PSEUDOSCORPIONS

Posted in Arachnids on March 24, 2010 by Dr. Art Evans

By Arthur V. Evans

Some of my most memorable natural history moments were the result of serendipity — that wonderful mix of directed activity and pure chance that results in unexpected discovery. Recently, I enjoyed the fruits of yet another serendipitous event.

While crouched down on a bed of dry, brown leaves laid down the previous autumn, I peered through my camera's lens to capture the image of a rather plain, charcoal black beetle not-so-distantly related to that familiar denizen of pet stores and bait shops, the mealworm. With my macro lens fully extended just inches away from my subject to capture an image nearly twice life-size, I rocked my body slowly back and forth in tiny increments to find the "sweet spot," that point where every part of the beetle snaps into razor-sharp focus and I trip the shutter.

As I peered through the lens a soft, tiny, pale arachnid less than one eighth of an inch peered out from underneath the heavily armored body of the beetle for just a second before disappearing. It suddenly reappeared on the beetle's back, and then ran several laps over its heavily armored surface before dashing out of side. Seconds later it dashed out into the open and quickly disappeared into a hairline crack in the log, but not before I managed to fire off two shots.

With scorpion-like claws and lacking a tail or stinger, I immediately recognized this minute and speedy arachnid as a pseudoscorpion. Most of the world's 2,000 or so species of pseudoscorpions live in the tropics, but about 350 species make their home in the United States and Canada.

Pseudoscorpions use their enlarged pincer-like claws for locating and capturing animal prey even smaller than themselves, such as springtails and mites. Although they have four simple eyes, their vision is weak. Instead, they rely on long, sensitive hair-like structures on their claws to find their prey. The hapless victims of pseudoscorpions are quickly dispatched and liquefied with venom produced by special glands in the claws that oozes into the victim's wounds.

They generally live beneath stones, in moss or leaf litter, under bark, or in animal nests. Some live along the seashore, hunting between the tide lines for prey. Others prefer to live inside caves. One species, the house pseudoscorpion, is commonly found in human habitations.

Small and wingless, travel for pseudoscorpions from one food source to the next over long distances is no minor obstacle. Many species have managed to get around this hurdle by using insects, especially larger beetles, for transportation. Longhorn and scarab beetles unwittingly carry these tiny hitchhikers on their legs and underneath their wings without any ill effect.

Like some other better-known arachnids (e.g., spiders), pseudoscorpions are capable of manufacturing silk. Equipped with silk-producing glands in their mouthparts, they will build silken retreats for hibernation, molting, and egg production. Venom is produced strictly for prey capture and does not pose any danger whatsoever to people or pets.

Courtship varies among pseudoscorpions. Males generally deposit a single sperm packet on the ground and are picked up by the female. Some females locate the packet by touch and smell, while others follow a silk line left by the male as a guide. In some species the male grasps the claws of the female and drags her over the packet. Prior to laying her eggs, the female must build a protective silken retreat.

To build the retreat, the female lays down silk in a ring and continually adds smaller and smaller rings until a protective dome is formed. Some species may adorn these structures using bits of debris. Safely tucked away, she lays her eggs inside a clear sac and attaches it to the underside of her abdomen.

The young molt before hatching and will not leave the sac until the third molt. One or
The house centipede, *Scutigera coleoptrata*, looks more spider and less centipede as it motors up a wall, along a sidewalk, or across the kitchen floor.

Two generations are produced each year. As many as 50 or more young are produced in each generation. They reach adulthood in about a year and, depending on the species and circumstances, may live two to five years.

House centipedes are probably native to the Mediterranean region and have been accidentally transported to many parts of the world. In Tasmania, they are known as the “domestic quickfoot.” These curious animals are well-established across much of the warmer regions of North America, but have managed to penetrate cooler, less hospitable regions in the north by adapting to life indoors.

Outside, house centipedes are at home in the cool, dark, moist recesses of rocks, trees, and leaf litter. They are equally well suited to living in the basements.
House centipedes are equipped with a pair of large compound eyes, which allows them to quickly identify potential prey.

Hardwired with a "need for speed" to capture agile prey and escape equally nimble predators, house centipedes possess an array of unique morphological features. The distinct, capsule-shaped head is equipped with a pair of large compound eyes, an exceptional feature among centipedes. Acute vision is probably a major asset when a house centipede must quickly identify a potential prey item while on the run.

