

INSECTA MUNDI

A Journal of World Insect Systematics

0224

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(Neuroptera: Myrmeleontidae)

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Date of Issue: April 6, 2012

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Insecta Mundi 0224: 1-5

Published in 2012 by

Center for Systematic Entomology, Inc.
P. O. Box 141874
Gainesville, FL 32614-1874 USA
<http://www.centerforsystematicentomology.org/>

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Description of a new species of *Paranthaclisis* Banks from Florida
(Neuroptera: Myrmeleontidae)

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Abstract. A new species of *Paranthaclisis* Banks, *P. floridensis* (Neuroptera: Myrmeleontidae), is described from Florida and compared to the other described species in the genus. Keys to the adults and larvae are provided.

Resumen. Se describe una nueva especie de *Paranthaclisis* Banks, *P. floridensis* (Neuroptera: Myrmeleontidae), de Florida y se la incluye en una clave para las otras especies descritas del género. Se da una descripción del adulto y de la larva.

Introduction

The presence of *Paranthaclisis* Banks (Neuroptera: Myrmeleontidae) in Florida was first noted by Hagen (1887) who described a one-toothed larva from Florida which must belong to this genus since no other larvae known from the New World have only one tooth on the mandible. We have discovered a new species of this genus on the northern coastal beaches of Florida. To date, five adult specimens of this species of *Paranthaclisis* have been collected in Florida. Also, the larva has been found and reared.

Materials

Specimens studied are deposited in the following institutions: **FSCA** - Florida State Collection of Arthropods, Gainesville, Florida, U.S.A.; **USNM** - Smithsonian Institution, Washington, D.C., U.S.A.

***Paranthaclisis* Banks 1907: 275**

Type species: *Acanthaclisis congener* Hagen, by subsequent designation of Banks 1927: 80 as "*P. congener* (Hagen)".

Key to species: Banks 1927: 80, Banks 1939: 5.

Distribution: **Mexico** (Baja California); **U.S.A.** (Arizona; California; Florida; Nevada; New Mexico; Oregon; Texas; Utah).

Further description: Banks 1927: 79; Stange and Miller 1985: 36.

Larva: Hagen 1887: 151; Stange and Miller 1985: 36, Figures 1, 6 (larva).

Further description: Banks 1927: 79.

Diagnosis. Adult: ocular rim with short white setae that project over eye; distal palpomere with elongate palpomacule not reaching to apex; pronotum wider than long; all femora with one elongate sense hair; pretarsal claws strongly bent with flange, shorter than tibial spurs which are bent at nearly a right angle; forewing costal area narrowing toward apex, usually simple (except in *P. floridensis*); forewing with anterior Banksian line; hindwing vein CuA not fused with posterior fork of MP2; abdomen with pair of eversible sacs between tergites VI and VII (except *P. nevadensis*). **Larva:** head capsule with anterior margin of clypeo-labrum weakly sinuate; ventral surface of head capsule nearly glabrous; length of antenna shorter than basal width of mandible; mandible with one blunt tooth; hind pretarsal claws

very thick, less than twice as long as basal width, shorter than mid-pretarsal claws which are several times longer than wide; mid-tarsus longer than mid-tibia and nearly as wide basally as tibia apically; sternite VII with many short, peg-like digging setae, area of digging setae more than five times longer than wide.

Biology. Female *Paranthaclisis congener* were observed (Stange and Miller, 1985) to lay eggs at dusk near Reno, Nevada. As the female expels the eggs, she evenly coats them with sand, using the posterior gonapophysis. The eggs are buried up to one quarter or more of the abdominal length and the larval head capsule is fully hardened prior to hatching, in contrast to other known non-acanthaclisine ant-lions which lay their eggs on the surface and in which the larva hatches on the surface with the head capsule and mandibles soft, having been folded into the egg, and ready to expand upon being freed of the egg and exposed on the surface. Eggs of Acanthaclisini are laid in batches of twenty and hatch in about 24 days. There are three instars. The larvae prefer deep sand and can move both forward and backward rapidly but observations to date indicate that the larvae do not pursue prey on the sand but rather dig rapidly backward after the prey and grab the prey by whipping their head backward after they are underneath it. Prey observed to date have been lepidopterous larvae and many types of sand roaming adult Coleoptera.

