

A NEW SPECIES OF *NEOCTENIZA* (ARANEAE: IDIOPIDAE) FROM COIBA ISLAND, PANAMA, WITH OBSERVATIONS ON PARASITISM BY *EUPLANICEPS VARIA* BRADLEY, 1944 (HYMENOPTERA: POMPILIDAE)

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Abstract: *Neocteniza agustinea* n. sp. is described based on a female from Coiba Island, Coiba National Park, Panama. It is the second species of the genus known from Panama. Based on the analysis of its spermathecae, this species is a member of the *sclateri* group of Goloboff (1987) and is closely related to *N. osa* Platnick & Shadab, 1976 and *N. occulta* Platnick & Shadab, 1981 from Costa Rica and Panama respectively. Information is provided on the natural history of this species, including parasitism by the pompilid wasp *Euplaniceps varia* Bradley, 1944.

Key words: Araneae, Idiopidae, *Neocteniza*, new species, Pompilidae, *Euplaniceps*, parasitism, Panama, Coiba.

Una especie nueva de *Neocteniza* (Araneae: Idiopidae) de la isla de Coiba, Panamá, con observaciones sobre parasitismo por *Euplaniceps varia* Bradley, 1944 (Hymenoptera: Pompilidae)

Resumen: Se describe *Neocteniza agustinea* n. sp. en base a una hembra de Isla de Coiba, Parque Nacional Coiba, Panamá. Es la segunda especie de este género que se conoce de Panamá. Basado en el análisis de las espermatecas, esta especie es un miembro del grupo de *sclateri* Goloboff (1987) y está estrechamente relacionada con *N. osa* Platnick & Shadab, 1976 y *N. occulta* Platnick & Shadab, 1981 de Costa Rica y Panamá, respectivamente. Se proporciona información sobre la historia natural de esta especie, incluyendo el parasitismo por la avispa pompilida *Euplaniceps varia* Bradley, 1944.

Palabras clave: Araneae, Idiopidae, *Neocteniza*, especie nueva, Pompilidae, *Euplaniceps*, parasitismo, Panamá, Coiba.

Taxonomía/Taxonomy: *Neocteniza agustinea* sp. n.

Introduction

Neocteniza Pocock, 1895 is a genus of trap-door spider with 17 species described and is distributed from Paraguay to Guatemala (Platnick, 2012). Twelve species occur in South America and five in Central America, including one in Panama. Due to the secretive habits of these spiders, specimens in zoological collections are scarce as are natural history records of its species (Goloboff, 1987; Goloboff & Roig-Alsina, 1989).

The first revision of this genus was realized by Platnick & Shadab (1976) as a taxon within the Actinopodidae. Raven (1985) transferred *Neocteniza* to the Idiopidae based on characteristics of the genitalia. Species of *Neocteniza* were separated by Goloboff (1987) into two groups, *australis* and *sclateri*, based upon characters of the spermathecae and male bulbs.

In females of the *sclateri* group, the initial portion of the copulatory duct is thickened and strongly sclerotized, with its entrance on the genital opening; the epigastric area is also very sclerotized. In males of this group, the embolus is very long and thin, the bulb has an apical sclerite with an apophysis, and the apical haematodocha as developed as the medial (Goloboff, 1987). In the species of *australis* group, the characters exhibit a plesiomorphic state. In females, the initial portion of the copulatory duct is membranous and flattened, with its entrance away from the genital opening and connected to an atrium. In males, the embolus is thicker, there is no apical sclerite with apophysis and the apical haematodocha is tiny (Goloboff, 1987). This classification was followed in subsequent papers describing new taxa (Goloboff & Platnick, 1992; Bertani *et al.*, 2006).

The aim of this work is to describe a new species of *Neocteniza* from Isla Coiba, Panama.

Methodology

External structures were examined using a Leica MZ 12.5 stereomicroscope. Measurements of the segments legs and pedipalps were made on the dorsal surface of each segment and are given in millimeters. The legs spines and trichobothria are described following Goloboff (1987). The photographs of *Neocteniza* were taken with a Leica DFC 500 and captured on the Leica Image Manager 50, while those of *Euplaniceps varia* were taken with a digital camera Olympus Stylus 1010.