The structure of the house centipede’s eyes is similar to those of insects and crustaceans. As a result, they have been the objects of study for scientists seeking to better understand the evolutionary relationships of house centipedes with insects and other arthropods.

House centipedes sprint at speeds of 420mm/second; a 5’8” human would have to run the same distance, relative to their height, at a speed of about 42 miles/hour. But it takes more than the long, slender legs of a sprinter to get these centipedes up to speed; it also requires plenty of oxygen. Their lung-like tracheal system is unique among centipedes and allows oxygen into the body quickly and efficiently to help power the numerous muscles that drive the legs.

Most of their 30 long, slender, banded legs are used not only for getting around and escaping predators, but also to help capture and secure prey. When attacked, the house centipede’s legs easily break off and continue wiggling for a short period, like a lizard’s tail, to distract predators. Fortunately, lost legs are completely regenerated after just one molt. Under ideal conditions, adult house centipedes shed their exoskeletons every 30-60 days for the rest of their lives, which may last up to three years.

Centipedes are the only group of animals that have their front legs modified into fangs that inject venom to subdue and kill prey. Although they usually feed on invertebrates, some larger species will also attack small lizards, snakes, birds, and rodents.

The venom of house centipedes is not particularly toxic, at least not to humans. They seldom bite. Descriptions of the bites of house centipedes range from "minor nuisance" to "severe pain." However, serious effects from the bite are more likely to be the result of secondary infection than the bite itself.

Still, house centipedes have become one of those "bread-and-butter" species of the pest control industry. Company literature and web sites would have you believe that these curious and largely beneficial creatures are major household pests. As with many "pests," the greatest harm involving house centipedes is the bite to your wallet caused by the unnecessary purchase of pesticides to control these needlessly maligned animals. The truth is that they do more good than harm because they prey on scores of unwanted house pests, especially small spiders, clothes moths, and cockroaches. And they do all this without charging a dime for their services.

© 2010, A.V. Evans
INSECTS BRING OUT THE INNER CHILD

By Arthur V. Evans

Two wars, recession, earthquakes, and the seemingly endless wrangling of politicians—the news has not been very good lately. These combined with the usual everyday stuff makes it all too easy to get bogged down wondering where the world is headed. But occasionally, I am afforded a welcome change of perspective—that of seeing the world once again through the eyes of a child.

I was given this fresh viewpoint awhile back at the grand opening at the new Children’s Garden at the Lewis Ginter Botanical Garden in Richmond, Virginia. The garden is a microcosm of landscapes, plant adaptations, and human-plant interactions. A boardwalk accessible to all winds through various mini-environments on its way to the Leafy Overlook and Tree House, introducing visitors to coniferous forests, deciduous woodlands, grasslands, and a butterfly meadow.

Also included is an International Village with Liliputian playhouses depicting different cultures to demonstrate how people around the world use plants for food, materials, and medicine. As the garden matures, it will continue to be a haven for young naturalists and their families to explore plant diversity with its creeping vines, prickly plants, and inviting blooms, both sweet-smelling and otherwise.

It is also a great place for bug watching. That’s where I came in. I was invited to participate in the grand opening of the Children’s Garden as entomologist Dr. Art Evans, “the bug guy.” My task was to engage garden visitors in a series of bug talks and walks. My display was simple, consisting of a collection of local insects and a variety of popular identification guides for the region, as well as copies of my own magazine and newspaper writings on insects and spiders.

Families flocked around the display, amazed at the local insect diversity. Soon I was peppered with all kinds of questions. “Are they real?” “What is this?” “Does it bite?” “What does it do?” “What do they eat?” “Are they really found around here?”

Within just minutes, my world-weariness melted away. I was once again caught up in the excitement of my audience’s infectious enthusiasm for insects. After meeting
The author, down and dirty on his knees at Virginia Beach in 2007, searching for false soldier beetles (Oedemeridae) under driftwood.

After answering some questions, I briefly introduced myself to the audience, and talked about some of the things that entomologists do in the world. Then we covered some bug basics, like their number of legs (6), body regions (3), and metamorphosis. Also discussed was how insects differ from other kinds of common garden animals such as spiders (8 legs, 2 body regions), worms (no segmented appendages), and slugs (no external skeleton or appendages).

The best part of the day was the bug walk. It was like going on safari. As we searched for tiny game, our goal was not to collect or kill, but to observe and marvel. The weather was overcast and decidedly cooler from the previous day when I had done my reconnoitering for bug hot spots at the garden. Still, there was plenty of insect hubbub about the flowering plants.

