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Tail whip spider

Order of arachnids comprising whip spiders and tailless whip scorpions
AmblypygiTemporal range: Bashkirian/Moscovian–Holocene 315–0 Ma[1]
Pre †O †S †D †C †P †T †J †K †Pg †N
Heterophrynus, Ecuador
Scientific classification Kingdom: Animalia
Phylum: Arthropoda
Subphylum: Chelicerata
Class: Arachnida
Order: AmblypygiThorell, 1883
Families Paracharontidae
Charinidae
Charontidae
Phrynichidae
Phryniidae
Amblypygi is an ancient order of arachnid chelicerate arthropods also known as whip spiders and tailless whip scorpions (not to be confused with whip scorpions or vinegaroons that belong to the related order Telyphonida). The name "amblypygid" means "blunt tail", a reference to a lack of the flagellum that is otherwise seen in whip scorpions. They are harmless to humans.[2][3] Amblypygids possess no silk glands or venomous fangs. They rarely bite if threatened, but can grab fingers with their pedipalps, resulting in thorn-like puncture injuries. As of 2016, 5 families, 17 genera and around 155 species had been discovered and described.[4] They are found in tropical and subtropical regions worldwide; they are mainly found in warm and humid environments and like to stay protected and hidden within leaf litter, caves, or underneath bark. Some species are subterranean; all are nocturnal. Fossilized amblypygids have been found dating back to the Carboniferous period, such as Graeophonus.[1] Physical description
Detail of pedipalps
Parts of an amblypygid, from Pocock (1900)[5]
Amblypygids range from 5 to 70 centimetres (2.0 to 27.6 in) in legspan.[4][6] Their bodies are broad and highly flattened, with a solid carapace and a segmented abdomen, or opisthosoma. Most species have eight eyes; a pair of median eyes at the front of the carapace above the chelicerae and 2 smaller clusters of three eyes each further back on each side. Amblypygids have raptorial pedipalps modified for grabbing and retaining prey, much like those of a mantis;[7] recent work suggests that the pedipalps display sexual dimorphism in their size and shape.[8] The first pair of legs act as sensory organs and are not used for walking. The sensory legs are very thin and elongate, have numerous sensory receptors, and can extend several times the length of the body.[4] Behavior
Damon diadema mother carrying young
Amblypygids have eight legs, but use only six for walking, often in a crab-like, sideways fashion. The front pair of legs are modified for use as antennae-like feelers, with many fine segments giving the appearance of a "whip". When a suitable prey is located with the antenniform legs, the amblypygid seizes its victim with large spines on the grasping pedipalps, impaling and immobilizing the prey. This is typically done while climbing the side of a vertical surface and looking downward at their prey.[9] Pincer-like chelicerae then work to grind and chew the prey prior to ingestion. The tailless whip scorpion may go for over a month in which no food is eaten; often this is due to premolt. Due to the lack of venom the tailless whip scorpion is very nervous in temperament, retreating away if any dangerous threat is sensed by the animal. Comparing the front and back legs of an Amblypygid
Courtship involves the male depositing stalked spermatophores, which have one or more sperm masses at the tip, onto the ground, and using his pedipalps to guide the female over them.[10] She gathers the sperm and lays fertilized eggs into a sac carried under the abdomen, or opisthosoma. When the young hatch, they climb up onto the mother's back; any which fall off before their first molt will not survive. Some species of amblypygids, particularly Phrynus marginemaculatus and Damon diadema, may be among the few examples of arachnids that exhibit social behavior. Research conducted at Cornell University suggests that mother amblypygids communicate with their young with her antenniform front legs, and the offspring reciprocate both with their mother and siblings. The ultimate function of this social behavior remains unknown.[11] Amblypygids hold territories that they defend from other individuals.[12] The amblypygid diet mostly consists of arthropod prey, but these opportunistic predators have also been observed feeding on vertebrates.[4] Amblypygids generally do not feed before, during, and after molting. Like other arachnids, an amblypygid will molt several times during its life.[4] Molting is done from hanging from the underside of a horizontal surface in order to use gravity to assist in separating the old exoskeleton from the animal. As pets