The specimens are deposited in Colección Zoológica Dr. Eustorgio Mendez of the Gorgas Memorial Institute for Health Studies (CoZEM) and Museo de Invertebrados de la Universidad de Panamá (MIUP). Abbreviations used in the text: AME= anterior median eyes; ALE= anterior lateral eyes; PME= posterior median eyes; PLE= posterior lateral eyes; OQ= ocular quadrangle; ALS= anterior lateral spinnerets; PLS= posterior lateral spinnerets

Taxonomy

Neocteniza agustinea n. sp. Miranda & Arizala
Fig. 1-8. Table I, II.

TYPE: Holotype female, from Isla Coiba National Park (7° 37' 44.29" N, 81° 43' 53.76" O), Veraguas Province, Panama, CoZEM-ARA-ID-001, R. J. Miranda & J. Cleghorn col., February 2011.

Table I. Measurements of pedipalp and legs of *Neocteniza agustinae* n. sp., female holotype.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
pedipalp	2.80	1.50	2.00	-	2.40	8.70
I	4.34	2.48	3.10	2.00	1.24	13.16
II	4.00	2.00	2.50	2.00	1.20	11.70
III	3.50	2.40	2.00	2.40	1.60	11.90
IV	5.00	2.48	3.10	3.72	1.60	15.90
Formula						IV-I-III-II

Table II. Trichobothria on pedipalp and legs of *Neocteniza agustinae* n. sp., female holotype.

	Palpus	Leg I	Leg II	Leg III	Leg IV
Femur	0	0	0	0	0
Patella	0	0	0	0	0
Tibia (anterior-posterior)	(7-3)	(8-6)	(6-4)	(4-3)	(7-6)
Metatarsus	-	10	12	9	11
Tarsus	15	9	11	9	7

ETYMOLOGY

The specific name is in honor of Mrs. Agustina Santos for her helpful and insightful advice and mentoring of Roberto Miranda.

DIAGNOSIS

On the basis of several characters including length order of the legs, and shape of the spermathecae, this new species is located within the group *sclateri* (Goloboff, 1987) and is closely related to *N. osa* Platnick & Shadab, 1976 and *N. occulta* Platnick & Shadab, 1981, from Costa Rica and Panama respectively. This species differs from *N. occulta* in leg formula: *N. agustinae* and *N. osa* have IV-I-III-II, whereas *N. occulta* has IV-III-I-II. *Neocteniza osa* has the patella of pedipalp slightly longer than the tibia (1.48/1.44), whereas in *N. agustinae*, the tibia of palpus is 0.25 longer than the patella. Additionally the bursa copulatrix of *Neocteniza agustinae* has anterior margin strongly sinuous (Fig. 8), whereas in *N. occulta* and *N. osa* are not well.

DESCRIPTION

Female (holotype): Total length including chelicerae 18.2. Coloration: Carapace olive brown, legs and palpus yellowish brown, chelicerae dark brown. Abdomen dark purplish brown with brown short hair, abdomen 6.4 long, 5.5 wide. Carapace (Fig. 1) 7.84 long, 6.8 wide. Pars cephalica convex, fovea deep, sinuous, recurved, tripartite, one third of the width of the carapace. Anterior row of eyes slightly procurved, posterior row of eyes recurve. Eye sizes: AME 0.2, ALE 0.24, PME 0.24, PLE 0.24. Eyes interdistances: AME-AME: 0.32, AME-ALE: 0.6; PME-PME: 1.2; PME-PLE: 0.2; PLE-PLE: 2.8. Eye group (Fig. 3) 0.75 length, width 2.8, Ocular quadrangle half length 0.6, width above 0.75, back width 1.75. Chelicerae (Fig. 4): well developed, 4 mm long; promargen with 7 blunt apex teeth, retromargen with 8 teeth, 16 small denticles between margins. Rastellum well developed consisting of 6 blunt spines arranged in two rows on cheliceral extension and three additional on base. Palpal coxae (Fig. 2) 1.86 long, 1.86 wide, without cuspules. Labium: 1.2 long, 1.75 wide, without cuspules. Sternum (Fig. 2): 4.96 long, 4 wide, sigilla scarcely discernible. Legs: all articles unmodified. Measurements: Table I. Trichobothria: distribution on palpus and legs as in Table II. Spines: femora: palpus, I-III 0, IV 12 P A (4:5); patellae: palpus, I, II 0, III 32 P D anterior forming an inverted triangle (9 in the apex), IV 26 P anterior basal (1:2); tibiae: palpus 10 P 16 R INF, 1 V A; I 10 P 15 R

