

DISCOVERY OF THE FAMILY DEINOPIDAE FROM THE PHILIPPINES, WITH DESCRIPTIONS OF THREE NEW SPECIES OF *Deinopis* Macleay, 1839

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ABSTRACT

We report new Philippine records for the net-casting or ogre-faced spiders from Family Deinopidae. These spiders were collected in 2013 from the islands of Luzon and Mindanao in 2013. All specimens were identified as members of the genus *Deinopis* Macleay, 1839 and three new species, *D. gubatmakiling*, *D. labangan*, and *D. luzonensis* are described and illustrated.

Key words. Deinopidae, *Deinopis*, *D. gubatmakiling* n. sp., *D. labangan* n. sp., *D. luzonensis* n. sp., ogre-faced spider, net-casting spider, new Philippine records, taxonomy

INTRODUCTION

The spider family Deinopidae is known by two general common names, either as ogre-faced or net-casting spiders. The former name is derived from the distinctly large front eyes resembling those of ogres that give them a monster-like appearance. The latter name, on the other hand, is descriptive of their behavior in capturing prey. Deinopidae specialize in casting an expandable silk mesh to catch small insects.

The Deinopidae is a small family of medium to large cribellate, entelegyne, and three-clawed spiders possessing eight eyes in three rows of 4-2-2. The diagnostic characters of the family are, namely: (1) large posterior median eyes (PME); (2) ALE on tubercles projected lateroventrally; (3) long and slender legs I and II; (4) metatarsi and tarsi have numerous ventral spines; (5) long and elongated abdomen with or without humps; (6) uniseriate calamistrum; (7) transversely narrow and undivided cribellum; and (8) dense mat of pseudo-serrated plumose setae present on the carapace, abdomen, legs, and other body parts. Modern phylogenetic studies confirmed the close affinity of Deinopidae to the Uloboridae (Coddington, 2005).

The family-group name has been in chaos for some time. A number of earlier arachnologists used the name Dinopidae (Baum, 1938; Schiapelli & Pikelin, 1957; Chickering, 1963; Clyne, 1967; Lehtinen, 1967; Blest & Land, 1977; Tikader & Malhotra, 1978; Brignolli, 1983; Roth, 1985). Tikader (1982) placed the family under the Neocribellatae group of spiders.

On the other hand, Wang (1983), Coddington & Sobrevila (1987), Davies (1988), Dippenar-Schoeman & Jocque (1997), Platnick (1997), and Coddington (2005) more recently adopted the correct spelling Deinopidae, which is based on the type genus, *Deinopis* Macleay, 1839. The etymology of *Deinopis* was left unexplained and led many authors to disagree with Macleay's orthography. Marx (1889) and Bonnet (1956) as cited by Coddington (2005), treated *Dinopis* as masculine. However, the original spelling *Deinopis* is feminine. The establishment of *Dinopis* for *Deinopis* is an unjustified emendation (Coddington & Sobrevila, 1987; Platnick, 1989).

At present, approximately 60 nominal species belonging to four genera (*Avella* O.P.-Cambridge, 1877; *Avellopsis* Purcell, 1904; *Deinopis* Macleay, 1839; and *Menneus* Simon, 1876) have been described from the tropical and subtropical areas of the world (Coddington, 2005; Coddington et al., 2012; Platnick, 2013). However, *Avella* was placed in synonymy with *Menneus* by Davies in 1988.

While the ogre-faced spider family Deinopidae has been recorded worldwide with a good number of species already described, the family has not been reported from the Philippines since the first major report on spiders by Casto de Elera (1895) and in the more recent comprehensive works on the group by Barrion & Litsinger (1995); and Barrion et al. (2000). Thirteen years thereafter, this highly cryptic and elusive family is finally discovered from two sites in the Philippines, namely: (1) Mt. Makiling Forest Reserve, Laguna Province, Luzon Is. and (2) Pulacan Falls, Labangan, Zamboanga del Sur, Mindanao Is. Thorough examination revealed that the Philippine ogre-faced spiders belong to the genus *Deinopis* Macleay, 1839.

The genus *Deinopis* has 46 nominal species (Platnick, 2009). Of these, 16 are from the Oriental and Australian regions (Table 1) with *Deinopis liukuensis* Yin et al., 2002, from Yunnan, China as the newest member. In this article, we document the first discovery of the family Deinopidae and its type genus *Deinopis* Macleay, 1839 in the Philippines. We also describe and illustrate *D. gubatmakiling*, *D. labangan*, and *D. luzonensis* as new to science. These three taxa represent the 47th, 48th and 49th species within the genus.

MATERIALS AND METHODS

The specimens were collected from localities in two different sites in the Philippines, namely: Mt. Makiling, Los Baños, Laguna Province, Luzon Island [14.1364°N, 121.1944°E] in April 2013 and 2014, and Zamboanga del Sur Province, Mindanao Island [7°54'55.8885"N, 123°29'23.4981"E] in December 2013 using the standard sweep net and beating tray methods. Collected specimens were individually labeled with corresponding data labels [Island, province, town/municipality, barangay or site and habitat, date of collection and collector(s)] and designated collection number(s). All specimens were preserved in 80% ethyl alcohol and identified at the Institute of Biological Sciences, University of the Philippines Los Baños (UPLB), College, Laguna.

Illustrations were produced following the square-grid technique while the specimen was examined under a Nikon SMZ445 stereomicroscope equipped with a 220V/AC HX ring lamp. Female genitalia were cleared in clove oil for 24-48 hours, washed in xylene followed by ethanol, then temporarily mounted for drawing, on glass slides using Faure's medium. All measurements are given in millimeters (mm).

The following abbreviations are used: AER = anterior eye row; ALE = anterior lateral eyes; AME = anterior median eyes; AS = anterior spinnerets; PLE = posterior lateral eyes; PLER = posterior lateral eye row; PME = posterior median eyes; PMER = posterior median eye row; PS = posterior spinnerets; AME-AME = distance or separation between AMEs; ALE-AME = distance between ALE and AME; ALE-PME = distance between ALE and PME; AME-PME = distance between AME and PME; PLE-PME = distance between PLE and PME; PLE-PLE = distance between PLE ; PME-PME = distance between PME. All type specimens are deposited in the UPLB Museum of Natural History, Los Baños, Laguna, Philippines.

Table 1. Checklist and zoogeographical distribution of species of the genus *Deinopsis* Macleay, 1839. [Source: Brignolli, 1983; Davis, 1988; Australian Museum, 2003; Platnick, 2009; Wikipedia, 2014].

