scenery and their resulting attitudes. The perception with biology is incredible, and it usually takes an unprecedented activity to open eyes. The fall of 2008 in southern Arizona has had one of those phenomena occur right in front of everyone. Mesquites of course are a dominant tree here, so when something causes change in dramatic fashion, people see it. Walk into your yards and look at your mesquites and the chances are you'll see a dead twig or two amongst the foliage, or more. This has been occurring every year, but in 2008, the population boom of a small long-horned beetle *Oncideres rhodosticta*, called the mesquite twig girdler has suddenly made everyone notice.

Typically the beetle isn't seen working on the tree, but if you go to a gas station or market where bright lights abound at night, you will have encountered these beetles by the hundreds this year. They fly, they land on you, their claws catch in your clothing, and they may even grab hold with their jaws, not to be mean and bite, but simply to maintain a purchase on the substrate (You). Don't panic, for they won't eat you, vector a disease or make you sick. In fact, take the time to look and you will be amazed by the colors and designs exhibited on the exoskeleton. Yes, bugs are neat and interesting if one dispels the prejudice and understands them as wildlife.

What does this little beetle do, and why? The adults emerge in August as the monsoon season is winding down, mate and then select a mesquite, or sometimes an acacia, as home base. The female then proceeds to chew a ring around a twig, stopping the flow of sap and eventually causing that part of the twig to die. She has prepared a nursery for her offspring, allowing her to lay eggs in the dead part, knowing her eggs have a good chance to survive. If one looks along the dead part, you can see white, lens-shaped marks that are the egg-laying sites. Those eggs will hatch in a week or two and begin feeding and growing under the bark of the twig. By the next summer the larvae will pupate and prepare to emerge in late August for the next cyclical event.

Now for perception. As an entomologist at the University of Arizona, I am bombarded by questions about insects. The first question has been, what is killing my mesquite trees, because folks see a dead twig tip or more, and immediately decide the tree is dying? The reality is, those beetles have simply pruned the mesquites, which will result in more twig growth in the future. Now this pruning may not agree with your ways, but Nature does have a method. Not death except for twig tips, but rather a healthy, vibrant tree. For the obsessively neat of course this is traumatizing because the trees are not nice and green but sprinkled with brown flags. Oh well, trim the dead branches and one is back to perfection. And of course, people want to do something to prevent such a devastating course of events, but truth is, there is nothing to do.

As I said, perceptions occur in many ways, and the best view passed along to me was from a person who was looking at the mesquites with the sun shining through the branches, and felt the trees were golden. On closer examination, he saw globs of sap had dripped from the girdle and the sunrays were reverberating through and from these balls of sap, producing an exquisite new image to the mesquites. Yes, people can see ugly or beauty, but to me beauty is life, excitement and joy, which these beetles create every year, just more this year.

SASI's Activities Since October 2007

Last year we reached out to over 1800 children and adults through these various activities and programs.

Community Day

On the 4th Saturday of each month we invite the public and members to the facilities to explore the desert, hear an informative talk on natural history and learn more about some of the creatures we share our world with. There are approximately 15 - 20 visitors each month. Following are past speakers and themes:

John Douglass	Miniaturization in the Insect Brain	Steve Buchmann	Pollinator Conservation
Steve Buchmann	Pollinators in Peril	John Rhodes	All About Spiders
Justin Schmidt	Harvester Ants	Elizabeth Willott	Mosquitoes
John Rhodes	Butterflies of Australia	CJ Vincent	CJ's Desert Dweller Photos
Michelle Lanan	Barrel Cactus and Ants	Robert Hartley	Arizona Termites
Diana Sammataro	Bees: Sweetness and Mites	Charles Hedgcock	Photography
Barbara Terkanian	Marvelous Mantids		