Several species of Amblypygi are sold and kept as pets including Damon diadema, Damon medius, Damon variegatus, Euphrynichus amanicus, Heterophrynus batesii, Acanthophrynus coronatus, Phrynus marginemaculatus and Paraphrynus mexicanus.[13] Tailless whip scorpions are kept in tall (>18 inches) glass enclosures which allow for two things: Enough vertical space for climbing and moulting, and enough space for heat to dissipate in order to keep the enclosure between 70 °F and 75 °F. Two inches of substrate at the bottom of the enclosure is generally sufficient to allow for burrowing and also serves as a method to retain water in order to keep the humidity above 75%. Tailless whip scorpions live anywhere between 5–10 years. Feeding can include small insects such as crickets, mealworms, and roaches.[14][15] Genera
Damon johnstonii from West Africa
The following genera are recognised:[16][17]
Palaeoamblypygi
Weygoldt, 1996
Paracharontidae
Weygoldt, 1996
†Graeophonus
Sudder, 1890 (2–3 species, Carboniferous)[18]
Paracharon
Hansen, 1921 (1 species)
†Paracharonopsis
Engel & Grimaldi, 2014 (1 species, Eocene)
Euamblypygi
Weygoldt, 1996
Catageus
Thorell, 1889 (1 species)
Charinus
Simon, 1892 (33 species)
Sarax
Simon, 1892 (10 species)
Neoamblypygi
Weygoldt, 1996
Charonitidae
Simon, 1892
Charon
Karsch, 1879 (5 species)
Stygophrynus
Kraepelin, 1895 (7 species)
Unidistitarsata
Engel & Grimaldi, 2014
family unspecified
†Kronocharon
Engel & Grimaldi, 2014 (1 species, Cretaceous)
Phrynoidea
Blanchard, 1852
Phrynichidae
Simon, 1900
Damon
C. L. Koch, 1850 (10 species)
Euphrynichus
Weygoldt, 1995 (2 species)
Muscodamon
Fage, 1939 (1 species)
Phrynichodamon
Weygoldt, 1996 (1 species)
Phrynichus
Karsch, 1879 (16 species)
Trichodamon
Mello-Leitão, 1935 (2 species)
Xerophrynus
Weygoldt, 1996 (1 species)
Phryniidae
Blanchard, 1852
Acanthophrynus
Kraepelin, 1899 (1 species)
†Britopygus
Dunlop & Martill, 2002 (1 species, Cretaceous)
†Electrophrynus
Petrunkovich, 1971 (1 species, Miocene)
Heterophrynus
Pocock, 1894 (14 species)
Paraphrynus
Moreno, 1940 (18 species)
Phrynus
Lamarck, 1801 (28 species, Oligocene - Recent)
incertae sedis
†Sorellophrynus
Harvey, 2002 (1 species, Upper Carboniferous)
†Thelyphrynus
Petrunkovich, 1913 (1 species, Upper Carboniferous)
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Dunlop, J.A.; Zhou, G.R.S.; Braddy, S.J. (2007). "The affinities of the Carboniferous whip spider Graeophonus anglicus Pocock, 1911 (Arachnida:Amblypygi)". *Earth and Environmental Science Transactions of the Royal Society of Edinburgh*. 98 (2): 165–178. doi:10.1017/S1755691007006159. External links
Wikimedia Commons has media related to Amblypygi.
Arthropods portal
Data related to Amblypygi at Wikispecies
Amblypigid video summarizing research from University of Nebraska's Eben Gering Amblypygi.
The Antillean (West Indian) fauna. Retrieved from " The only whip scorpion found in the United States is the giant whip scorpion, Mastigoproctus giganteus giganteus (Lucas). The giant whip scorpion is also known as a vinegaroon or grampus in some local regions where they occur. To encounter a giant whip scorpion for the first time can be an alarming experience. What seems like a miniature monster from a horror movie is really a fairly benign creature. While called a scorpion, this arachnid has neither the venom-filled stinger found in scorpions nor the venomous bite found in some spiders. Figure 1. The giant whip scorpion or 'vingaroon,' Mastigoproctus giganteus giganteus (Lucas). Photograph by R. Mitchell, University of Florida. One very distinct and curious feature of whip scorpions is its long thin caudal appendage, which is directly related to their common name "whip-scorpion." The common name "vinegaroon" is related to their ability to give off a spray of concentrated (83%) acetic acid from the base of the whip-like tail. This produces that tell-tale vinegar-like scent. The common name 'grampus' may be related to the mantis shrimp, also called the grampus. The mantis shrimp is a marine crustacean that can deliver a painful wound with its mantis-like, raptorial front legs. Often captured with shrimp during coastal trawling, shrimpers dislike this creature because of the lightning fast slashing cut mantis shrimp can deliver to an unsuspecting finger during sorting of the shrimp from the by-catch. Synonymy (Back to Top)
Thelyphonus giganteus Lucas 1835
Thelyphonus excubitor Girard 1854
Thelyphonus rufus Butler 1872
Mastigoproctus giganteus giganteus Lomberg 1879
Distribution (Back to Top)
Mastigoproctus giganteus giganteus is the only whip scorpion found in the United States. This subspecies occurs in Arizona, Florida, New Mexico, Oklahoma, Texas, and in Mexico. Two other subspecies, Mastigoproctus giganteus mexicanus (Lucas, 1835) and Mastigoproctus giganteus scabrosus (Lucas, 1835) are confined to portions of Mexico. As a group, whip scorpions are found worldwide in the tropics and subtropics. While more commonly encountered in arid areas, Mastigoproctus giganteus can also be found in grassland, scrub, pine forests and barrier islands. Table 1. Other species in the genus Mastigoproctus and their general distribution in the Americas. Species Name