Discussion. *Paranthaclisis* Banks is a Nearctic genus which contains four species. The hindwing venation of *Paranthaclisis* is distinctive in the tribe since CuA does not unite with MP₂ as in other genera. The larva is also very distinctive in having only one mandibular tooth. *Paranthaclisis nevadensis* Banks lacks eversible sacs on the abdomen of the male. This strictly Nearctic genus *Paranthaclisis* belongs to the tribe Acanthaclisini of the subfamily Myrmeleontinae and is restricted in distribution to the temperate areas of North America. The Acanthaclisini is characterized by the presence of eversible sacs between abdominal segments VI and VII. *Paranthaclisis nevadensis* is aberrant in lacking abdominal pencils in the male. Also, the tibial spurs and pretarsal claws of the Acanthaclisini are thick and strongly curved or sometimes bent as in *Paranthaclisis*. Some genera including *Paranthaclisis* have an elongate sense hair on the hindfemur. The larva of *Paranthaclisis* is unusual in having a short, thick mandible with only one mandibular tooth. A generic review of the tribe with keys to genera based on both adults and larvae was provided by Stange and Miller 1985.

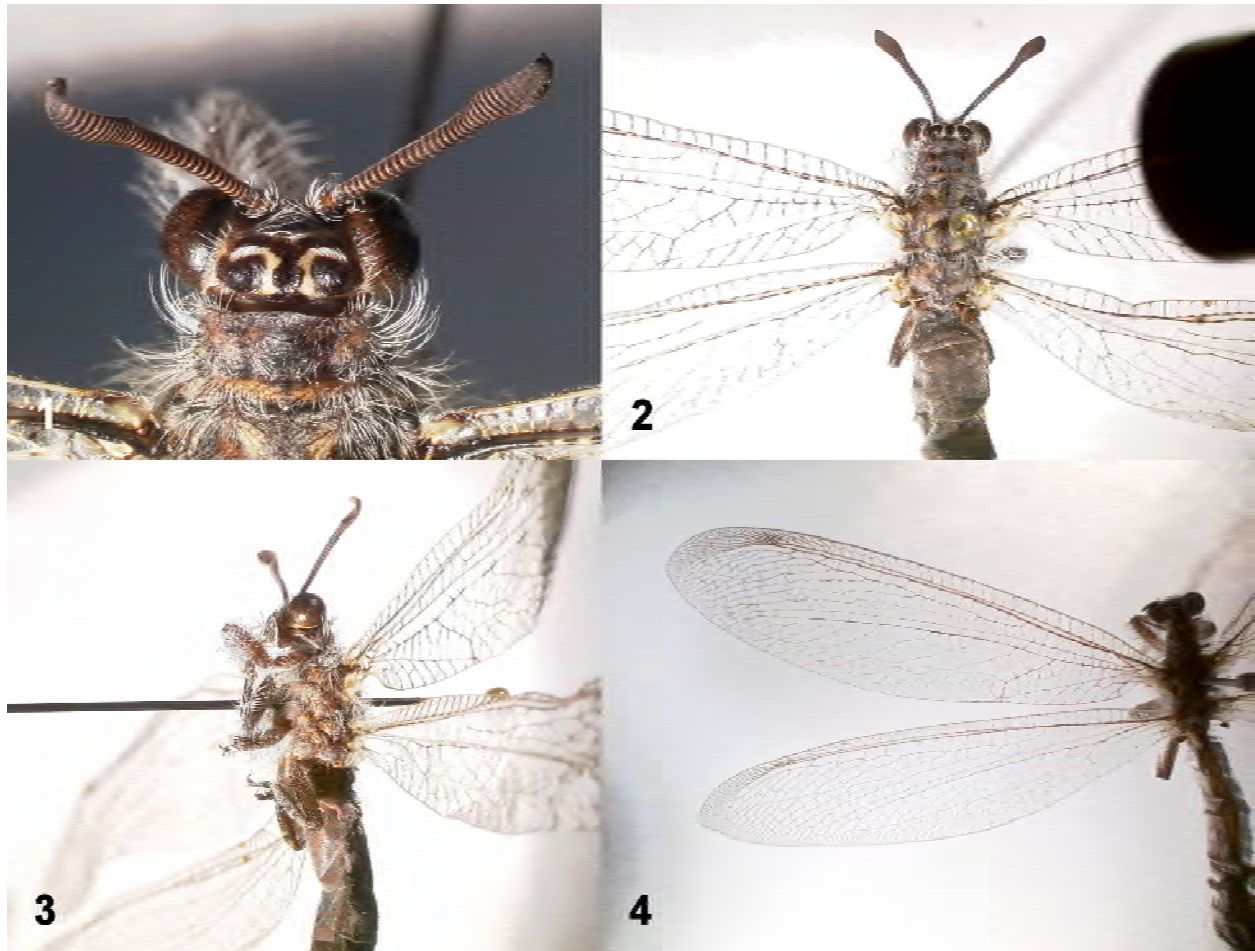
Key to species of *Paranthaclisis* Banks