INF, 1 V A; II 8 P 10 R INF; III 19 P, 6 D (1:2 A), 8 R (1:2 b), IV 4 V; metatarsi: I 23 P, 25 R INF, II 18 P 26 R INF, III 12 D ant, 10 D posterior, IV 5 P, 2 R, 7 V (2-2-1-2); tarsi: palpus 20 P, 15 R, 2 V A; I 18 P, 8 R, II 7 P, 8 R, III, IV 0. Palpal claw with a basal tooth. Paired tarsal claws: legs I and III with a large tooth and a basal denticle, larger in leg III; leg II with two teeth of same size near the base; leg IV with the large tooth and two additional denticles associated. Preening combs present in metatarsi III, IV (Fig. 8). All tarsi without scopula. Spinnerets: short; ALS with ca. 45 spigots, PLS with basal articles with ca. 100, medial article with ca. 33; apical article with ca. 26. Epigynum with two widely separated elevations (Fig. 7). Bursae copulatrix strongly sclerotized, with anterior margins sinuous; spermathecae sinuous 0.95 long, 1.3 wide (Fig. 8).

NATURAL HISTORY

Two retreats of *Neocteniza agustinae* n. sp. were collected on a slope (area= 2 m²) in a secondary forest of Isla Coiba (Fig. 11) near the coast. These retreat have 1.5-1.6 cm diameter, 9-10 cm depth, walls silk coated; repose camera not widened; trap-door flexible, encrusted with dirt.

In one of these, the female holotype was collected together with an egg sac, from which 12 spiderlings hatched. Of the second retreat, a Pompilidae wasp was obtained, which was identified by one of the authors (RC) as a female of *Euplaniceps varia* Bradley, 1944 (Fig. 9-10), using the keys of Evans (1966) and comparing with specimens of MIUP. This information constitutes the first report of a spider host for the parasitoid genus *Euplaniceps*. It is important to note that species of *Aporus* (another genus of the same tribe, Aporini) have been reported parasitizing other species of *Neocteniza* (Goloboff & Roig-Alsina, 1989, Cambra *et al.*, 2004). *Aporus* has a morphology similar to *Euplaniceps* (short and thickened forelegs, body slender and flattened), suggesting similar adaptations for parasitism of trap doors spiders. Is rare to see *Aporus* dragging their prey on the ground and never to *Euplaniceps*. All the evidence indicates that wasps of both genera paralyze the spider in its own retreat, lay egg on the spider and close the retreat again.

Two species of *Euplaniceps* are now known to Panama: *Euplaniceps ceres* (Cameron, 1897) and *E. varia*. According to Evans (1966), *E. varia* is very similar to *E. ceres*, but the first has an orange tegumentary spot in the apical tergite instead of white (*E. ceres*); pronotum and anterior coxae of *E. varia* without black setae while *E. ceres* have numerous black setae. These differences found by Evans (1966) were corroborated by us, examining and comparing specimens of both species.

Euplaniceps varia Bradley, 1944

MATERIAL EXAMINED (9 females, 14 males, MIUP). PANAMA: Veraguas: Parque Nacional Coiba: Isla Coibita, Mar. 6-11 1998 (Malaise trap), R. Cambra, A. Santos, 4 males; Isla Coiba, Cerro La Equis, 120 msnm, July 29 – Aug. 4 1998 (Malaise trap), R. Cambra, A. Santos, 1 male; Isla Coiba, Estación Biológica ANAM, Aug. 5-6 1998 (Malaise trap), R.