Species	Zoogeographical Regions *				
	A	B	C	D	E
1. <i>Deinopsis amica</i> Schiapelli & Gerschman, 1957				X	
2. <i>Deinopsis anchietae</i> Brito Capello, 1867		X			
3. <i>Deinopsis armaticeps</i> Mello-Leitao, 1925				X	
4. <i>Deinopsis aruensis</i> Roewer, 1938	X				
5. <i>Deinopsis aspectans</i> Pocock, 1899		X			
6. <i>Deinopsis aurita</i> F. O.P.-Cambridge, 1902				X	
7. <i>Deinopsis biaculeata</i> Simon, 1906				X	
8. <i>Deinopsis bituberculata</i> Franganillo, 1930				X	
9. <i>Deinopsis bucculenta</i> Schenkel, 1953				X	
10. <i>Deinopsis camela</i> Thorell, 1881	X				
11. <i>Deinopsis celebensis</i> Merian, 1911					X
12. <i>Deinopsis cornigera</i> Gerstaecker, 1873		X			
13. <i>Deinopsis cylindracea</i> C. L. Koch, 1846				X	
14. <i>Deinopsis cylindrica</i> Pocock, 1898		X			
15. <i>Deinopsis diabolica</i> Kraus, 1956				X	
16. <i>Deinopsis fasciata</i> L. Koch, 1879	X				
17. <i>Deinopsis fasciculigera</i> Simon, 1909					X
18. <i>Deinopsis fastigata</i> Simon, 1906				X	
19. <i>Deinopsis giltayi</i> Lessert, 1930		X			
20. <i>Deinopsis goalparaensis</i> Tikader & Malhotra, 1978					X

21. <i>Deinopsis granadensis</i> Keyserling, 1879				X	
22. <i>Deinopsis guasca</i> Mello-Leitao, 1943				X	
23. <i>Deinopsis guianensis</i> Taczanowski, 1874		X			
24. <i>Deinopsis guineensis</i> Berland & Millot, 1940		X			
25. <i>Deinopsis kollari</i> Doleschall, 1859					X
26. <i>Deinopsis lamia</i> Macleay, 1839**				X	
27. <i>Deinopsis liukuensis</i> Yin, Griswold & Yan, 2002					X
28. <i>Deinopsis longipalpula</i> Strand, 1913		X			
29. <i>Deinopsis longipes</i> F. O. P.-Cambridge, 1902				X	
30. <i>Deinopsis madagascariensis</i> Lenz, 1886		X			
31. <i>Deinopsis mediocris</i> Kulszynski, 1908	X				
32. <i>Deinopsis ornata</i> Pocock, 1902		X			
33. <i>Deinopsis pallida</i> Mello-Leitao, 1939				X	
34. <i>Deinopsis pardalis</i> Simon, 1906				X	
35. <i>Deinopsis plurituberculata</i> Mello-Leitao, 1925				X	
36. <i>Deinopsis ravida</i> L. Koch, 1879	X				
37. <i>Deinopsis reticulata</i> (Rainbow, 1899)	X				
38. <i>Deinopsis rodophthalma</i> Mello-Leitao, 1939				X	
39. <i>Deinopsis schomburgki</i> Karsch, 1878	X				
40. <i>Deinopsis schoutedeni</i> Giltay, 1929				X	
41. <i>Deinopsis seriata</i> Simon, 1906				X	
42. <i>Deinopsis spinosa</i> Marx, 1889				X	
43. <i>Deinopsis subrufa</i> L. Koch, 1879	X				
44. <i>Deinopsis tabida</i> L. Koch, 1879	X				
45. <i>Deinopsis tubocolata</i> Franganillo, 1926				X	
46. <i>Deinopsis unicolor</i> L. Koch, 1879	X				

* **A**=Australian; **B**=Ethiopian; **C**=Nearctic; **D**=Neotropical; and **E**=Oriental; ** Type species

TAXONOMY

Family Deinopidae C.L. Koch 1850

Genus *Deinopsis* Macleay, 1839 (Type species: *Deinopsis lamia* Macleay, 1839)

DESCRIPTIONS OF SPECIES

1. *Deinopsis gubatmakiling* Barrion-Dupo & Barrion, n. sp. [Figures 1A-G, 2A-E & 3]

Holotype: subadult male (UPLBMNH ARA-00636). Total length 14.30. Carapace: length 5.10, width 3.50, height 1.70. Abdomen: length 9.20, width 2.10, height 1.50.

Carapace. Brown to grayish brown with a pair of white longitudinal band running from anterior sides of PME and a median white band all converging posteriorly in thoracic area (Figure 1A). Three white bands connected medially to each other by two oblique dirty white bands directed to PLE. Converging white bands of thick pseudo-serrated plumose setae enclosing a mixture of brown and orange red club to peg-like setae. Submargin of carapace covered with a mat of blackish brown club to peg-like setae. Lateral margins of carapace dirty white above coxa II to posterior end of thoracic area. Anterior end of cephalic has shallow M-shaped band of short dirty white and orange red pseudo-serrated plumose setae coupled with a thick mat of long orange red and brown setae forming an arrow-like anterolateral edge. Chelicerae brown except yellow pro-margins lined with golden yellow and white hairs, orange brown club setae dorsally and dorsoretrolaterally, three black dorsal and five black prolateral spines with black bases. Retro-margin of chelicerae yellow covered with dense longitudinal mat of white pseudo-serrated plumose setae and bears eight small teeth, with T1 largest and bifurcate. Promargin bears six teeth (Figure 1B) with T1, T2 and T5 sub-equal in size and T4 very minute. Mid-length and subapex of pro-margin each with long curved white hair. Intercheliceral area lined with at least 19 minute teeth in right and 15 teeth in left chelicerae. Fang reddish brown, 1.20 long and 0.34 wide at base. Maxillae yellow with orange brown spines, yellow brown scopulae, smooth and hairless inner margins, rounded and apically diverging anterior ends, and 2.10x longer than wide (1.25:0.60). Labium slightly longer than wide (0.90:0.80), yellow with a mat of white pseudo-serrated plumose setae and short orange red spines, anterior and lateral margins yellow and smooth, posterior two-thirds medially convex and has a transverse groove at subapical third.

Eyes. Eight eyes in three rows of 4-2-2. AER (2.46) > PLER (1.83) > PMER (1.80). ALE directed lateroventrally. Eye diameter: PME (0.89) > ALE (0.29) > PLE (0.27) > AME (0.17). Eye separation: anterior ALE-ALE (2.34) > posterior ALE-ALE (1.97) > PLE-PLE (1.10) > posterior AME-ALE (1.03) > anterior AME-ALE (0.94) > PME-PLE (0.80) > ALE-PME (0.77) > AME-AME (0.20) > PME-PME (0.09) > AME-PME (0.06). Clypeus height 0.53x and 1.82x AME diameter taken at AME and PME, respectively.

Legs. Legs I 1.91x longer than leg III and leg II 1.73x longer than IV. Dull light brown covered with dirty white and slightly orange red pseudo-serrated plumose setae and short spines (Figure 1C). Membranous “sponge-lobe” on dorsoventral tip of femur I with three lobes (Figure 2A) separated by two completely convex and an incomplete line, basal lobe partially divided. Femur II with five lobes (Figure 2B-C) separated by five transverse lines. Metatarsus II and tarsus II yellow, and venter of coxae and trochanter gray. Tarsus I shorter than tarsus II, and III longer than IV. Calamistrum about 0.27 length of metatarsus IV. Leg formula 1234.

Leg measurements (mm):

Leg	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
1	13.14	2.10	11.50	13.93	4.10	44.77
2	12.71	2.00	10.60	10.70	4.20	40.21
3	8.60	1.50	5.85	6.00	1.45	23.40
4	8.30	1.60	6.10	5.90	1.25	23.15
Pedipalp	2.15	0.60	0.95	-	1.30	5.00

Abdomen. Elongate (Figure 1D), 3.6x longer than wide, yellowish brown with a median longitudinal dark brown band laced with a thin white band laterally. Venter bears wide median longitudinal band separated by a thin arrow-like grayish brown band at middle and with a pair of yellow comma-like spots anterior of cribellum. Two pairs of black spots visible inside white band. Epigastric area grayish black. Posterior third with pair of small white dots on caudal end and a pair of comma-like band posteriorly. Cribellum transversely narrow, 8.33x wider than long (1.11:0.13). Spinnerets yellowish brown with robust anterior pair projected posteriorly and slender posterior pair with converging tips.

