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Giant Waterbugs and Waterscorpions (*Families Belostomatidae and Nepidae*)

Stealthy Ambush Hunters of the Murky Depths

Waterscorpions, and giant waterbugs, which are also commonly known as “toe biters”, “electric light bugs”, or even “alligator ticks” in some regions, are two families of large, aquatic to semi-aquatic freshwater insects found in temperate to tropical or sub-tropical regions most of worldwide, including much of North and South America, northern Australia, and eastern Asia. The giant waterbugs consist of about 3 subfamilies and 13 genera, while the waterscorpions consist of two families and about 14 genera. These unique aquatic insects can breathe, or respire through caudal or posterior tubes, which are siphoned off to allow for airflow. Both of these families of insects are highly predatory ambush hunters, often resembling nothing more than submerged twigs, leaves, or other bottom vegetation, where they will ambush many different aquatic invertebrates and even some small vertebrates. These insects often have raptorial forelimbs designed for capturing prey along with their proboscises used for injecting a strong saliva and consuming them, and long, slender flagellums at the ends of their abdomens. Waterscorpions are named for their slender bodied resemblance to scorpions, while most giant waterbugs tend to be ovular and elongated with flattened legs and folded wing pads. Giant waterbugs are also named “electric light bugs” due to their attraction to leaving the water during warm summer nights and being found around lights. Waterscorpions and giant waterbugs are easily kept and maintained insects for the aspiring naturalist or pet owner, and are occasionally available as well.

Taxonomy

Life: All living, physical, and animate entities

Domain: Eukaryota

Kingdom: Animalia

Phylum: Arthropoda

Class: Insecta

Order: Hemiptera

Infraorder: Nepomorpha

Family: Belostomatitidae and Nepidae

**Taxonomy subject to change and revision.*

Lifespan and Longevity

If provided the proper care, giant waterbugs and waterscorpions may live up to one year or slightly more, and complete their life and reproductive cycles within this time.

Distribution and Habitat

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Depending upon the species and genera, waterscorpions and giant waterbugs may be found in a variety of permanent to semi-permanent waterbodies most of worldwide, including much of southern Canada and the United States, Central and South America, northern Australia, and eastern Asia. They most often occur in stagnant or slow moving ponds, lakes, marshes, rivers and streams, ditches, and other wetlands with ample aquatic and emergent vegetation.

Conservation Status

Not Evaluated for the IUCN Red List (NE) or otherwise Data Deficient (DD).

Experience Level Required

Novice/Beginner to Intermediate/Moderate.

Size

Waterscorpions and giant waterbugs may vary in size depending on the species and genera. They may range from about ¾” to 2 ½”. Some of the largest species can be as much as 4 ½” in size.

Housing and Enclosure

Housing must be sealed and escape proof, as well as adequately ventilated. A secure top or cover should still be provided for waterscorpions, giant waterbugs, and other aquatic insects as many can still fly or climb out. Most aquatic insects are also relatively simple to house and accommodate in an aquatic setup. Using distilled water is recommended to avoid exposure to potentially harmful contaminants as well as scale build up. One quarter to one half of the water should be changed at a minimum every two to four weeks, and completely changed at least every 2 to 3 months. Provide at least a 5 to 10 gallon or larger aquarium and an under-gravel filter to help maintain water quality and cleanliness, as well as an air pump, air stone, and plastic tubing. More elaborate filtration systems may also be used with gang valves and connectors for pumping air as well. Substrate which can be provide may include sealed aquarium gravel, washed natural gravel or sand, or a bare bottom if one opts to. Some substrates have sealed coating which make them more resistant to algal and bacterial growth. Additional furnishings in the enclosure should also be provided for hiding opportunities, and can include securely anchored live or artificial plants and foliage, rocks, or driftwoods.

Temperature, Lighting, and Humidity

Waterscorpions, giant waterbugs, and other aquatic insects do not require any additional UVA/UVB lighting or heating, and can be maintained at around room temperature from 70 to 85 degrees F. For any supplemental heating that may be needed, use a low wattage UVA/UVB and/or incandescent bulb, radiant or ceramic heat emitter, submersible water heater, or under tank heating element (or UTH). More specific lighting, heating, and humidity product suggestions and recommendations that can best suit one’s needs, as well as those of one’s animals can be given as well. Spot clean the enclosure for wastes, feces, or uneaten food at least once per week. Be sure to periodically replace the substrate, clean, and disinfect the enclosure and its furnishings at minimum every 2 to 3 months.

Feeding, Diet, and Nutrition

Carnivorous; Waterscorpions and giant water bugs are highly predacious ambush hunters, often resembling twigs, leaves, or other inconspicuous debris at the water’s bottom. These insects will catch and consume a variety of other aquatic insects and other invertebrates, and even sometimes smaller vertebrates they can catch and overpower such as small fish, small frogs, and larval amphibians. Therefore, housing these insects with other aquatic invertebrates or small vertebrates is not advisable.

In captivity, these species may be offered most of the commonly available feeder insects such as

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crickets, roaches, mealworms, waxworms, and others, as well as small feeder fish, daphnia or water fleas, or other aquatic insect larvae. Typically, additional supplementation is not required for most aquatic insects, although gutloading and dusting any feeder insect items with vitamin D3 and calcium will still benefit their exoskeleton and overall health.

Handling

Water scorpions and giant waterbugs possess long rostrums, or proboscises and raptorial forelimbs designed for grabbing smaller prey and injecting them with a strong saliva prior to consumption. Many of these insects are thus capable of delivering a painful bite if carelessly handled, although no serious implications or instances medical significance have been documented. Some genera will also feign death as a defensive mechanism as well. Using an aquarium net is a better option for moving these insects for any reason.

****Also be sure to practice basic cleanliness and hygiene associated with proper husbandry after touching or handling any animals or animal enclosures to prevent the possibility of contracting salmonellosis or any other zoonotic pathogens****

Contact

Authored by Eric Roscoe. For any additional questions, comments, and/or concerns regarding this animal, group of animals, or this care sheet, please email and contact the Madison Area Herpetological Society at info@madisonherps.org

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