

First report for the Neotropics of predation by the waterscorpion *Ranatra* (Hemiptera: Nepidae) on a member of Gerromorpha (Hemiptera)

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ABSTRACT

The water scorpion *Ranatra pittieri* was observed preying on an adult of the water strider *Eurygerris flavolineatus* in a closed laboratory system. This is the first report for the Neotropics of the predation by a member of the infraorder Nepomorpha on a species of Gerromorpha.

KEY WORDS

Waterscorpions, Heteroptera, Gerridae, Nepomorpha, Costa Rica, Central America.

RESUMEN

Observé un escorpión de agua, *Ranatra pittieri*, depredando un chinche patinador adulto, *Eurygerris flavolineatus*. Es el primer informe neotropical de un miembro del infraorden Gerromorpha (Hemiptera) consumido por otro del infraorden Nepomorpha.

PALABRAS CLAVE

Escorpiones de agua, Heteroptera, Gerridae, Nepomorpha, Costa Rica, Centroamérica.

The family Nepidae belongs to the infraorder Nepomorpha and is a cosmopolitan family represented in all biogeographical regions except the polar regions. For the Neotropical region, 93 species are recorded in four genera (Polhemus & Polhemus, 2008). These insects usually prefer lentic environments but they can also be found in lotic environments with slow currents. They are relatively slow-moving and are often observed among submerged plants where they remain on the lookout for prey, almost motionless with their respiratory appendages or siphons in contact with the water surface. The genus *Ranatra*, like the other genera of Nepidae, preys on aquatic animals, which are trapped and held with their raptorial front legs; once the prey is caught they proceed to suck up its body fluids.

Depending on the species, nepids can prey on some terrestrial invertebrates that fall on the water surface, small fishes, fish eggs, young tadpoles, dipteran larvae such as *Chironomus*, amphipods (*Hyallela*), cladocerans (*Daphnia*), ostracods, copepods and other Nepomorpha such as *Notonecta* and *Anisops* (Holmes, 1905; Cloarec, 1974; Bailey, 1986; Runck & Blinn, 1990).

Predation by *Ranatra* on members of the infraorder Gerromorpha has not been reported in the Neotropical region until now. The gerromorphans or water striders are fast-moving surface-dwellers that are able to glide over the water. This particular case of predation, of a *Ranatra pittieri* Montandon 1910 preying on an *Eurygerris flavolineatus* Champion 1898, occurred in November 2009 under laboratory conditions. Both species lived together for one week and were fed daily with common flies while inhabiting an artificial environment (L: 38cm; W: 19cm, H: 15cm), with a rocky bottom (mean: 4,5cm in diameter) and floating aquatic plants of the genus *Salvinia*. The female *R. pittieri* was kept in the aquarium with a female *E. flavolineatus*; both were adults and collected in Costa Rica, Guanacaste, La Cruz, La Cruz District (200masl) from the same small pond. The time required for *Ranatra* to devour the gerrid was over 70 min (Fig. 1). *Ranatra pittieri* was identified using the key provided by De Carlo (1972) then compared with the original description of Montandon (1910); *E. flavolineatus* was identified using the key provided by Pacheco (2010).

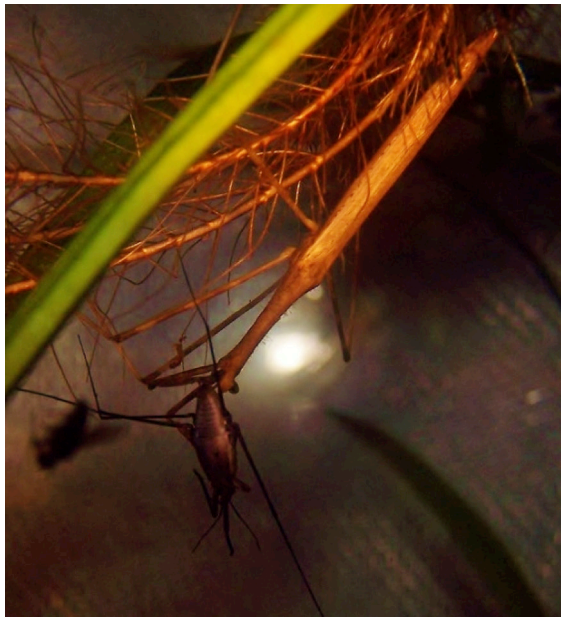


FIG. 1. Female waterscorpion, *Ranatra pittieri*, preying on a female water strider, *Eurygerris flavolineatus*, in Costa Rica, November 2009.

Color version of this photograph, available at:
<http://investiga.uned.ac.cr/revistas/index.php/cuadernos/index>

This new report adds to our knowledge of the interesting interspecific relationships among aquatic Hemiptera present in lotic water bodies. This event is likely to occur in nature, especially since both species coexist at exactly the same site and microhabitat at the time of collection. In addition, when analyzing other prey consumed by *Ranatra*, it has been observed that they are capable of capturing fast prey, with strike times of 0,04 and 0,03 seconds for *Ranatra dispar* Montandon 1903 and *Ranatra linearis* Linnaeus 1758, respectively (Bailey, 1986).

It should be taken into account that an observation like this would be very difficult to notice in the field due to the cryptic coloration and behavior of *Ranatra*. In addition, quiet lentic waters as the one on which they were collected are easily disturbed. This new record improves our knowledge of the Nepomorpha-Gerromorpha interactions, of the biology for both species, and for the genus *Ranatra*, which according to Polhemus (1982) has been relatively little studied in the tropics.

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