Welcome to Insectapalooza 2014!

This year we celebrate not only the 150th anniversary — or sesquicentennial — of Cornell University, but also the 140th Reunion of John Henry Comstock who founded the Department of Entomology along with his wife Anna Botsford Comstock.

The first department of its kind in the United States, if not the world, and the first to admit women, Cornell’s Department of Entomology continues to be known for its pioneering work and its world-class insect collection.

In order to mark this exciting time, we’ve chosen 150 bugs that have left their mark on the world for each year that Cornell has also been making a difference in New York State and beyond. Throughout these pages, you’ll find beneficial bugs, bizarre bugs, and even bugs that you’ll find in your library! Many of these insects and other arthropods you will find throughout the exhibits you’ll be visiting today — so make sure to be on the lookout for them!

Special thanks go out to John Sanderson, Linda Rayor, Jason Dombroskie, Joanna Fisher, Heather Connelly, Cole Gilbert, Kyle DeMarr, Kisten Brochu, Mike Wolfin, Stephanie Westmiller, Snodgrass and Wigglesworth Undergraduate Entomology Club, Jugatae Graduate Entomology Club, Naturalist Outreach, Hortus Forum, Ellen Leventry, and many others for making this year’s event one for the history books!

Laura Harrington
Department of Entomology Chair.

Find pictures from this year’s event at facebook.com
Insectapalooza.ent.cornell.edu
150 Years, 150 Bugs

BOtherSOME BUGS: These Insects Really 'Bug' You!

1. Malaria mosquitoes (Anopheles species): The mosquito is the world’s deadliest animal, infecting about 200 million people around the world with malaria each year! Scientists here at Cornell are working on ways to reduce mosquito populations and prevent mosquitoes from transmitting the malaria parasite.

2. Asian tiger mosquito (Aedes albopictus): One of the most invasive mosquito species on earth and a vector of numerous pathogens and parasites. The first emerged in Asia and has now spread to most continents.

3. Yellow fever mosquito (Aedes aegypti): An important transmitter of deadly yellow fever, dengue and Chikungunya viruses as well as dog heartworm. This mosquito is truly "domesticated" -- it cannot survive without the humans that provide it with a habitat and blood.

4. Deer tick, a.k.a. Blacklegged Tick (Ixodes scapularis): These small arachnids are responsible for transmitting Lyme disease, named after Lyme, CT, the town in which it was first diagnosed. About 30,000 people become infected with Lyme disease annually, making it the most commonly reported vector-borne illness in the US! These ticks also carry other serious diseases such as anaplasmosis and babesiosis.

5. Bed bug (Cimex lectularius): Since ancient times, bed bugs have been our nocturnal companions. The inspiration for the nursery rhyme "Good night, sleep tight, don’t let the bed bugs bite," these small insects hide in beds and small spaces and come out at night to bite their unsuspecting victims.

6. Asian Rat Flea (Xenopsylla cheopis): This tiny transmitter spreads the plague bacterium, which killed nearly one third of the European population during the “Black Death” in the mid-1300s.

7. Black widow spider (Latrodectus species): Although not the most venomous, black widow spiders are the most dangerous, harming the most people because of the many different places in the world where they can make their homes. Female black widows really will eat their mates if given the opportunity!

8. Fat-tailed scorpions (Buthidae): Worldwide, scorpions cause the more deaths than any other arachnids (including spiders). The most venomous scorpions have fat tails -- all the better to sting you with -- and delicate pinchers. Scorpions that are not dangerous have skinny tails and big pinchers to pull apart prey.

9. Tsetse fly (Glossina): They spread African sleeping sickness to people and livestock and have been called the Gardians of Africa for protecting large swaths of the continent from human habitation.

10. Kissing Bug (Triatoma species): These bugs come out at night and often feed around the mouths of sleeping people and other mammals—hence their name. While their name sounds sweet, these insects transmit Chagas disease, a close cousin of African sleeping sickness.

11. Lice (Pediculus humanus, Phthirius pubis): Head lice and pubic lice were our constant companions until the development of DDT in the mid-1900s. They cause itching and can make a person feel "lousy," but they also transmit more serious diseases such as typhus.

12. Chigger (Trombiculidae): Chiggers are larval—newly hatched—mites that burrow into human skin causing itchy irritation. They are typically found in moist areas around lakes and streams, but fortunately, chiggers are not found in New York state.
13. "No see ums" (Culicoides species): These relatives of mosquitoes are so tiny they’re called midges. Females of many species bite and drink blood of human hosts from beaches to mountain tops.