Pedipalps showing a strongly rounded bulb, pointed apical end bearing a claw having 3-4 teeth. Venter and promargin of tarsus (bulb) clothed with strong spines. Being subadult, the commonly observed coiled embolus and the median apophysis still undeveloped.

Paratype 1: subadult female (UPLBMNH ARA-00637): Total length 18.90. Carapace: length 6.70, width 4.80, height 2.90. Abdomen: length 12.20, width 4.90, height 4.00.

Carapace. blackish brown with a broad median longitudinal white band of plumose setae running from behind PME and bifurcate to sub-posterior end of thoracic area, 1.39x longer than wide. Cephalic about 0.52x as wide as broadest width of carapace. Chelicerae 2.5x longer than wide (3.50:1.40), brown except for yellow promargin and retromargin, white plumose hairs dorsally, short yellow brown hairs postero-promarginally, and long black setae anteropromarginally. Subbasodorsal area of chelicerae with a single spine, basal third of promargin with two spines and a single very long bristle on apico-promarginal third. Promargin with six teeth (T), where $T1 > T3 > T5 > T4 > T6 > T2$ and seven in retromargin: $T7 > T1 > T3 > T2 = T4 = T5 > T6$. Base of retromargin's T1 with three minute teeth. Intercheliceral area lined with 12 minute teeth in line with T2 to T7. Maxillae with brown plumose hairs ventrally, golden yellow hairs in serrula, and strongly diverging at midlength. Labium dark brown except for anterior half with a median yellow T-band bordered anteriorly with golden yellow hairs, 1.14x wider than long. Sternum 1.2x longer than wide (3:2.5), black except for yellow dagger-like median band with irregular edges. Pedipalps yellowish brown with black posteroventral band on femur, anterodorsal of patella, middorsum, and basoretrolateral of tibia, and middorsum of tarsus.

Eyes. In three rows of 4-2-2, AER (3.26) > PLE (2.46) > PME (2.40). Eye diameter: PME (1.11) > PLE (0.37) > ALE (0.31) > AME (0.20). Eye separation: PLE-PLE (1.83) > AME-ALE (1.14) > PLE-PME (1.11) > AME-AME (0.28) > AME-PME (0.14) > PME -PME (0.11). Clypeus height 1.65x AME diameter.

Legs. Yellowish brown with dull black coxae I-IV, trochanter I-IV and basal half of femora I and II, rest of segments yellow or mottled brown. Femora III and IV mottled brown. Tibiae III and IV each with a dorsal thin longitudinal brown band prolaterally and retrolaterally. Patella I as long as II and III subequal to IV. Metatarsus I the longest segment, 1.05x and 1.25x longer than femur I and tibia I, respectively. Tarsal claws of pedipalps with 3-4 teeth. Leg formula 1234.

Leg measurements (mm):

Leg	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
I	14.25	2.62	12.50	15.00	3.50	47.87
II	13.87	2.62	12.37	13.12	3.25	45.23
III	10.00	2.12	7.00	6.56	1.50	27.18
IV	9.25	2.12	7.44	6.87	1.37	27.05
Pedipalp	2.00	0.70	1.15	-	1.65	5.50

Abdomen. Dark brown with a broad white anterolateral band, circular white spot ventrad of broad white band, two sigmoid to L-shaped dorsomedian humps and three interconnected triangular white median bands posterior of humps. Slender, 2.5x longer than wide, narrow on both ends and about highest at midlength. Venter black with white mottles and a pair of white spots subposteriorly. Cribellum 6.55x wider than long.

Epigyne. Incompletely developed (Figure 1E-G), ventral view showing only gray shades similar to subadult female paratype labeled UPLBMNH ARA-00638.

Paratype 2: subadult female (UPLBMNH ARA-00638). Total length 15.00. Carapace: length 5.60, width 3.70, height 1.40. Abdomen: length 9.40, width 2.20, height 1.90.

Carapace. Yellow brown marked medially by a yellow sword-like band and a blunt and divergently branched posterior end. Cephalic area parallel-sided, width about 0.60 of widest thoracic area located between coxa I and II, anterior margin golden yellow and anchor-like with a dense mat of hairs anterolaterally, forming a spine-like process. Central area of posterior eye quadrangle with thin M-shaped band of brown club-like hairs, this band with two lateral areas narrow posteriorly and parallel-sided anterior to fovea. Mid PLE bearing an arrow band of clubbed hairs projected posteriorly. Chelicerae yellow with brown markings its basodorsal one-fifth with a dorsal and a long inner spine. Dorsal area of chelicerae with slender setae Promargin bearing nine teeth, with T1, T4 and T9 subequally large. Retromargin with 9-11 teeth, T9 largest; T10 and T11 minute. Intercheliceral area with 20 minute teeth. Maxillae 1.75x longer than wide, yellow with more brown hairs toward basal half, paddle-shaped, apically diverging, inner apical area smooth and glossy yellow with dense golden yellow scopulae on dorsal margin, and 4-5 upwardly curved black hairs on ventral margins. Serrula dark brown. Smooth inner apical margin of maxillae 3x longer than wide. Labium similar in color with maxillae, slightly wider than long and button mushroom-like with yellow, strongly convex anterior margin, constricted midlaterally and with eight setae in a transverse row along apical third. Sternum yellow and triangular, 1.28x longer than wide with more brown hairs on margins opposite coxae I and II; anteromedian area slightly convex and elevated near base of labium.

Eyes. Eye row length: AER (2.80) > PLER (2.15) > PMER (2.00). Eye diameter: PME (1.06) > PLE (0.33) > ALE (0.27) > AME (0.17). Eye separation: ALE-PLE (1.64) > PLE-PLE (1.55) > AME-ALE [dorsal] (1.24) > AME-ALE [ventral] (1.16) > PME-PLE (1.02) > PME-ALE [middle] (0.86) > AME-AME (0.31) > PME-PME (0.17) > AME-PME (0.09). Clypeus height 0.67 AME diameter.

Legs. Long and slender, yellow with brown short spines and bases of spines. Femur I with six short dorsal spines, 9-10 prolateral spines with five spines on mounds surrounded by brown plumose hairs, and ventral side with four spines. Prolateroventral sides of femora III and IV each with oblongate yellow spot at apical third. Femora I to IV with scattered gray brown markings. Tibia III with a prolateral oblongate yellow spot along basal fifth and a long oblique yellow band at midlength. Anteroventral membranous plate of femur I deeply concave with six transverse ridges (Figure 2D) and femur II with seven transverse ridges (Figure 2E) close to each other. Calamistrum yellowish brown, 0.36 as long as metatarsus IV. Leg formula 1234. Pedipalp femur with four ventral spines and patella with a single dorsal spine, tibia with one dorsal spine and an oblique white dorsal band passing between dorsal and prolateral spines. Tarsal claw of pedipalp with four teeth.