ADULTS

1. Vertex with scars shiny black, glabrous (Figure 1); mesoscutellum with medial area of posterior margin shiny, dark colored; male intersegmental membrane between abdominal segments VI and VII with eversible sac broader than long (Figures 5, 6) **2**
- Vertex with scars dull brown, partly setose; mesoscutellum with posterior margin dull; male intersegmental membrane between abdominal segments VI and VII without eversible sac or with eversible sac longer than wide **3**

- 2(1). Forewing costal area narrow with cells above presectoral area before origin of radial sector, less than one-third as high as presectoral area; forewing costal cells not interconnected before stigma (west Texas to California) ***Paranthaclisis hageni* (Banks)**
- Forewing costal area broad with cells above presectoral area before origin of radial sector at least one-half as high as presectoral area (Figures 2, 4); forewing costal cells with several cross veins interconnected before stigma (Florida) ***Paranthaclisis floridensis* new species**

- 3(1). Distal tarsomere of hindleg black, longer than other four tarsomeres together; male intersegmental membrane between abdominal segments VI and VII without eversible sac; male tergum V with large V-shape emargination posteriorly; postventral lobe of male ecoproct projects downward (California; Nevada) ***Paranthaclisis nevadensis* Banks**



Figures 1-4. *Paranthaclisis floridensis* Miller and Stange, adult. 1) Vertex and pronotum. 2) Thorax and bases of wings. 3) Lateral view. 4) Body and wings.

- Distal tarsomere of hindleg pale, no longer than other four tarsomeres together; male intersegmental membrane between abdominal segments VI and VII with eversible sac longer than wide; male tergum V with posterior margin with small V-shape emargination at most; postventral lobe of male ectoproct bent posteriorly (Arizona; California; New Mexico; Oregon; Utah) ***Paranthaclisis congener* (Hagen)**

LARVAE

- 1. Mandible about 2.5 times longer than width posterior to tooth, dorsal surface without short peg-like setae but with some elongate setae near base; dorsal surface of head capsule usually with four pronounced dark brown spots ***Paranthaclisis congener* (Hagen)**
- Mandible about 3.5 times longer than width posterior to tooth, dorsal surface with many peg-like setae; dorsal surface at most with double dark brown spot near middle **2**
- 2(1). Abdomen with distinct longitudinal rows of dark brown markings (Figure 7); metathoracic setose tubercle with dark brown coloring; mandible with more than 20 peg-like setae extending distad to mandibular tooth ***Paranthaclisis floridensis* new species**
- Abdomen unmarked; metathoracic setose tubercle all pale brown; mandible with less than 10 peg-like setae distributed basad to mandibular tooth ***Paranthaclisis hageni* (Banks) and *Paranthaclisis nevadensis* Banks**



Figures 5-8. *Paranthaclisis floridensis* Miller and Stange. **5-6)** Male abdominal eversible sacs. **7-8)** Larva, dorsal and ventral views.

***Paranthaclisis floridensis* Miller and Stange, new species**

(Figures 1-8)

Holotype male, St. Andrews State Park, Bay County, Florida, 12.VI.1980, L. Stange (FSCA).