Retreats and Workshops

Sustainable Tucson - Board Retreat
Chapman Hiking Group from Sun City, AZ for a natural history program on local arthropods.
Pace Pre-School Program - in 2 days we presented our educational program to 4 classes of pre-schoolers and their parents, approx. 60 children and 30 adults.
Pima County Parks and Recreation Volunteer Training.
Arizona Native Plant Society - Board Meeting

School Outreach

Lauffer Middle School	Grade 8	After-school presentation, audience varied.
Empire High School	5 Biology classes	142 students
Borton Elementary	Grade 2, 2 classes	55 students, 10 adults
Vessey Elementary	Grade 2, 6 classes	121 students, 10 adults
Vessey Elementary	Grade 3, 5 classes	135 students, 10 adults
Johnson Primary	Grade 1, 2 classes	26 students, 5 adults
Johnson Primary	Grade 2, 2 classes	29 students, 4 adults
Desert Winds Elementary	Grade 1, 6 classes	108 students, 8 adults
Johnson Primary	Grade 2, 4 classes	86 students, 6 adults

Other Outreach

Tucson Audubon Mason Center	Birds 'n Bugs.	Audience varied each month
Tucson Children's Museum	Halloween Arachnids	Large group of children and adults
Tucson Children's Museum	Arthropods of AZ & crafts	160 children, 60 adults
Blue Raven Gallery	Silent Auction	Participants varied
Saguaro National Monument	Arthropods of AZ	Visitors to the Red Hills Visitor Center
Ironwood Festival @ Mason Center	Arthropods of AZ	Large group of children and adults
Rio Rico Library	Arthropods of AZ	15 children, 12 adults
Nogales Library	Arthropods of AZ	40 children, 24 adults
Tucson Botanical Gardens	ZooBots Summer Camp	64 students
Agua Caliente	Venomous Arthropods	Approx. 50 children and adults
ASDM Butterfly Festival	Various Butterfly activities	Audience varied throughout the day

SASI provides animals and specimens to The U of A for various programs and general biology classes.

During the Tucson Botanical Garden's Butterfly Magic Exhibit, we provide animals for their "Bugging Out at the Gardens" presentation.

Horned toad researcher Wade Sherbrooke uses SASI's facilities for research and writing.

Two New Members Join SASI's Board of Trustees

SASI welcomes Barb Terkanian and Gene Hall to its board of directors. Each has had long standing associations with the board, and together bring a wealth of knowledge, experience, and talent to their new positions. For those of you who do not know Barb and Gene, here is a brief rundown of their interests and activities, in their own words.

I like: bugs (because they are diverse and do many different ingenious things), hiking with my dog Robbie, a hypermotivated exercise hog, and painting, which I now do in acrylic. For many years I worked in watercolor, but I recently shifted to acrylic and am enjoying exploring this new medium. I paint natural history subjects. My current project is based on some surreal boulder fields in Mexico, which are typically flecked with elephant trees and senita cacti. Just before that, I finished a painting of ruins at Wupatki National Monument. I am part owner of a small gallery and gift shop, the Blue Raven. When not doing any of the above, I am teaching Anatomy and Physiology or Marine Biology at Pima Community College, or doctoring my back yard ecosystem.

Education:
BFA: Rhode Island School of Design
Doctorate of Zoology: ASU

Illustrated Books:
Poisonous Dwellers of the Desert, by Trevor Hare
Endangered Fishes of the Southwest, by Wendell Minckley & Paul Marsh (nonindigenous species)

Teaching:
Marine Biology - Pima Community College
Introduction to Anatomy and Physiology - Pima Community College
Art and Science - Risk High School Program

Co-owner: Blue Raven Gallery

Professional Societies:
Board of Directors - Southeastern Butterfly Association

My primary interests are in the management of natural history collections, which allow us to preserve and document the history of life on Earth, and research utilizing systematics, morphology and biogeography to better understand our planet's biodiversity. Examples include studies on the evolutionary relationships of the beetle groups Ptiliidae, Hydroscaphidae, Sphaeriusidae and Limnichidae, and analysis of fossil insects from pack rat middens of the Sonoran Desert. My research also focuses on botanical and mycological systematics, including mosses of the southwest and fungus-beetle interactions.