Leg measurements (mm):

Leg	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
I	12.20	2.00	9.75	12.30	2.80	39.05
II	12.00	1.70	9.10	10.60	2.50	35.90
III	8.10	1.55	5.50	5.60	1.35	22.10
IV	7.70	1.70	5.95	5.50	1.15	22.00
Pedipalp	1.60	0.78	1.00	-	1.45	4.83

Abdomen. Light yellowish brown with dull brown cardiac area bordered laterally by white and grayish black longitudinal band, posterior half yellowish white and clothed with short club-like hairs. Lateral areas with waxy brown band and mat of white cotton-like cocoons close to midlength. Venter whitish yellow mottled with blackish brown dots, golden brown hairs in epigastric fold areas, and two pairs of spherical white spots along anterior half, and transverse dark brown mat of hairs subposteriorly. Cribellum 12.5x wider than long (1.13: 0.09). Spinnerets yellowish brown, robust anterior pair projected posteriorly and posterior pair slender with tips converging.

Epigyne. Ventral side with subtriangular scape-like plate in middle of posterior epigynal margin bordered with single or W-shaped gray band anterior of posterior epigynal margin. Dorsal side with a pair of pale elongate spermatheca-like processes, and a circular opening on each side of the processes.

Material Examined. **Holotype:** subadult male (UPLBMNH ARA-00636): PHILIPPINES: Luzon Is.: Laguna Province: Los Baños, Mt. Makiling Forest Reserve, A.T. Barrion, 2-3 April, 2013; **Paratypes:** four subadult females (UPLBMNH ARA-00637, 00638, 00639 and 00640), same data as holotype.

Etymology. Named after the secondary growth forest (*gubat*) of Mt. Makiling.

Remarks. This spider was observed to actively hunt for prey (Figure 3) along the riparian vegetation of Molawin Creek in Mt. Makiling at night.

2. *Deinopis labangan* Barrion-Dupo & Barrion, n. sp.

[Figures 4 - 5]

Holotype: female (UPLBMNH ARA-00642). Total length 16.10. Carapace: length 6.00, width 4.40, height 2.40. Abdomen: length 10.10, width 4.70, height 3.70.

Carapace. Vase-shaped (Figure 4A). Brown mottled with creeping dense mat of white hairs. Cephalic area parallel-sided, slightly more than half as wide as thoracic width, with dark brown globose spot behind PME and a dark brown band posterior of PLE and diverging laterally anterior of yellow brown fovea. Chelicerae brownish yellow and clothed with white plumose creeping hairs, 2.4x longer than wide (3.00:1.25), middorsal area with six spines in a longitudinal row, basal spine largest. Fangs dark reddish brown. Maxillae yellowish brown with dark brown spot opposite anterolateral corner of labium, 2.57x longer than wide, apical margin rounded and slightly diverging. Anterior half of maxillae oblique entad, whitish yellow and dorsolateral aspect with golden yellow hairs. Labium brown with a yellow T-band, slightly longer than wide (0.90:0.80). Sternum subtriangularly convex, 1.3x longer than wide (2.60:2.00), medially covered with thick plumose white hairs and short yellow orange peg-like spines laterally. Sternum grooved toward coxa I. Apicolateral junction of sternum with bulbous tubercle close to base of maxilla.

Eyes (Figure 4B). Anterior eye row (3.10) > Posterior lateral eye row (2.35) > Posterior median eye row (2.15). Eye diameter: PME (1.00) > ALE=PLE (0.30) > AME (0.15). Eye separation: ALE-ALE [dorsal] (3.10) > ALE-ALE [ventral] (2.65) > AME-ALE (1.30) > ALE-PME (1.00) > AME-AME (0.35) > PME-PME (0.20) > PME-AME (0.15). Clypeus height 1.33x AME diameter.

Legs. Long and slender, brownish yellow with short black spines and fine plumose white hairs (Figure 4C). Stronger spines present on prolateral and dorsal posterior half of femora I-IV. All coxae brown red. Calamistrum on metatarsus IV 1.73 long, about 0.28 length of metatarsus. Leg formula 1243. Pedipalp about 0.45x length of tibia I.

Leg measurements (mm):

Leg	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
I	14.20	2.50	12.20	15.20	2.75	46.85
II	13.90	2.50	11.90	12.50	2.80	43.60
III	9.00	1.80	6.10	5.80	1.40	24.10
IV	8.60	2.00	6.50	6.00	1.20	24.30
Pedipalp	1.90	0.80	1.15	-	1.60	5.45

Abdomen. Elongate 2.5x longer than wide, widest at mid-length and curved downwards along posterior half; dirty white with a dark brown median longitudinal dagger-like band (Figure 4D). Elevated part with a ridge projected laterally forming a broad undulating brown band when viewed laterally. Mid-dorsum with pair of sub-globose dark brown spots posterior of laterally

directed ridge. Posterior half with three pairs of small tubercles covered with white plumose setae. Venter whitish yellow with a mixture of white plumose hairs (Figure 4E), white and golden brown to orange hairs, and two pairs of tubercles covered with white plumose hairs. Cribellum gray brown, 9.28x wider than long. Spinnerets black with the robust anterior pair lined sub-basally by a transverse row of 18-24 long whitish yellow hairs.

Epigyne. Bulbous and hump-like, uncleared epigynum (Figure 4F) bearing yellowish semicircular window lined with white and yellow setae and plumose hairs in anterior epigynal margins (AEM) and a transverse groove anterior of AEM. Window 2.85x wider than long with a pair of concave lines that diverge widely posteriorly and converge anteriorly.

Paratype: female (UPLBMNH ARA-00643). Total length 15.90. Carapace: length 5.70, width 4.00, height 3.00. Abdomen: length 10.20, width 5.00, height 3.50.

Carapace. Yellow-brown clothed with a dense mat of short white hairs. Cephalic area about half as wide as carapace, parallel-sided, anteriorly truncate above PME and cleft- to V-shaped medially between PME. Median area of PLE with a pair of ovoid brown spots enclosed by a yellow anchor-like band. Thoracic area with a brown spot on each side of the long fovea. Chelicerae 2.4x longer than wide (2.65:1.10) with six promarginal and five retromarginal teeth. Intercheliceral area with 14 minute teeth. Maxillae 2.25x longer than wide (1.80:0.80), yellowish gray with brown hairs, inner apical half with a smooth whitish yellow plate 3x longer than wide (0.90:0.30) and anterior apices strongly diverging. Labium brown with a yellow T-band running from anterior margin to cephalic plate, slightly wider than long (1.00:0.90). Sternum triangular, 1.19x longer than wide (2.50:2.10), yellow with brown and whitish yellow hairs marginally, yellow hairs and sparse brown spines present submarginally, midanterior margin slightly elevated and with shallow depression anterolaterally opposite coxa I and II.

Eyes. Eye row length: AER [dorsal] (2.90) > AER [ventral] (2.53) > PLER (2.16) > PMER (2.11). Eye diameter: PME (1.00) > PLE (0.33) > ALE (0.31) > AME (0.20). Eye separation: PLE-PLE (1.64) > PLE-ALE (1.50) > PLE-PME (0.84) > AME-AME (0.31) > PME-PME (0.20) > AME-PME (0.11). Clypeus height 1.2x AME diameter.

Legs. Long and slender with short brown spines, yellowish brown with black spots on all coxae, femora and patellae, anterior ends of femora I-IV usually darker than rest of segments, anterior and posterior ends of metatarsi III-IV and anterior ends of tarsi III-IV brown. Femur I as long as femur II and with eight prolateral spines confined to basal half of segment. Leg formula 1234. Femur II with three lobes, each lobe truncate medially and oblique laterally. Pedipalps grayish brown with promargin of femur yellow, dorsum of tibia with an oblique yellow band and dark brown tarsal claw with four teeth.