Distribution. U.S.A. (Florida)

Diagnosis. Vertex with scars shiny black, glabrous; mesoscutellum with posterior margin shiny, dark colored; forewing costal area broad with cells above presectoral area before origin of radial sector at least one-half as high as presectoral area, costal cells with several cross veins interconnected before stigma; male intersegmental membrane between abdominal segments VI and VII with eversible sac broader than long.

Description. Holotype male: Adult: length of body 33 mm; forewing length 39 mm., hindwing length 38 mm. **Coloration:** vertex with scars shiny black, glabrous (Figure 1); mesoscutellum with posterior margin shiny, dark colored. **Structure:** forewing costal area broader, cells above presectoral area right before origin of radial sector at least one-half as high as presectoral area (Figures 2, 4); forewing costal cells with several crossveins interconnected before stigma; male intersegmental membrane between abdominal segments VI and VII with eversible sac broader than long (Figures 5, 6). **Larva:** mandible about 3.5 times longer than width posterior to tooth, dorsal surface with many peg-like setae (Figure 7); dorsal surface at most with double dark brown spot near middle; abdomen with distinct longitudinal rows of dark brown markings (Figure 7); metathoracic setose tubercle with dark brown coloring; mandible with more than 20 peg-like setae extending distad to mandibular tooth.

Paratypes. St. Joseph T. H. Stone Memorial State Park, Bay County, Florida, 13.VI.1969, H. Weems (1f, FSCA). St. Joseph Peninsula, Gulf county, Florida, 1.XI.1978, L. Stange, **reared** (1m, 1 larva, FSCA); coast between Stuart and St. Augustine, Florida, 17.VI.1951, O. Bryant (1f, FSCA); Vero Beach, Florida, V.1942, J. R. Malloch (1m, USNM).

Discussion. This new species appears closely related to *P. hageni* (Banks) in having the vertex scars shiny black and glabrous (Figure 1) and the mesoscutellum with the posterior margin shiny and dark colored. Also, the male intersegmental membrane between abdominal segments VI and VII with the eversible sac broader than long (Figures 5, 6) These two species can be separated because the forewing costal area in *P. hageni* is narrow with the cells above the presectoral area less than one-third as high as the presectoral area, but at least one-half as high as the presectoral area in *P. floridensis* (Figures 2, 4).

Also, the forewing costal cells have several crossveins interconnected before the stigma in *P. floridensis*, whereas the forewing costal cells in *P. hageni* are not interconnected.

The larva of *P. floridensis* is distinctive in having conspicuous longitudinal rows of dark brown markings on the abdomen (Figure 7). Also, in *P. floridensis* the metathoracic setose tubercle is dark brown and the larval mandible has more than 20 peg-like setae extending distad to the basal mandibular tooth whereas in the *P. hageni* the abdomen is unmarked and the metathoracic setose tubercle is pale brown. Also, those two species differ from *P. floridensis* in having less than 10 peg-like setae present basad of the basal mandibular tooth. The other two species in the genus, *P. congener* (Hagen) and *P. nevadensis* Banks, are less closely related to *P. floridensis* and *P. hageni*. They have the vertex scars dull brown and partly setose, the posterior margin of the mesoscutum dull, and the male intersegmental membrane between abdominal segments VI and VII with the eversible sac longer than wide (*P. congener*) or absent (*P. nevadensis*). The larval mandible of *P. congener* is about 2.5 times longer than its width posterior to tooth, and its dorsal surface is without short peg-like setae but with some elongate setae near base. The dorsal surface of the head capsule usually has four pronounced dark brown spots whereas in the other species of *Paranthaclisis* the dorsal surface has at most a double dark brown spot near the middle.

Specimens of *P. floridensis* are known both from the Panhandle Gulf coast and from the Atlantic beaches from near St. Augustine south to Vero Beach. Discovery of additional specimens from intervening areas in Louisiana and eastern Texas may demonstrate that the Florida populations are only a geographic race of *P. hageni*.

Acknowledgments

We thank Drs. Charles C. Porter and Norman Penny for their critical reviews of the manuscript. This is the Florida Department of Agriculture and Consumer Services, Division of Plant Industry, Entomology Contribution No. 1205.

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Received September 25, 2011; Accepted March 13, 2012.

