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Giant Water Bugs, Electric Light Bugs, *Lethocerus*, *Abedus*, *Belostoma* (Insecta: Heteroptera: Belostomatidae)¹

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Introduction

The heteropteran family Belostomatidae contains the giant water bugs. These large, predatory, aquatic insects have the largest body size among the Heteroptera. Adults of some South American species reach 4 inches in length. Individuals occur in ponds and ditches where they suspend below the surface, respiring through two abdominal appendages which act as siphons. During mating season they fly from pond to pond or pool of water. It is during these flights that these insects fly to lights in large numbers, earning their other common name, "electric light bugs". Individuals are capable of inflicting a painful bite with their strong beak, and may also pinch with their front legs. Individuals prey on aquatic insects, small fish, frogs, tadpoles, small birds, and other organisms they are able to capture. Powerful enzymes are injected into prey to kill them. Adults of *Lethocerus* are considered a delicacy in Asia, and are eaten both fresh and cooked.



Figure 1. Dorsal view of an adult giant water bug, *Lethocerus* sp. Credits: P. M. Choate, University of Florida

Life Cycle

Eggs of *Lethocerus* are deposited above water on vegetation and other objects. Eggs of *Abedus* and *Belostoma* are glued onto males' backs by females. Egg carrying by males is a unique feature in these two genera. Curiously, Kraus (1985) reported that in the absence of sufficient size males, eggs will also be laid on backs of females. Eggs hatch in one to two

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Figure 2. Ventral view of the head of an adult *Lethocerus* sp., a giant water bug, showing the beak. Credits: P. M. Choate, University of Florida

weeks, with total development time ranging from one to two months. Adults may overwinter in the mud.

Key to Species of Florida Belostomatidae

Seven genera and approximately 60 species occur worldwide, with three genera and approximately 20 species found in North America. The following three genera containing eight species of Belostomatidae are known to occur in Florida (Henry and Froeschner 1988):

Abedus Stål, 1862

Abedus immaculatus (Say)

Belostoma Latreille, 1807



Figure 3. Giant water bug eggs, *Lethocerus* spp. Credits: Lyle J. Buss, University of Florida

Belostoma flumineum Say

B. lutarium (Stål)

B. testaceum (Leidy)

Lethocerus Mayr, 1853

Lethocerus (Benacus) griseus (Say)

L. (Lethocerus) americanus (Leidy)

L. (L.) annulipes (Mayr) - Palm Beach

L. (L.) uhleri (Montandon)

(species key modified from Bobb 1974, Pennak 1953)

1. Metasternum with a strong midventral keel, membrane of front wing reduced *Abedus immaculatus* (Say)

1'. Metasternum without midventral keel, membrane of front wing not reduced 2



Figure 4. Giant water bug nymph, *Lethocerus* spp.
Credits: Lyle J. Buss, University of Florida

2. Basal segment of beak longer than the second, less than 30 mm long 3

2'. Basal segment of beak shorter than second, 35 mm or longer 5

3. Length 20 mm or greater in length; color dark; head variable; tylus variable 4

3'. Length less than 20 mm; tylus not prominent; color pale brown or testaceous; head only slightly longer than front lobe of pronotum
Belostoma testaceum (Leidy)

4. Head slightly longer than frontal lobe of pronotum; tylus less convex, not prominent; claval commissure distinctly shorter than scutellum; form narrow, less tapering behind middle of hemelytra
. *Belostoma flumineum* Say

4'. Head as long as middle of pronotum; tylus more convex, very prominent; claval commissure equal to or longer than scutellum; form broadly oval, strongly tapering behind middle of hemelytra
Belostoma lutarium (Stål)

5. Anterior femur with deep narrow groove for reception of the tibia 6

5'. Anterior femur not grooved for reception of tibia *Lethocerus (Benacus) griseus* (Say)

6. Middle and hind legs not banded, or only faintly so; interocular space equal to width of an eye; costal margins feebly but conspicuously curved
Lethocerus americanus (Leidy)

6'. Middle and hind legs distinctly banded; interocular space not over three-fourths width of an eye; costal margin almost straight and subparallel
. *Lethocerus uhleri* (Montandon)



Figure 5. Dorsal view of an adult *Abedus lutarium* (Stål).
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Figure 6. Dorsal view of an adult *Lethocerus uhleri* (Montandon). Credits: P. M. Choate, University of Florida



Figure 7. Ventral view of an adult *Lethocerus uhleri* (Montandon). (Note banded middle and hind legs). Credits: P. M. Choate, University of Florida

Distribution

Abedus immaculatus (Say) - Florida, Georgia, and Mississippi;

Belostoma flumineum Say - Quebec and New England, west to Manitoba and Colorado, southwest to Florida, Louisiana, and Arizona;

Belostoma lutarium (Stål) - Massachusetts southwest to Louisiana and Texas; Kansas;

Belostoma testaceum (Leidy) - New York west to Michigan and southwest to Florida and Texas;

Lethocerus griseus (Say) - Massachusetts west to Michigan; south to Florida and Texas; Mexico to Guatemala, West Indies;

Lethocerus uhleri (Montandon) - Massachusetts, west to Ontario, south to Texas; Mexico;

Lethocerus annulipes (Herrich-Schaeffer) - Florida? South America, West Indies; reported from Palm Beach, Florida.

Lethocerus americanus (Leidy) - Newfoundland, Maine to British Columbia, south to Utah and Nevada, Mexico, Florida?

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