14. House fly (Musca domestica): A notorious pest, uninvited picnic guest and important mechanical transmitter of disease agents including Salmonella, anthrax and polio. This fly occurs on all continents and is abundant almost everywhere people are found!

15. Itch mite (Sarcoptes scabiei): The scourges of scabies and mange are caused by these parasitic mites that burrow under skin and induce rashes and itching.

16. Bullet ant/Bola ant (Paraponera clavata): Considered to have the most painful sting, it is also called the 24-hour ant because the pain of its sting can last a full day.

17. Red Imported Fire Ant (Solenopsis invicta): Watch your step! These invasive ants can inflict very painful stings! They not only sting humans but will also attack ground-nesting bird hatchlings and can out-compete native ants, causing serious environmental and ecological impacts.

18. Screw-worm fly (Cochliomyia species): Maggots of this fly feed on living or necrotic—dead—flesh of vertebrate hosts, typically large mammals such as cattle. The first and most successful insect population control using sterile insect release targeted this fly.

19. German cockroach (Blattella germanica): This is a common urban pest and is widely distributed worldwide. Found in food storage areas, homes and hospitals, they can vector diseases and are a source of allergens especially in urban areas.

20. Brown-banded cockroach (Supella longipalpa): This urban pest feeds on poorly stored food items and can vector disease and cause allergic reactions.

21. Cattle tick (Rhipicephalus microplus): Pioneering work by USDA scientists Theobald Smith and Fred Kilborne in 1889 showed that Texas cattle fever was caused by a parasite transmitted by this tick, the first definitive demonstration that an arthropod could be involved in transmission of a pathogen to an animal. The work led to eventual control of an infection that once devastated 90% of cattle herds in the southern United States.

AWESOME ARTHROPODS: The Biggest, the Baddest, and the Bugliest!

22. Golden Orb weavers (Nephila clavipes): Stronger than Steel! Orb weaving spiders produce incredibly strong silk that is as strong as steel, but can extend 200 times its length. Spider silk is the strongest biopolymer known. Imagine using spider silk to make parachutes that don’t break, lightweight bullet proof vests, or strong, antimicrobial stitches that have flexibility!

23. Tiger beetles (Carabidae Cicindelinae): These diurnal predators with the big eyes may be the fastest running insect; some run 100-200 body lengths in a second chasing their prey. But they run so fast that their eyes can’t keep up and the world becomes a blur, so the beetle must stop several times before it catches its prey.

24. Centipedes (Chilopoda): The best arthropod predator with the most legs! Centipedes are incredibly fast, powerful and persistent predators. These foot-long predators attack with their strong ‘venom claws,’ inject venom, and wrap their body around prey to hold it down. Centipedes rarely lose battles with prey!

25. Fireflies (Lampyridae): These “flies” or lightning “bugs” are actually beetles. The flying males flash their
courting beacon to females, who may beckon from the bushes. After successful mating, some femme fatales will respond to the signals of males of other species, but eat them instead.

26. **Huntsman spiders (Sparassidae):** Huntsman spiders are ubiquitous in Australia, often living under the loose bark of dead trees. Although large, they rarely bite instead relying on their speed to escape predators. Australian National Parks rangers are prohibited from putting fire wood in the cabs of their trucks because there have been so many accidents when these speedy sprinters run out from under the bark. Some huntsman live in big family groups, which is very rare in spiders!

27. **Lesser water boatman (Micronecta scholtzi):** All hail the loudest animal! Singing with its penis, these water dwellers can create sounds up to 99.2 decibels, comparable to a passing freight train.

28. **Dobson fly (Corydalidae):** The larvae are known as hellgrammites and are the top predator under stones in streams. At a muscular three inches long with tin snips for jaws they earn respect from any angler who knows they make great fish bait.

29. **Giant water bug (Lethocerus americanus):** Fathers of the Year! Females lay their eggs on the male’s back, and they prefer to mate with males who already have eggs. Because the eggs are so large, the male must move up and down at the water’s surface to aerate the eggs.

30. **Sea skaters (Halobates species):** These mariners are the ocean going version of water striders, skating on the water surface courtesy of waxes on their feet that prevent them from getting wet. The only truly marine insect, they feed on plankton and attach their eggs to floating debris, including plastic.

31. **Weta (Anostostomatidae):** The New Zealand Weta are some of the largest and heaviest insects in the world. Think of a 4 inch katydid with big spiny legs for defense!