Bumblebees, soldier beetles, thread-wasted wasps, and various kinds of butterflies, skippers and moths clambered over the spikes of small yellow flowers as if they knew that fall had arrived and that warm and sunny days were now numbered. Both adults and youngsters peered into the blooms to admire the diversity and activity of this energetic, winged, and multi-legged assemblage. It was a great demonstration of how both plants and insects depend on one another for their very existence.

Nearby, black swallowtail caterpillars nibbled away on a lone fennel plant beneath the dining room window of the Bloemendaal house. We were all being treated to the fact that eating is job one for growing caterpillars of all stripes. Soon, they would all disappear as quickly as they appeared and transform twice more into entirely different creatures with no resemblance whatsoever to their current state.

The shrubs and low hedges were filled with the songs of amorous male crickets and meadow katydids, all scraping their wings together to produce characteristic chirps, clicks, and rasps to attract a mate. In just a matter of yards we found more species of insects and spiders than could be found of mammals, birds, or reptiles in the entire garden!

This fabulous hands-on experience reminded me once again of why I got into this field in the first place. Sure, insects, spiders and their relatives are everywhere and are endlessly fascinating in their ways, fueling lifetimes of scientific research and popular writing projects. But I have come to understand that my attraction to all things insect is really about my desire to learn as much as possible of the world around me. I truly believe that the desire to learn is a very basic human need; the day we stop learning is the day we start dying.

To see the natural world through the eyes of children, or adults who have not lost their childlike sense of wonder and awe, is truly a gift. For me, it is a clear reminder of my own wonder and excitement that sparked my lifelong interest in insects nearly 50 years ago. I am confident in my knowledge that there are still plenty of insects and spiders out there to see, learn, and do for at least another 50 years.

One of the great things about being a biologist is that we always get to keep a part of our childhood with us while we conduct fieldwork. It is part and parcel of our various job descriptions to wonder how things work as we get down and dirty on our hands and knees to rake through the soil, muck about in the mud, or slosh around in creeks and ponds. Now I ask you, what could be better than that?

© 2010, A.V. Evans
The green mantidfly, Zeugomantispa minuta, looks like a cross between a green lacewing and a praying mantid. They live throughout much of eastern United States and are found in a variety of habitats from late June through early October.

By Arthur V. Evans

A few years back, on a warm muggy evening in September at the Savage Neck Natural Area Preserve on the Eastern Shore of Virginia, I was checking a light trap designed specifically to lure night-flying insects. As the beam of my headlamp swept over nearby shrubbery, my eye caught a pale green insect just over half an inch long perched on a leaf.

With four clear wings folded rooflike over its body and a pair of grabbing forelegs held tightly against its long, slender thorax, this animal looked like a cross between a green lacewing and a praying mantid. In fact, it was the green mantidfly, Zeugomantispa minuta.

Mantidflies belong to the order Neuroptera and are only distantly related to mantids. Instead, they are related to antlions (whose larvae are known as doodlebugs), lacewings, and owlflies. Praying mantids are in the order Mantodea and are actually cousins of cockroaches.

Adult mantidflies capture and eat all kinds of small insects in captivity, but little is known of their food preferences in the wild. The larvae are also predators. Some are known to attack the pupae of moths, or the larvae of beetles, flies, bees, and wasps, while others prey on the eggs of spiders.

There are two basic strategies for mantidfly larvae to successfully dine on spider eggs; they are either egg sac penetrators or spider-boarders. Egg sac penetrators, such as those of green mantidflies, seek out their food directly.

When they find an egg sac they chew their way through the silk casing with highly modified jaws. The grooved mandibles and maxillae fit snugly together to form a pair of piercing/sucking tubes through which they draw out the embryonic fluids of the eggs.

Spider boarders are unable to chew their way inside spider egg sacs. Instead, they seek out a female spider, climb onto her body, and wait. What are they waiting for? Egg-laying day. The larvae disembark just in time to be wrapped up with the eggs in the egg sac.

Those mantidfly larvae that initially hitched their fortunes to a male must eventually switch to the egg-producing sex. They switch hosts either while the male is mating or being cannibalized by a female.