Leg measurements (mm):

Leg	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
I	13.86	2.20	11.60	15.14	3.00	45.80
II	13.86	2.10	10.30	12.29	2.71	41.26
III	8.75	1.70	5.80	5.75	1.45	23.45
IV	8.10	1.80	6.10	6.00	1.20	23.20
Pedipalp	1.85	0.60	1.05	-	1.70	5.20

Abdomen. Dirty white, medially with a sword-like grayish brown longitudinal band, two oblique humps at midlength laced with sigmoid blackish brown band running posterolaterally and a pair of dark brown subglobose spots on posterior of humps. Posterior half curved downwards. Venter moderately concave, dirty white except for light brown epigynal area, a pair of longitudinal gray bands on book lungs, a pair of subtriangular black bands sitting on a white semicircular spot at midlength, and a pair of smaller circular white spots at posterior third much closer to each other than to widely separated submedian pair of white spots. Midventer marked with a yellow arrow-like band tapering toward epigastric furrow, and subposterolateral end with pair of ear-like lobes. Spinnerets dark brown, apices moderately converging. Cribellum transversely long and very thin.

Epigyne. Epigynum with whitish yellow dome-shaped window posterior of the hump in ventral view and with a pair of long concave to vertical grayish black band extended to book lungs. Spermathecae spherical, located anterior to broadly sigmoid copulatory tube (Figure 5A-B).

Paratype: subadult male (UPLBMNH ARA-00646). Total length 15.04. Carapace: length 4.50, width 3.30, height 1.60. Abdomen: length 11.30, width 3.30, height 3.20mm.

Carapace. Brown submedially, medially with a broad white band widest at PME and narrowly pointed toward thoracic end, and laterals of thoracic area white. Cephalic area parallel-sided, 1.75 mm wide and about 0.53x of thoracic width. Chelicerae yellowish brown with strong midposterodorsal and subbasoprolateral spines (Figure 5C). Promargin of chelicerae with eight teeth, T1, T3 and T5 subequal in sizes. Retromargin bears eight teeth, basal tooth (T8) the largest. Intercheliceral area with 17-19 minute teeth. Maxillae 1.65x longer than wide (0.96:0.58), yellow with orange hairs on inner apical area, apices broadly diverging anteriorly and tips moderately rounded. Labium slightly longer than wide, yellow T-band present medially and clothed with thick plumose hairs similar to those on sternum. Sternum 1.38x longer than wide, convex median area clothed with thick mat of plumose hairs and light brown laterals with short peglike spines. Anterolateral area of sternum deeply constricted opposite coxa I.

Eyes. AER (2.40) > PMER (1.80) > PLER (1.70). Eye diameter: PME (0.76) > PLE (0.25) > ALE (0.24) > AME (0.13). Eye separation: PLE-PLE (1.27) > AME-ALE (0.84) > PME-ALE (0.76) > AME-AME (0.31) > PME-PME (0.09). Clypeus height 0.50 AME diameter.

Legs. Legs I and II distinctly longer than III and IV and consistent with all the other *Deinopsis* species reported in the Philippines. Femur of leg I and II with more sharp spines dorsally and prolaterally toward basal half of leg segment. Sponge-like membranous process in apicoventer of femur I with four transverse lobes, most basal lobe concave (Figure 5D). Metatarsus II 2x longer than metatarsus III (10.20:5.10). Calamistrum 1.60 long, about 0.31x length of metatarsus IV. Pedipalp femur relatively long, longer than patella II and slightly shorter than patella I. The bulb (tarsus) rounded with four teeth on each claw.

Leg measurements (mm):

Leg	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
I	13.28	2.00	11.25	13.00	4.00	43.53
II	12.86	1.80	10.60	10.20	3.60	39.06
III	8.00	1.30	5.50	5.10	1.55	21.45

IV	7.80	1.50	6.00	5.20	0.90	21.40
Pedipalp	1.90	0.60	1.00	-	1.30	4.80

Abdomen. Elongated, 3.42x longer than wide and broadest at midlength, distinctly creamy white with few brown dots dorsally, clothed with plumose hairs dorsally, laterally and ventrally. Dorsomedian area of abdomen with a thin longitudinal brown band, laterals uniformly light creamy white, and venter chalk white with a very thin median longitudinal brown line and two pairs of white humps each pair located subanteriorly and subposteriorly. Cribellum 8.75x wider than high (length), gray but transversely lined with short white hairs. Spinnerets uniformly black, anterior pair apically converging with an oblique rows of 10-14 white hairs in median area running from outer posterior to inner anterior portion of segment. Posterior spinnerets with slightly diverging apices.

Palp. Still undeveloped being subadult. Typical coiled embolus and median apophysis not yet visible.

Material Examined. **Holotype:** female (UPLBMNH ARA-00643), PHILIPPINES: Mindanao Is.: Zamboanga del Sur Province: Labangan, Pulacan Falls, C.C. Dacanay, 25-31 December, 2013. **Paratypes:** two females (UPLBMNH ARA-00644 and 00645) and one subadult male (UPLBMNH ARA-00646), same data as holotype.

Etymology: Named after the type locality.

Remarks: This species is very similar to *D. subrufa* L. Koch from Australia in having rounded tip of spermathecae and parallel fertilization ducts but is easily distinguished from the latter in the: (1) shape of the epigyne (distinctly dome-shaped with lateral margins converging anteriorly in *D. labangan* vs. V-shaped and not dome-shaped with lateral margins separated anteriorly in *D. subrufa*); (2) strongly sigmoid and two broadly coiled insemination ducts in *D. labangan* vs. 10 spirally coiled in *D. subrufa*; (3) presence of black dagger-like band in the mid-abdomen in *D. labangan* vs. none in *D. subrufa*; and (4) male carapace having a white pointed band medially wide along PME and narrowing to a point along thoracic end in *D. labangan* vs. a broad brown band in *D. subrufa*.

2. *Deinopis luzonensis* Barrion-Dupo & Barrion, n. sp.

[Figure 6A-E]

Holotype: female (UPLBMNH ARA-00641): Total length 18.00. Carapace: length 6.90, width 4.30, height 3.00. Abdomen: length 11.10, width 3.90, height 3.25.

Carapace. Yellowish brown, with a yellow fork-like band in middle of posterior eye area. Cephalic region parallel-sided along lateral margins of PME and PLE, about 0.61x as wide as thoracic width. Both cephalic and thoracic regions clothed with relatively long yellow brown and short dark brown club-like hairs. Fovea yellow, shallow and longitudinal. Chelicerae with eight promarginal teeth, T1 and T3 the largest (Figure 6B). Retromargin with eight teeth, the basal tooth (T8) trifid and largest. Intercheliceral area with 24 (right side) and 35 (left side) peg-like minute teeth. Maxillae longer than wide (Figure 6C), yellowish gray, covered with dark brown hairs, apical half of inner dorsolateral margin with golden yellow scapulae and inner basal half of inner ventrolateral margin nearly straight. Labium 1.22x longer than wide (1.09:0.89), anterior margin whitish yellow similar to inner margin of maxillae. Sternum yellow, semitriangular, and

slightly convex, 1.17x longer than wide (2.70:2.30), covered with moderately dense mat of long dark brown club hairs, interspersed with short and thin yellowish brown club hairs. Long dark brown club hairs converging toward mid-anterior margin of sternum.

