

First observation of arachnid predation (Araneae: Anyphaenidae: *Hibana talmina*) by a crustacean (Brachyura: Sesarmidae: *Aratus pisonii*)

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ABSTRACT. A first observation of predation on an arachnid by a crustacean, the crab *Aratus pisonii* (H. Milne-Edwards, 1837) (Brachyura: Sesarmidae) is recorded here. In this case on the ghost spider *Hibana talmina* Brescovit, 1993 (Araneae: Anyphaenidae: Anyphaeninae), in the Caribbean region of Colombia, at Caño del Oro, Tierra Bomba island (Cartagena), Bolívar.

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KEY WORDS: Colombia, ecology, ghost spider, mangrove crab, predation.

Первое наблюдение нападения на паука (Araneae: Anyphaenidae: *Hibana talmina*) ракообразного (Brachyura: Sesarmidae: *Aratus pisonii*)

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РЕЗЮМЕ. Описан первый случай нападения на паукообразного со стороны краба *Aratus pisonii* (H. Milne-Edwards, 1837) (Brachyura: Sesarmidae). Жертва – паук *Hibana talmina* Brescovit, 1993 (Araneae: Anyphaenidae: Anyphaeninae), в карибском регионе Колумбии, в Каньо дель Оро, о-в Тьерра Бомба (муниципалитет Картахена, департамент Боливар).

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КЛЮЧЕВЫЕ СЛОВА: Колумбия, экология, паук-анифенида, мангровый краб, хищничество.

The mangrove tree-climbing crab *Aratus pisonii* (H. Milne-Edwards, 1837), the only known species of the monotypic genus *Aratus* H. Milne-Edwards, 1837 (Sesarmidae), is a widespread species distributed in tropical and subtropical regions of the Americas. Distribution is thought to extend from Florida (USA) southward to the state of São Paulo (Brazil) on the Atlantic and Caribbean coasts, as well as throughout most Caribbean islands, and from Nicaragua to Peru on the Pacific coast (Chace, Hobbs, 1969; Ng *et al.*, 2008; Rathbun, 1917; Riley *et al.*, 2014a). This species feeds mostly on leaves and tree barks (more than 80% of its diet), primarily on that of red mangroves (Rhizophoraceae: *Rhizophora mangle*) with lower levels of herbivory observed on white (Combretaceae: *Laguncularia racemosa*) and black mangroves (Acanthaceae: *Avicennia germinans*) (Conde *et al.*, 2000; Erickson *et al.*, 2003). Although this species is mostly herbivorous, *Aratus pisonii* is known to consume animal matter when it is possible. Observations of carnivory by the species has included consumption of carrion as well as other invertebrates such as insects (crickets), other crustaceans (including its own species), worms (polychaetes, nematodes) and even foraminiferans (Beever *et al.*, 1979; Conde, Díaz, 1979; Erickson *et al.*, 2003, 2008; Riley *et al.*, 2014b; Sweat, 2009; Warner, 1967). It is the case however, that, predation on any group of arachnids has never been recorded, even by other groups of crustaceans.

The genus *Hibana* Brescovit, 1991 (Anyphaenidae: Anyphaeninae) currently includes 18 accepted species, distributed from Canada and USA, throughout Central America and Northern South America, including most of the Caribbean islands, southward Bolivia and Brazil (World Spider Catalog, 2019). According to Brescovit (1991, 1993, 1997), Brescovit & Lise (1993) and AracnidsCo (2019), the genus *Hibana* contains six recorded species in Colombia: *H. bicolor* (Banks, 1909) (Antioquia, Valle del Cauca), *H. flavescens* (Schmidt, 1971) (unknown type locality), *H. futilis* (Banks, 1898) (Antioquia), *H. melloleitaoi* (Caporiacco, 1947) (Magdalena, Meta), *H. similis* (Banks, 1929)

(Magdalena, Meta, Norte de Santander, Valle del Cauca), *H. talmina* Brescovit, 1993 (Atlántico) and *H. tenuis* (L. Koch, 1866) (Antioquia). Following Brescovit (1991) and Brescovit & Lise (1993), *H. talmina* is a widespread Neotropical species, distributed in Colombia (Atlántico), Venezuela (Archipiélago de Los Frailes), Dominica (Portsmouth, Salybia), Trinidad & Tobago (Trinidad: Diego Martín), Guiana (Essequibo) and Brazil (Pará).

In Colombia, these species has been recorded in transformed environments at the Barranquilla Caribbean coast of Atlántico, Colombia. However, *H. talmina* has now been observed in high abundance in fringing mangrove forests at Caño del Oro, Tierra Bomba island, Bolívar, Colombia (Galvis *pers. obs.*). Observations of *H. talmina* were particularly abundant in the roots and foliage of the red mangrove, along the fringe. To our knowledge, this is the first report of predation in for *H. talmina*. In fact, we believe this observation to be the first recorded for any other spider and arachnid, despite there being overlaps in niche with some crab species in that ecosystem, especially with *A. pisonii*, with which it shares similar ecological habits. So, herein we report the first such case of predation on an arachnid, the ghost-spider *H. talmina*, by a crustacean, the Mangrove tree-climbing crab *A. pisonii*.

In the nights of (between 19:00–21:00) the 28–29 of July 2018, we frequently observed male (Figs 1–3), female and juveniles (Fig. 4) of *A. pisonii* eating both male and female specimens of *H. talmina*, inside a fringing mangrove forest dominated largely by the red mangrove (*R. mangle*), in the Chavó sector (10.35088°N, 75.54407°W, datum WGS84, altitude 1 meter above sea level), about 1.8 km North of the small town Caño del Oro, Tierra Bomba island (Cartagena, Bolívar, Colombia). The cases of predation were found at about 1.5–2.0 above ground level, hanging upside/down on different oblique lateral twigs of *R. mangle*. When the crabs were found, they had started eating the spiders, from the prosoma to the posterior half of the body, finishing with abdomen. All specimens, in addition to others collected during a



Figs 1–4. Photographic sequence showing the predation event of *Aratus pisonii* on *Hibana talmina*, from Caco del Oro, Tierra Bomba island, Cartagena, Bolívar, Colombia: 1–3 — adult male, 4 — juvenile.

Рис. 1–4. Фотографии, последовательно показывающие нападение *Aratus pisonii* на *Hibana talmina*, Каньо дель Оро, о-в Тьерра Бомба, Картахена, Боливар, Колумбия: 1–3 — взрослый самец, 4 — ювениль.

study on the ecology and diversity of the spider communities of the Caribbean mangrove forests of Colombia, have been deposited in the Arachnid and Crustacean Collections of the Instituto de Ciencias Naturales of the Universidad Nacional de Colombia (ICN, Eduardo Flórez and Martha Rocha, respectively), Bogotá, Colombia; and the Universidad de Cartagena (CUDC-Ara, Adriana Bermudez and Gabriel Navas).

Although we frequently saw this predation, we currently have no measures of the proportions between sexes and adult/juvenile of *H. talmina* being preyed upon by *A. pisonii*, so we lack more accurate data on the eating habits of this crab. With certainty, and preliminary, we can say that *H. talmina* was one of the most abundant spider species in the study area. We

observed in these two nights about same proportion, about three per group, of males, females and juveniles being preyed.

This is reflective of the gaps in our knowledge and understanding with regards to the Caribbean mangrove communities of arthropods and their relative ecological interactions. With sizes exceeding 200 mm, *A. pisonii* is a medium/large and very fast/agile predator capable of exploiting a great variety of prey types and sizes, so it is not surprising that it can prey on a spider species, *H. talmina*, that is totally sympatric with it.

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