The life cycle of mantidflies is a type of complete metamorphosis known as hypermetamorphosis. The first larval stage is quite active and resembles a slender, leggy silverfish, a body type that serves them well as they seek out egg sacs or spiders. Once inside the egg sac, the larva switch into feeding mode and go through two grublike stages before completing their development into adulthood. These fat, short-legged larvae are decidedly more sedentary. Afterall, they are thorax deep in food and have no need to go anywhere.

One of the most amazing things to me about mantidfly natural history is that scientists figured it out at all. The seemingly unlikely relationship between mantidflies and spiders was first described in 1869 and, with careful and patient study, continues to unfold today. It is this unrelenting promise of discovery that keeps me and my colleagues forever enamored with the world of insects and spiders and dreaming of an endless summer.

© 2010, A.V. Evans
The brown marmorated stink bug, *Halymorpha halys* Stål, is steadily expanding its range across North America.

Last month, while attending a meeting of the Bull Run Mountains Conservancy held in The Plains, Virginia, I was approached by several members who wanted to know about a stink bug that had invaded their homes by the dozens or hundreds in the fall. At first I thought they were referring to a species of bark stink bug, *Brochymena*, which sometimes enters homes by hiding under the bark of firewood hauled inside for the fireplace. Just as I was going into my spiel about sending me a photograph or a specimen for identification, someone said, “Look! There’s one!”

Sure enough, a robust gray stink bug was slowly making its way up the wall toward a window through which the day’s last rays of sunlight were shining. Judging from its distinctive markings, I knew that it was not a species of *Brochymena* and wondered if it might be the brown marmorated stink bug (BMSB), *Halymorpha halys* Stål. My suspicions were soon confirmed.

This uninvited insect from Asia has proven to be quite a nuisance to many homeowners in northeastern United States for the past several winters. They are much more likely to take up residence inside buildings than either of their native look-alikes, *Brochymena* and *Euschistus*.

BMSB was first reported from Allentown, Pennsylvania in 2001, but it turns out that the species has been in that area since at least 1996. The very first individuals probably arrived in America as stowaways, possibly as eggs, on packing crates most likely shipped from China or Japan. Since then, they have spread throughout Connecticut, Maryland, New Jersey, New York, Pennsylvania, Virginia, and West Virginia. As of 2004, an isolated population has become established in Oregon.

Like other stink bugs in the family Pentatomidae, BMSB are “shield-shaped” in outline. They are about 17 mm in length and are nearly as wide as they are long. Unlike similar species of native stink bugs, BMSB has white bands on the antennae and dark bands along the edges of the abdomen surrounding the wings. The head and pronotum (upper surface of the mid section, or first thoracic segment) have patches of small, round coppery or metallic bluish pits. The glands that put the stink in these and other pentatomids are located on the underside of the thorax and upper surface of the abdomen.

Brown marmorated stink bugs probably produce a single generation per year in America, but records from the sub-tropical regions of China indicate that there are 4-6 generations annually. Local populations of adults emerge from their winter hideaways in early June and begin mating and laying eggs almost immediately. The small black and red larvae (nymphs) soon hatch and molt five times during the months of July and August. Adults appear in mid August and begin seeking overwintering sites by mid September as the evenings start to become cooler.

To escape the cold, BMSB enter homes, out buildings, office buildings, and other structures by crawling under siding and shingles, around door and window frames, and into crawl spaces and attics. Once inside, they will settle in and become inactive for short periods. However, reinvigorated by the warmth of home heating systems, they are driven to crawl over walls and furniture, or fly clumsily to lights and windows.

As they bumble about, BMSB leave their odor on everything they land and crawl on. The accumulation of this odor at a good hibernation site serves as a powerful chemical beacon that attracts their brethren to the same location year after year.

The best way to keep BMSB out of homes and other structures requires preventative...
measures to be taken during the summer, after the bugs have already left, to prevent
a re-infestation in the fall. Seal cracks and spaces around doors, windows, vents,
utility access points, siding, trim, fascia boards, and chimneys. Caulk is handy for
small cracks, but wire mesh and screens may be required when dealing with larger
spaces associated with attics and foundation vents.

The good news is that once inside your home, BMSB will not bite you or your pets,
spread disease, nor lay their eggs. Their piercing-sucking mouthparts are adapted for
drawing sap from plants, not damaging furniture, clothing, or other household
items.

Using insecticides on BMSB indoors is not particularly effective. Crushing them or
sucking them up with a vacuum cleaner causes them to release their noxious odors
that may persist in a room or on cleaning implements for sometime. Any disturbance
perceived by the bugs as a threat will cause them to stink as a defensive measure.
The best thing to do is to simply let them walk on a piece of paper and take them
directly outside.