32. **Wandering spiders (Ctenidae: Phoneutria nigriventer):** The world’s most venomous spider is found in Brazil. These are big, aggressive spiders. Phoneutria means “Murderess” in Greek.

33. **Queen Alexandra’s Birdwing (Ornithoptera alexandrae):** A wingspan of about 9.8 inches makes this one of the world’s largest and most beautiful butterflies! This charismatic butterfly is endangered because of habitat loss and over collecting in its native Papua New Guinea.

34. **Tarantulas (Theraphosidae):** Some tarantulas are the size of a large dinner plate and weigh more than many small mammals. Tarantulas can live 20+ years!

35. **Jumping spiders (Salticidae):** All the better to see you with! Jumping spiders have the best vision of any arthropod. These smart, colorful spiders can solve problems and figure out mazes!

36. **Periodical cicada (Magicicada species):** Seven different species live underground as nymphs feeding on sap in tree roots for 13 or 17 years. Adults emerge synchronously and males form very loud choruses in woodlands of the eastern United States.

37. **Dragonflies Odonata (Anisoptera):** They were among the earliest insects to evolve wings and are still among the best fliers. The Air Force has even used the dragonfly’s mechanism for flight stabilization as a model for their own unpiloted aircraft.

38. **Monarch butterfly (Danusa plexippus):** The longest, best-known, insect migration in the world: Monarch butterflies fly thousands of miles to spend the winter in Mexican highlands, then fly back to the USA for the summers. Monarchs feed on toxic milkweeds which makes them distasteful to predators.

39. **Antarctic midge (Belgica antarctica):** This small fly is native to Antarctica and is the largest animal to live there year round. Researchers study it to understand the fly’s tolerance of extreme cold, desiccation and
40. Army ants (Formicidae): A group of ant species in South/Central America, their colonies form large aboveground bivouacs made of individual ants, and also nomadic foraging columns of tens or hundreds of thousands of workers that can overwhelm and kill any animals in their way.

41. Vinegaroons (Mastigoproctus gigantus): What sprays a shot of acid when disturbed? Vinegaroons have acid glands at the base of their tails that they can activate to ward off predators!

42. White eyed assassin bug (Platymeris biguttatus): These large, fast, and stealthy predators stalk and paralyze their prey with a powerful venom, which keeps the prey from struggling on their piercing mouthparts.

43. Ichneumon wasps (Megarhyssa species): The large parasitoid wasp has a 3-inch needle-like ovipositor ("modified stinger") with which it drills deep into trees to lay an egg in the larvae of a tunneling woodwasp. The ovipositor contains metal ions that provide additional strength.

INTERESTING INSECTS: Fascinating Facts about Members of the Largest Phylum

44. Walking stick (Phasmatodea): These gentle herbivores of the treetops are masters of mimicry. They look just like dead twigs or leaves. To look less like insects, many sway in the 'wind' and hold their front legs out to extend their bodies.

45. Silverfish (Thysanura): Silverfish are among the most ancient of insects. They never evolved wings and they continue to shed their skin as adults, unlike most insects.

46. Velvet ant (Mutillidae): This insect is actually a wasp but the terrestrial, wingless females resemble ants. They pack a powerful sting. Large species are called "cow killers."

47. Wandering Glider (Pantala flavescens): These large dragonflies migrate in groups of hundreds of thousands of individuals in the US and Europe. The purpose of these migrations is unknown. They have been reported to spend up to several days out to sea.

48. Praying mantis (Mantodea): These deadly predators use keen vision to aim the strike of their grabby front legs. They judge distance to the prey with binocular vision, just like humans do. But unlike humans, a male mantis can still mate after a hungry female chews his head off.

49. American burying beetle (Nicrophorus americanus): An adult male and female beetle find a small rodent carcass, such as a mouse or chipmunk, bury it to hide it from other couples, and "hand" feed bits of the decaying rodent to their larvae. These parental pests are endangered!

50. Ant lions (Myrmeleontidae): These relatives of lacewings are more commonly encountered as larvae that lurk at the bottom of small conical pits in loose sand and dirt. When wandering prey — typically an ant — stumbles into the pit, the larva will bite it and drag it below the surface.

51. Scaphinotus beetle (Carabidae): This flightless, nocturnal ground beetle specializes in eating snails right from the shell, with its long and slender head fitting inside the exoskeleton and the legs brace against the opening.

52. Oil fly (Helaeomyia petrolei): This family of flies is called shore flies, but the shore that these larvae live near is natural petroleum seeps in California (think the La Brea Tar Pits), where the larvae feed on animals