► **Fig. 1-8.** *Neocteniza agustinae* n. sp. holotype: 1. Dorsal view. 2. Sternum, (scale bar= 2 mm). 3. Ocular area, 4. Chelicerae, 5. Leg III. 6. Preening comb in metatarsus IV (scale= 1 mm). 7. Epigynum, 8. Spermathecae (scale= 0.5 mm).

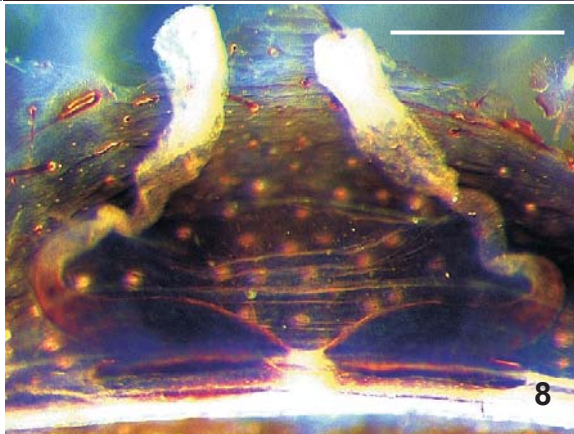
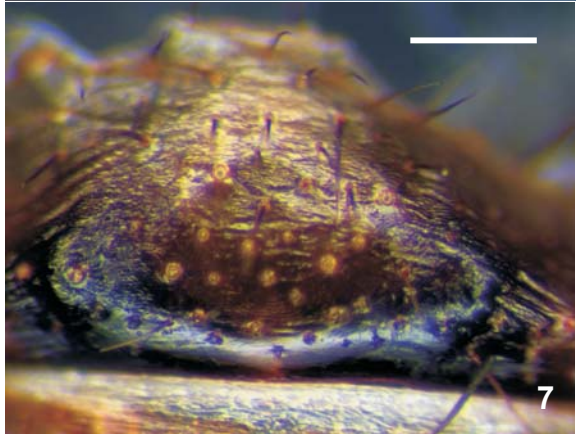
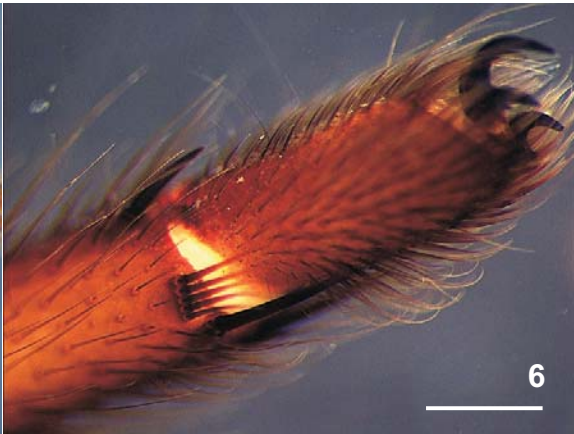
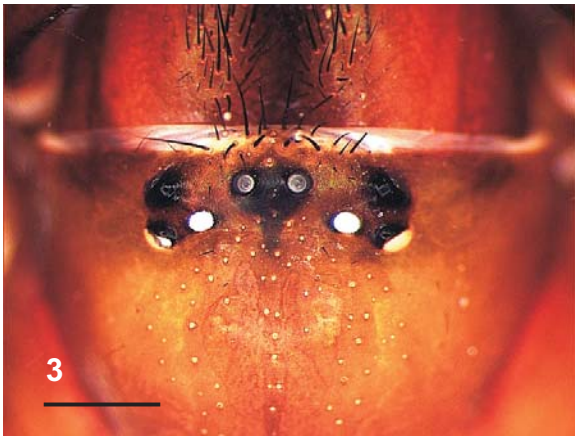




Fig. 9-10. *Euplaniceps varia*, female. 9. Lateral view, 10. Dorsal view. Scale=3mm.