Eyes. AER strongly procurved with ALE on tip of club-shaped stalk projected lateroventrally. PER strongly recurved forming two rows, the PME and PLE. Eye row length: AER (3.35) > PMER (2.75) > PLER (2.35). Eye diameter: PME (1.24) > ALE (0.36) > PLE (0.33) > AME (0.18). Eye separation: ALE-ALE [dorsal] (3.5) > ALE-ALE [ventral] (2.83) > PLE-PLE (1.98) > ALE-AME (1.44) > PME-PLE (1.20) > PME-ALE (1.00) > AME-AME (0.36) > PME-PME (0.22) > PME-AME (0.15). Clypeus height 0.29, about 1.7x AME diameter.

Legs. Long and slender, brown to grayish brown, coxae and trochanter I-IV yellow brown dorsally and grayish ventrally except venter of coxa IV with yellow margins. Basal fourth of femur IV yellow retromarginally. Tibia I with a submedian yellow and a subapical gray ring bands. Metatarsus I with narrow pale yellow ring at basal third and a longer dark yellow ring slightly above midlength. Distal third of metatarsus II and entire tarsus yellow. Metatarsus IV with whitish yellow band at midlength. Basal half of tarsus I yellowish brown. Tarsus 3-clawed, superior claws with four teeth and anteroventral tip with two upcurved spines. Calamistrum about one-third the length of metatarsus IV, as long as the yellow band on leg segment. Tarsal claws of pedipalp with five teeth. Leg formula 1243. Pedipalp about half as long as metatarsus II.

Leg measurements (mm):

Leg	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
I	15.21	2.50	12.43	15.93	3.14	49.21
II	14.57	2.40	12.14	10.86	1.14	41.11
III	9.57	1.80	7.14	6.86	1.43	26.80
IV	9.71	2.00	7.36	6.71	1.21	26.99
Pedipalp	2.20	0.80	1.20	-	1.70	5.90

Abdomen. Brown, elongate and broadest at midlength, clothed with whitish yellow and dark brown club-like hairs. Anterodorsal half with pair of narrow oblique blackish brown bands. Inner side of bands white and a pair of white comma-like bands present medially between tubercles. Posterior half slender and narrower than anterior half, marked medially with four subrectangular bands. Venter yellow brown with three globose gray bands anterior of epigastric fold, a pair of spherical white spots with gray brown anterior border at midlength and a smaller pair of white dots at posterior fourth. Lateral aspects of anterior third with white band and 1-4 small circular spots (Figure 6D). Cribellum 6.38x wider than long (1.53:0.24). Spinnerets clothed with yellow and blackish brown hairs, anterior pair slightly longer than wide and basally apart by about one-eighth of its widest diameter. Apices of posterior pair of spinnerets strongly converging.

Epigyne. Distinctly button-like (Figure 6E), 4.2x wider than long (0.80:0.19), mid-anterior margin shortly divided by hairs, pale yellow transverse slits present on each lateral margin and posterolateral margins extended laterally.

Material Examined. **Holotype:** female (UPLBMNH ARA-00641). PHILIPPINES: Luzon Is.: Laguna Province: Los Baños. Mt. Makiling Forest Reserve, A.T. Barrion, 2 April, 2014. **Paratype:** female (UPLBMNH ARA-00642), same data as holotype.

Etymology. Named after Luzon, the largest Philippine island where the type locality is found.

Remarks. The unique shape of the ventral epigyne distinguishes this new species from *D. subrufus* and the body contour and design from *D. liukuensis* Yin, Griswold & Yan from Yunnan, China.

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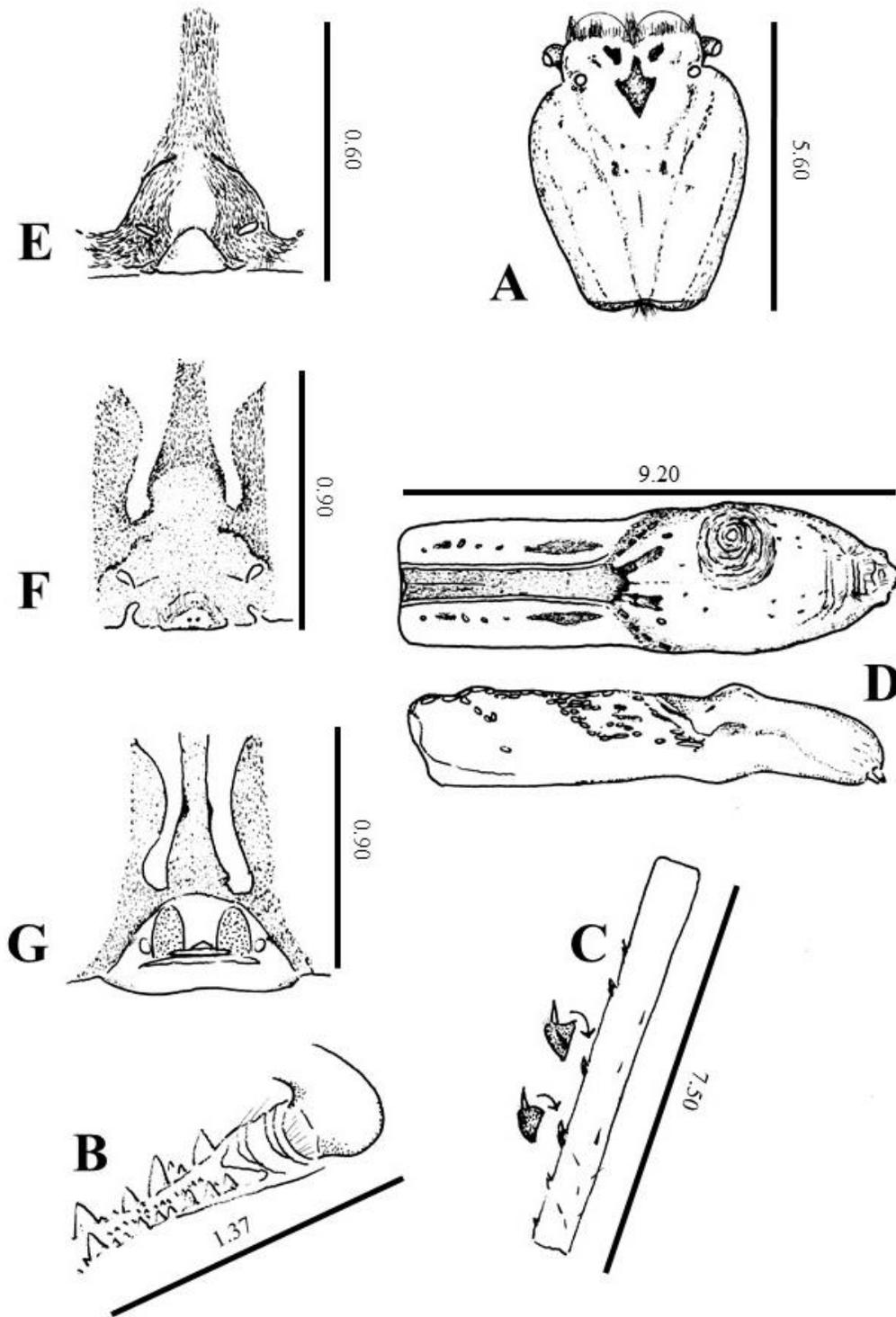


Figure 1. *Deinopsis gubatmakiling* Barrion-Dupo & Barrion, n. sp.: **A.** dorsal view of carapace; **B.** cheliceral teeth; **C.** proximal spines of leg III; **D.** ventral and lateral views of the abdomen; **E-F.** ventral views of epigynum; **G.** dorsal view of epigynum.