What is being done about BMSB nuisance in America? Since they have yet to
become serious agricultural pests here in the States, there is little incentive for
chemical companies to develop pesticides to combat them. Pesticides of any kind
are incredibly expensive to bring to market and the number of homeowners plagued
by home invasions of these bugs will never support the company’s efforts to recoup
their investment, much less generate a profit.

But all is not lost. Researchers are learning everything they can about BMSB so that
they can identify the weak links in their life cycle and exploit them to affect some
level of control. Select BMSB genes and proteins are being sought for the possible
development of genetically modified crops that will help suppress their numbers.
There is also the possibility of using parasitic insects that will attack stink bugs during
egg stage, not only to lessen their potentially harmful impact on crops such as
soybeans, cotton, and corn, but also to reduce the numbers of individuals seeking
shelter for the winter.

One of the more promising avenues of research involves the synthesis of attractant
chemicals, or pheromones, to use in stink bug traps. Although BMSB attractant
pheromone is currently unknown, scientists have discovered that they are attracted
to the pheromones produced by the male of another species of stink bug native to
Japan, Plautia stali. Traps in America baited with this pheromone not only
attract BMSB, but also some native species of stink bugs and a tachinid fly,
Trichopodes pennipes, that parasitizes native stink bugs.

Why would these stink bugs and one of their natural enemies be attracted to the
pheromone of another species of stink bug? Research on other stink bugs species
suggests that some use the pheromones of stink bug species other than their own in
an effort to locate better feeding sites. Further, this chemically induced aggregation
of different species of stink bugs may serve as a defensive strategy known as the
"selfish-herd effect." As the herd, or aggregation, grows individual stink bugs are
increasingly less likely to be selected by a parasitic fly that, not so coincidentally,
uses the very same pheromone to locate its victims. The discovery of the
attractiveness of this pheromone offers up a potentially useful tool for monitoring and
managing BMSB in America.

BMSB is steadily expanding its range across North America. Although clearly
annoying to homeowners, the degree to which this species will become an
agricultural pest in America remains unclear, especially as it moves south into
warmer climates. Within their native range of China, Japan, Korea and Taiwan
BMSB is most certainly an agricultural pest, attacking soybeans, apples, peaches,
figs, mulberries, citrus, persimmons, and a variety of ornamental plants.

For now, all we can do is batten down the hatches and hope that science will come
to the rescue.

© 2010, A.V. Evans

Share this:

Loading...

37 Comments »

WINTER DARK FIREFLIES

Posted in Beetles, Defense, Insects, Virginia, Winter with tags Arthropods, Beetles, Coleoptera, Entomology, Fireflies, Insects, Natural history, Virginia on March 15, 2010 by Dr.
Art Evans

By Arthur V. Evans

Today was cool, gray, and blustery—not exactly what I would call ideal conditions for
finding insects. Nevertheless, I set out for the woods along Jordans Branch in Bryan
Park here in Richmond, Virginia in hopes of finding early spring species to
The winter dark firefly, *Ellychnia corrusca*, is mostly dull black with yellow, orange, or reddish arched bands along the sides of their midsection. I ambled down a trail through a stand of holly toward a mixed woodland of loblolly pine and various hardwoods. As I knelt down to inspect the trunk of a pine snag, a faintly beetlish outline partially hidden in a crack in the bark caught my eye. It was a winter dark firefly, *Ellychnia corrusca*. Flat and soft-bodied, the beetle measured slightly more than one half inch in length. It remained motionless until I gently coaxed it out of its hiding spot with a pine needle for a better look. Winter dark fireflies are mostly dull black, but the sides of their flattened, shield-like midsections are marked with yellow, orange, or reddish arched bands. Their soft, pliable wing covers are clothed in short, fine, golden hairs. Mature larvae pupate in dead logs, especially pines. Adults emerge in late summer and fall and are sometimes encountered on trees or on the flowers of goldenrod and other asters. As temperatures begin to drop, they seek protected places under bark for the winter. The beetles reappear on late winter and early spring days, either resting on bark or circled around sap flows on maples like cattle around a trough. Like their more familiar cousins of summer, winter black fireflies are bioluminescent, at least for a while. Both the larval and pupal stages produce their own light. Even freshly emerge adults maintain this youthful glow, but as the beetles grow older they lose their light-producing organs. Mating winter dark fireflies are not an uncommon sight. Their courtship involves two stages. First, the male climbs on the back of the female while constantly touching her with his antennae and mouthparts. This activity alone may last for up to half an hour. Afterward, the couple consummates their relationship by joining their bodies as they face away from one other. Sometime during the next hour or so, the male transfers a protein-packed packet, or spermatophore, to the female. Pairs of beetles sometimes remain joined together this way for up to an entire day. Over the next several days the female will slowly digest the spermatophore inside her body and store it as a source of energy in her body. Both males and females will mate several times before dying in late spring or early summer. When attacked, these beetles exude a bitter fluid from their leg joints. This defensive strategy, known as reflex bleeding, is also practiced by other species of lightningbugs. In spite of their chemical defenses, phorid flies attack winter dark fireflies and their kin. Just how the flies locate their hosts is unknown, but their maggots develop inside the beetle, killing their beetle host as they emerge to pupate. Recent studies suggest that winter dark fireflies are not a single species, but represent a complex of closely related, yet undescribed species that inhabit most of eastern North America. The taxonomy and natural history of these handsome, delicate, harbingers of spring would make an excellent study for a student looking to make a significant scientific contribution to the study of North American beetles.