General Distribution
M. baracoensis
Cuba
M. brasiliensis
Brazil (Espírito Santo)
M. butleri
Brazil
M. columbianus
Colombia
M. formidabilis
Venezuela
M. iochirus
Guatemala
M. maximus
Brazil (Mato Grosso)
M. minensis
Brazil (Minas Gerais)
M. nana
Costa Rica
M. pelegrini
Cuba
M. perditus
Brazil (Mato Grosso)
M. proscorpio
Hispaniola, Martinique
M. tantalus
El Salvador
Description (Back to Top)
This is a fairly large creature, up to 5 cm long, which does not include the caudal flagellum or telson. Large pedipalps (pincer-like appendages) help whip scorpions catch and kill their prey by crushing them. Mishandled, these pedipalps can give a noticeable pinch. A pair of long, thin, front legs acts almost like antennae as they feel about for their prey in the dark. The whip-like telson also functions as a sensory organ. These three structures apparently help compensate for their eight weak eyes. Table 2. Measurements of 10 representative females and one male
Mastigoproctus giganteus giganteus (Muma 1968). The telson or caudal flagellum was extremely variable due to breakage, but some had a telson longer than the total body length. Lengths in mm
Females (10)
Total Carapace of Cephalothorax
Abdomen
Max 50.0
21.0
30.0
Min 38.0
11.0
24.0
Mean 45.3
18.5
27.9
Male (1)
45.0
18.0
27.0
Table 3. Measurements of 3 Riker mount specimens of Mastigoproctus giganteus giganteus by this author. Lengths in mm
N = 3
Total Carapace of Cephalothorax
Abdomen
Telson
Max 44.0
18.0
25.0
40.0
Min 37.0
14.0
21.0
32.0
Figure 2. Dorsal view and anatomical features of the giant whip scorpion or 'vingaroon,' Mastigoproctus giganteus giganteus (Lucas). Photograph by W.H. Kern, University of Florida. Figure 3. Ventral view of the giant whip scorpion or 'vingaroon,' Mastigoproctus giganteus giganteus (Lucas). Photograph by W.H. Kern, University of Florida. Figure 4. Close up view of the prosoma (cephalothorax) of the giant whip scorpion or 'vingaroon,' Mastigoproctus giganteus giganteus (Lucas). Photograph by W.H. Kern, University of Florida. Life History and Habitat (Back to Top)
Whip scorpions are nocturnal predators of other arthropods. During the day they remain out of sight in burrows they dig with their pedipalps. They can often be found under logs, boards, rotting wood, rocks, and other natural dark places. Most whip scorpions occur in moist or seasonally moist forested habitats in tropical or subtropical environments. Mastigoproctus giganteus occur in more arid habitats with well drained soil. They spend the driest periods underground and become active on the surface during Florida's rainy season (May/June-November). The primary prey of Mastigoproctus giganteus are soft bodied insects like termites, cockroaches, and crickets. One of the common prey of adults in Florida is the Florida woods roach, Eurycotis floridensis. Live food such as crickets and roaches are crushed between special teeth on the inside of the second segment of the pedipalps. When threatened, vinegaroons seek the refuge of their burrows or put on a bluff display of rearing up and spreading their pedipalps. They can also accurately spray acetic acid from a pore at the base of the caudal filament out to a distance of from a few inches to one foot. This defensive spray is not dangerous to skin but stings severely if it gets into an animal's eyes or nostrils. Figure 5. The giant whip scorpion or 'vingaroon,' Mastigoproctus giganteus giganteus (Lucas), displaying defensive stance with spread pedipalps. Photograph by R. Mitchell, University of Florida. Fairly long-lived, whip scorpions can live at least seven years. They grow slowly, molting three times in about three years. Once becoming adults, they live up to another four years. Mating takes place in the fall. A complex mating ritual lasts eight to 12 hours. The male secretes and transfers a sperm sac (spermatophore) into the female. She carries the eggs internally for several months and then lays 30 to 40 eggs in a fluid filled sac held under her abdomen. She remains in her burrow holding the egg sac off the ground for an additional two months. The mucous membrane helps preserve moisture, allowing the eggs to develop. The young are white in color when they hatch from the eggs and then climb onto their mother's back for about one month. Once the first molt is complete the second instar young look like miniatures of the adults. At this point, they leave their mother's burrow. The mother whip scorpion, completing her life cycle, dies soon after. Immature Mastigoproctus giganteus take a year between each of the next three molts. Natural Enemies (Back to Top)
Mastigoproctus giganteus is large enough to be a reasonable meal for mammals like raccoons, coatis, armadillos, skunks, and even bear, feral hogs and peccaries. Selected References (Back to Top)
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