Education:
MS in Entomology: University of Arizona
BFA in Studio Art: University of Arizona

Professional Experience:

Collections Manager:Botany (2008-present), University of Arizona Herbarium, University of Arizona, Tucson.
Collections Manager:Invertebrate Zoology (2001-2008), Invertebrate Paleontology (2001-2003), Vertebrate Zoology (2003-2005), CU Museum of Natural History, University of Colorado, Boulder.

Professional Societies:
Entomological Society of America
Coleopterists Society (Editorial Board; Open Access Committee)
Journal of Insect Science (Associate Editor)

What's Bugging You?

Your Arthropod Questions to
Instar Editor Jeff Martin

Dear Editor,
Why do I have spiders in my house, and how do I get rid of them?
Signed Website

Dear Website,
Like all animals, spiders take up residence where they are comfortable and have something to eat. There is no year-round spot that fits the bill like your own home. The easy answer is to just keep the spiders around. Because they are eating the little pests that really can bug you. And there are a lot of those. No matter how spotless you keep your house.

There are two species of spider you should watch out for: the black widow *Latrodectus hesperus* and the brown spider (aka, violin spider), *Loxosceles sp*. from the violin shaped pattern on its carapace. Both of these spiders like dark places, such as the cabinet area under your sink, or storage sheds. The brown spider also likes clothes closets. The black widow's web is unmistakable, as it is very tough, thick, and strong.

If you have pets or small children, these spiders are of concern. The black widow's bite can kill a cat or dog, and often does. Its neurotoxins cause systemic illness that can be quite severe. The bite of the brown spider causes a breakdown of tissue local to the bite. Its venom is largely hemotoxic, which means it destroys cells it contacts, but does not cause damage throughout the body.

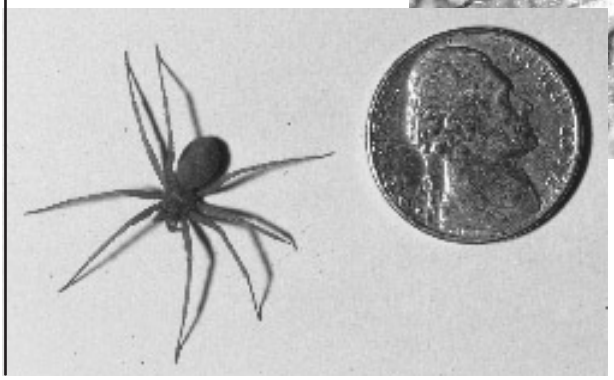
If you see either of these spiders in your home, don't panic. Just take care in how you remove them. They are not aggressive, but they will bite, as any other wild animal will. On the whole, a spider making its home in your home is a good thing. Enjoy them and the benefits they provide.
Editor

Have a question about arthropods?

Send it to the editor at jeff@sasionline.org

Black widow spider (Latrodectus hesperus), above. Photo by Steve Prchal

Brown spider (Loxosceles sp.), below. Photo by Steve Prchal



Acknowledgements and Corrections

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SONORAN ARTHROPOD STUDIES INSTITUTE

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instar no. 40 November 2008

The Sonoran Arthropod Studies Institute is a member-supported, non-profit, environmental education organization. SASI's mission is to foster an understanding of and an appreciation for the arthropods and the vital roles they play in our natural environment and, by so doing, demonstrate the interdependence of all living things, including humans. This mission is accomplished through research, educational programs and publications. The Instar is published by the Sonoran Arthropod Studies Institute for its members and the public. SASI may be reached at (520) 883-3945, faxed at (520) 883-2578, or mailed to at P.O. Box 5624, Tucson, Arizona 85703. E-mail us at SASI@SASIonline.org