© 2010, A.V. Evans

By Arthur V. Evans

While moving some bags of potting soil on the front porch a few years back, I discovered a gathering of variously sized leggy and very nervous creatures. Their pale bodies, not quite reaching an inch in length, appeared to be brown banded, supported by long legs mottled with patches of gray and rust. Their long, hair-like antennae waved nervously about as I knelt down for a closer look. At first glance, they looked decidedly spiderly in appearance. They scampered easily up, over, and around vertical surfaces of concrete, brick, and paneling and quickly disappeared into the nearby shrubbery. I had stumbled upon a congregation of camel crickets.
This handsome greenhouse stone cricket, *Diestrammena asynamora*, was photographed in my basement last fall. Our cats seem to thoroughly enjoy them and frequently leave maimed cricket bodies in conspicuous places around the house.

Greenhouse stone crickets belong to the family Rhaphidophoridae. Raphidophorids are commonly known as camel crickets because of their hump-backed appearance. They are also called cave crickets because they are often found living in and around the entrances of caves. However, they are equally at home in crevices, hollow trees, and basements, or under logs and stones. Strictly nocturnal, greenhouse stone crickets venture out during the day only when disturbed. Without wings or other sound-producing structures, these crickets never contribute to the evening chorus. However, some camel crickets are thought to drum their abdomens on the substrate in an effort to attract mates.

Some of the 200 or so species of camel and cave crickets known to occur in North America originally hail from other parts of the world. An immigrant from China, the greenhouse stone cricket first became established in the warm, moist greenhouses throughout much of Europe and North America, and is now cosmopolitan.

During heavy rains, or hot, dry days, greenhouse stone crickets will invade garages, sheds, and basements, often assembling by the dozens or hundreds. Indoors, the crickets are attracted to dark, humid spaces, such as those afforded by bathrooms and laundry rooms. Clothing and linens stored in these areas may be damaged if persistent populations of these crickets cannot find suitable plant food nearby.

Outdoors, they are commonly found on the ground, beneath stones and logs, or in piles of firewood. Areas overgrown with ivy and other ground covers provide excellent hiding places for them. Greenhouse stone crickets feed on living plants and small insects. In greenhouses, these crickets will eagerly consume seedling, flowers, seeds, or young leaves, but they seldom cause serious damage to plants. They will also scavenge other plant and animal materials.

As you read this, you can take comfort in the fact that right now, somewhere in the bowels of your basement or elsewhere on your property, these sociable creatures are quietly taking refuge. Whether we like it or not, our steady supplies of food and water, served up in artificially warmed environments, have made it possible for these curious creatures to become a regular part of our lives.

©2010, A.V. Evans
Like This Lyrics. 

[Intro] Uh, You know what it is what it is when we do what we do. 

[Verse 1] If good girls get down on the floor Tell me how low will a bad girl go She probably pick it up drop it down real slow Either that or she's upside down on the pole That's when I grab the knot throw it up in the sky Let it come down slow watch it all fly Front to the back then side to the side Then we head back to my crib for the night That's how it goes 

[Chorus] Down, all night long She whisper in my ear says she loves my song This Is Why I'm Hot