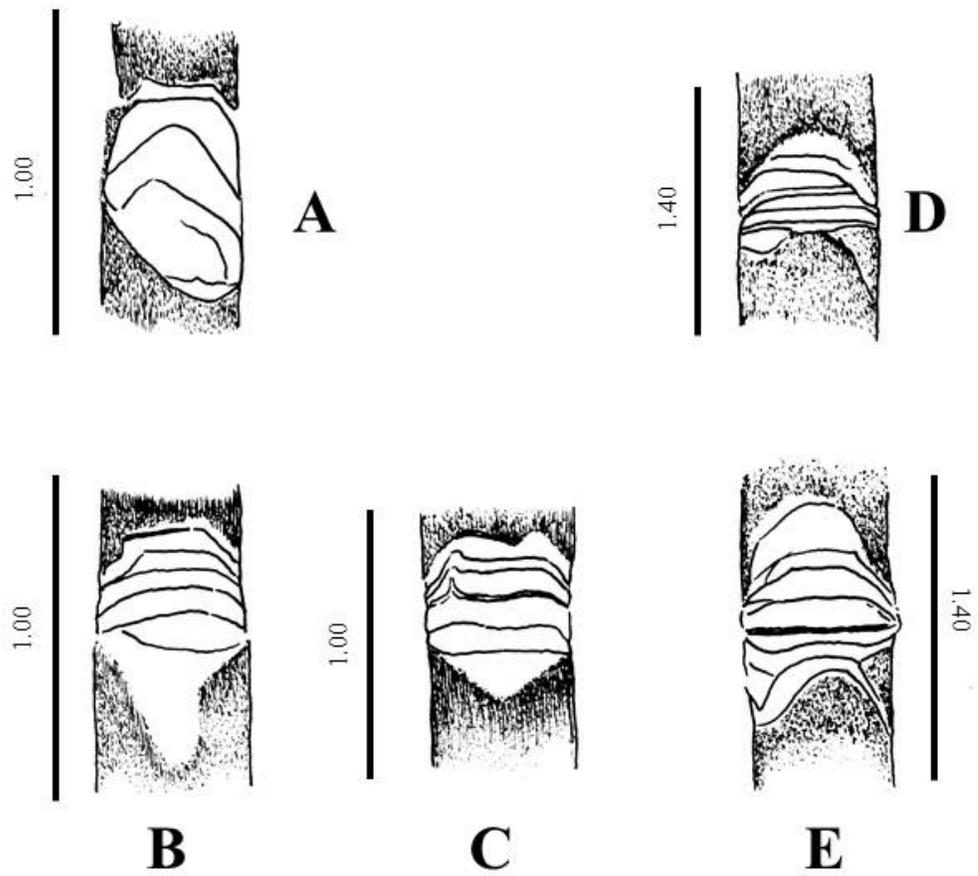


Figure 2. *Deinopis gubatmakiling* Barrion-Dupo & Barrion, **n. sp.**: **A-C.** male, ventral view: **A.** femur I; **B.** right femur II; **C.** left femur II; **D-E.** female, ventral view: **D.** right femur I; **E.** right femur II.



Figure 3. *Deinopis gubatmakiling* Barrion-Dupo & Barrion, **n. sp.**, photographed in a riparian vegetation of the Mt. Makiling Forest Reserve catching a cricket (photographed by OL Eusebio).

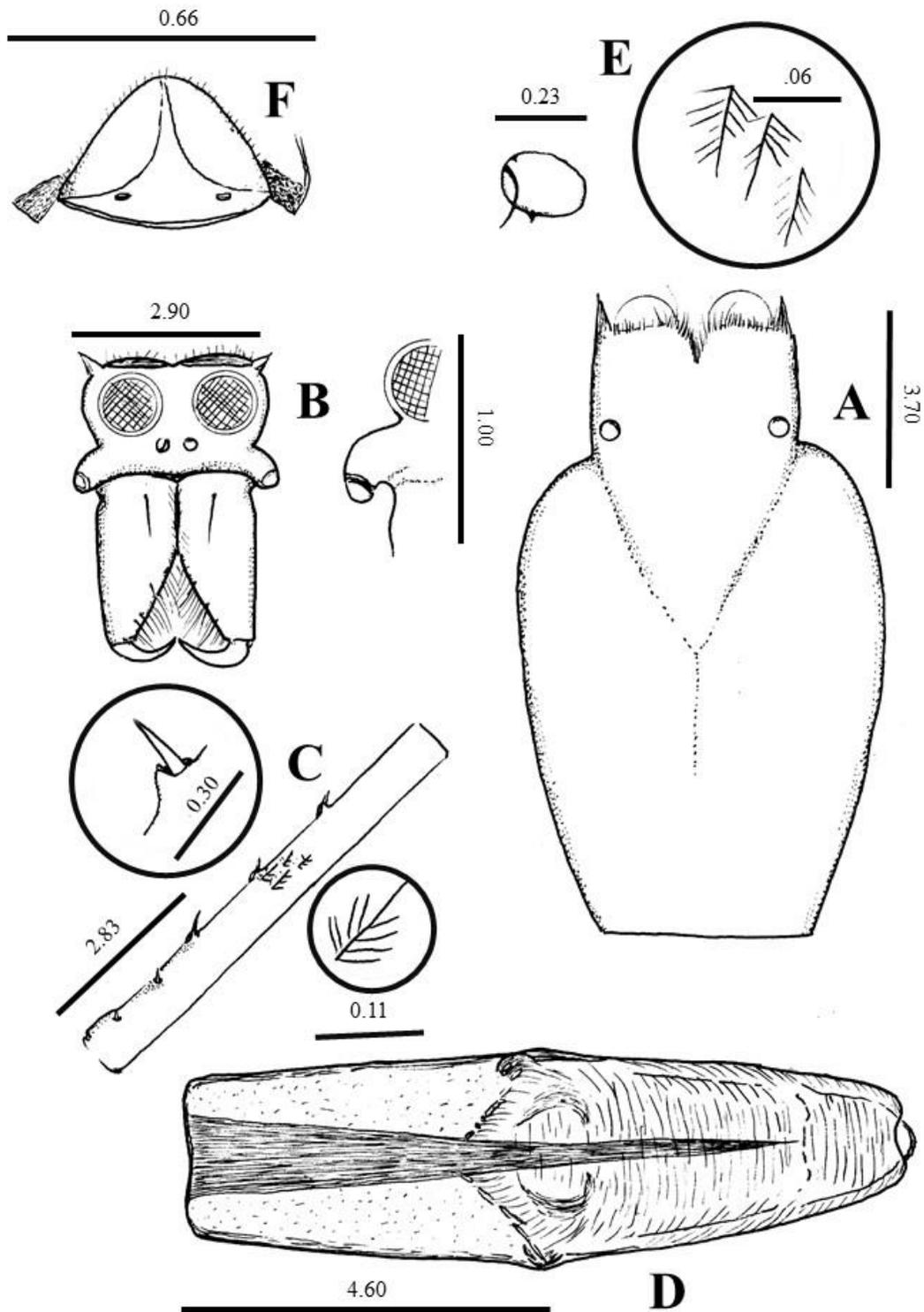


Figure 4. *Deinopis labangan* Barrion-Dupo & Barrion, n. sp.: **A.** dorsal view of carapace; **B.** head showing distinct front eyes; **C.** femur with short spines; **D.** dorsal view of abdomen; **E.** plumose hairs of abdominal venter.