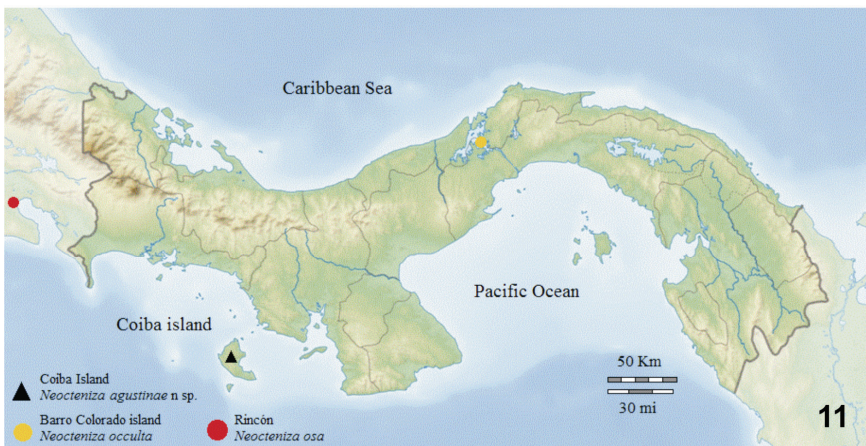


Fig. 11. Map showing the distribution of *Neocteniza* species in Panama.

Cambra, A. Santos, 1 male; Isla Coiba, ANAM, Feb. 19-27 2011 (on retreat of *Neocteniza agustinae* n. sp.) (emerged Mar. 23 2011) R. Miranda, 1 female. Coclé: Penonomé, Monte Lirio, Jan. 10 1993, M. Ayala, 1 female; Valle de Antón, Dec. 22-23 1991 (yellow trap), R. Rodríguez, 4 males; Antón, El Harino, Sep. 2 1988, R. Rodríguez, 1 male; Antón, Juan Díaz, Dec. 29 1991 (yellow trap), X. Araúz, 1 male. Panamá: Parque Nacional Soberanía, Mar 20 1986, R. Cambra, 1 female; Apr. 3 1986, R. Cambra, 2 females; Arraiján, Paraiso, Feb. 24 1991, J. Guevara, 1 female; Arraiján, Feb. 24 1991 (yellow trap), J. Villarreal, 1 male; Chorrera, Llano Largo, Mar 27-29 1990, A. Mena, 1 female; Chepo, May 20 1989, R. Rodríguez, 1 female. **PERU**: Madre de Dios, Reserva Manu, Pakitza: Mar. 9 1992, R. Cambra, 1 female; Feb. 23 – Mar. 1 1992 (yellow trap), R. Cambra, 1 male.

DISTRIBUTION: Panama and Peru. First record for Panama.

Euplaniceps ceres (Cameron, 1897)

MATERIAL EXAMINED (9 females, 5 males, MIUP).- **PANAMA**: Panamá: Arraiján, Nuevo Emperador, Jan. 23 1993, L. Urriola, 1 female; Arraiján, Paraiso, Feb. 12-24 1991, J. Guevara, 2 females; Chorrera, May 31 1988, E. Santos, 1 female; Chorrera, corregimiento Playa Leona, Río Perequete, Feb. 26 1991, A. Mena, 1 female; same data but Jan. 25 1992, I. Castro, 1 female. Coclé: Río Hato, Jun. 10 – Jul. 15 1985, A. Araúz, 1 female; Antón, Dec. 26-27 1992, R. Rodríguez, 1 female; Valle de Antón, Dec. 22-23 1991 (yellow trap), R. Rodríguez, 2 males. Los Santos: El Cortezo, Reserva Forestal La Tronosa, May 3-6 2006 (Malaise trap), R. Cambra, 3 males.

PERU: Madre de Dios, Reserva Manu, Pakitza, Feb. 19 1992, 1 female, R. Cambra.

DISTRIBUTION: Panama and Peru.

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