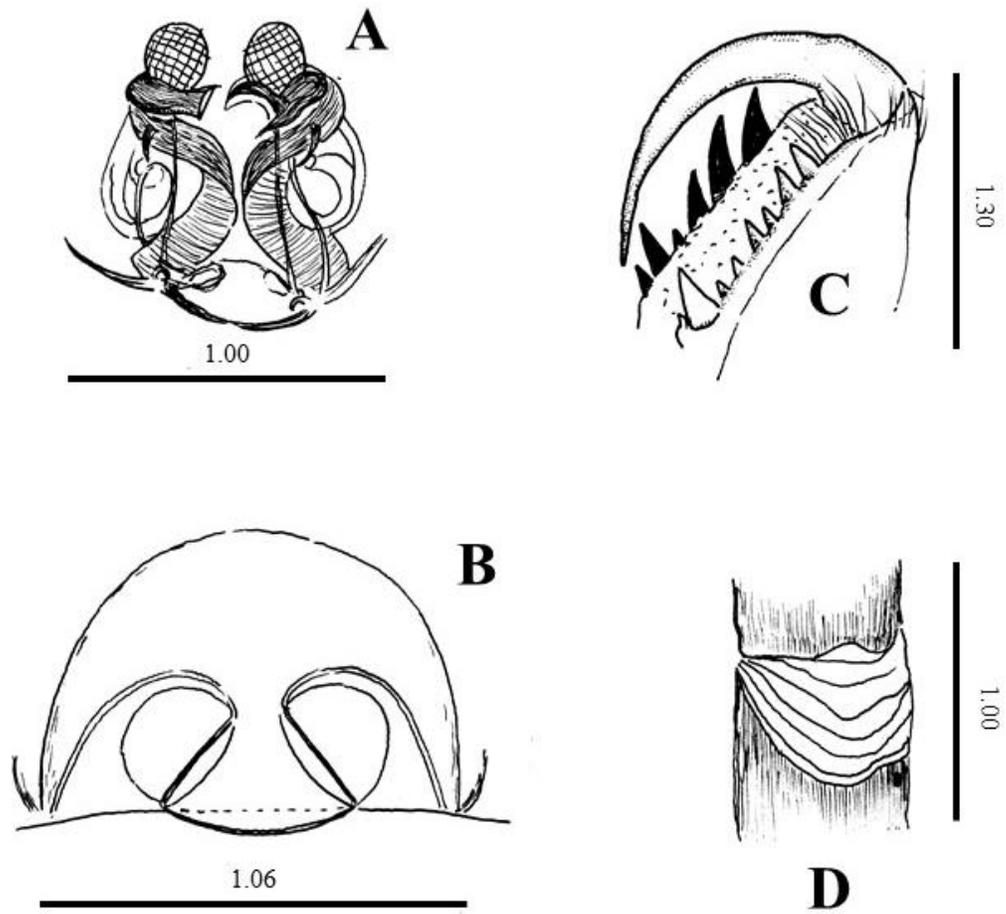


Figure 5. *Deinopis labangan* Barrion-Dupo & Barrion, n. sp.: **A.** dorsal view of cleared epigynum; **B.** ventral view of cleared epigynum; **C.** cheliceral teeth; and **D.** membranous socket at apicoventral tips of femora I and II.

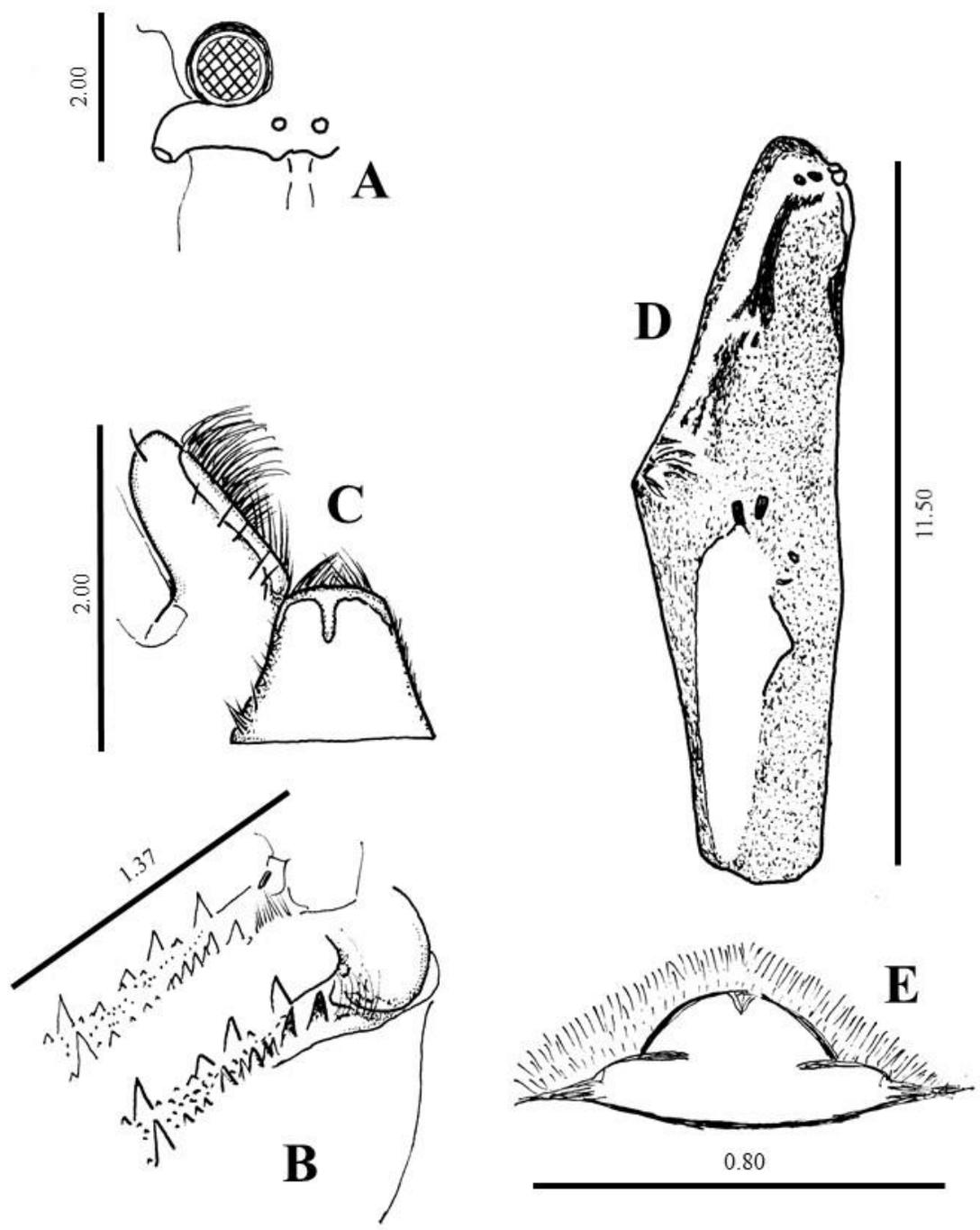


Figure 6. *Deinopis luzonensis* Barrion-Dupo & Barrion, n. sp.: **A.** head showing distinct front eyes; **B.** cheliceral teeth; **C.** maxilla + labium; **D.** lateral view of abdomen; **E.** ventral view of epigynum.