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A NEW TARANTULA SPECIES OF THE GENUS *ORPHNAECUS* SIMON, 1892 (ARANEAE: THERAPHOSIDAE) FROM MINDANAO ISLAND, PHILIPPINES

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Summary. The genus *Orphnaecus* currently comprises three species found in the Philippine islands of Luzon, Negros, Polillo, and Dinagat. *Orphnaecus mimbilisanensis* **sp. n.** is described based on specimens collected from Mimbilisan Protected Landscape, Misamis Oriental in Mindanao Island, Philippines. The new species is the first *Orphnaecus* species of the vast mainland Mindanao and is distinguished from all known congeners by its carapace profile, leg, and genital morphology, as well as distribution.

Key words: spiders, Theraphosidae, taxonomy, new species, distribution, Oriental region.

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Резюме. В настоящее время филиппинский род *Orphnaecus* включает три вида, встречающихся на островах Лусон, Полилло и Динагат. По собранным в охраняемом ландшафте Мимбилисан на острове Минданао (Филиппины) экземплярам описан *Orphnaecus mimbilisanensis* **sp. n.** Новый вид отличается от всех известных видов рода профилем панциря, морфологией ног и гениталий, а также распространением.

INTRODUCTION

Theraphosidae Thorell, 1869 are known as tarantulas, baboon spiders, and earth tigers (Hamilton *et al*., 2016; Platnick, 2020). Similar to other spider species, they use ambush employing a sit-and-wait strategy, remaining motionless until they detect potential prey nearby, at which point they utilize their speed and venom to subdue it (Chen *et al*., 2008; Stoltey & Shillington, 2009; Santana *et al*., 2017). They reside in burrows or crevices in the ground, but some are arboreal and dwell in silk-lined nests on trees (Costa & Pérez-Miles, 2002). Some species are cave dwellers and some species are found in nearby wetlands

(Schultz & Schultz, 2009; Mendoza & Francke, 2018). They are the most speciose family of mygalomorph spiders, currently comprising 1,137 species and 174 genera, including the largest tarantulas in the world. The theraphosid fauna of the Philippines currently has 14 species in five genera, which comprise a small portion of the world's known tarantula diversity (1.123% of the total globally) (World Spider Catalog, 2025).

One of the five genera found in the archipelago is the genus *Orphnaecus* Simon, 1892 which was described by Eugène Louis Simon, a French naturalist and a spider taxonomist, which describes over 4,000 species (Platnick & Raven, 2013). This genus is under the subfamily Selenocosmiinae Simon, 1889, which has a synapomorphy in having an ovoid patch of modified stridulatory setae, also known as lyra, on the prolateral maxilla. West *et al*. (2012) distinguished the genus *Orphnaecus* from other Selenocosmiinae genera in possessing a secondary row of lanceolate cheliceral strikers with very stout bases and reniform (kidney-shaped) patch of lyra, and dorsal scopulate brush of setae on the male palpal patella. In their morphological cladistic analysis, Orphnaecus was recognized as a senior synonym of *Chilocosmia* Schmidt et von Wirth, 1992 and Selenobrachys Schmidt, 1999 (West et al., 2012). Recently, both genera were revalidated by Acuña et al. (2025) based on their morphological and molecular phylogenetic analyses, reinstating the original combinations of Chilocosmia dichromata Schmidt et von Wirth, 1992 and Selenobrachys philippinus Schmidt, 1999. These taxonomic revisions reduced the number of valid species in *Orphnaecus* to three, all of which are endemic to the Philippines (Fig. 1): *O. adamsoni* Salamanes, Santos, Austria et Villancio, 2022, *O. kwebaburdeos* (Barrion-Dupo, Barrion et Rasalan, 2014), and *O. pellitus* Simon, 1892. However, due to insufficient studies, these species do not fully represent the potential diversity of the genus in the Philippines. Furthermore, given the current threats of habitat loss and illegal pet trade, their populations may decline uncontrollably without documenting their biodiversity.

The new species of the genus *Orphnaecus* was discovered across a wide area of mainland Mindanao, particularly in the Mimbilisan Protected Landscape, and is described and illustrated below.

MATERIAL AND METHODS

The sampling area is in Mimbilisan Protected Landscape (8° 56' 32" N, 124° 52' 4" E) located in Barangay Mapua, Municipality of Balingoan, Misamis Oriental on Mindanao Island. The Mimbilisan Protected Landscape covers a total area of 66.515 hectares and reaches a maximum elevation of 535 meters above sea level. Furthermore, the Mimbilisan Protected Landscape serves as a critical watershed for nearby communities (Lucman *et al.*, 2020). The specimens were manually collected and each was stored in a 100 ml container with 95% ethyl alcohol.

The Unified Species Concept by de Queiroz (2005, 2007) was utilized in species delimitation. It uses all available data to provide a robust approach to defining species as an independent lineage. The best available evidence used in this study is the morphological and biogeographical criteria.

The examination, documentation, and measurements of the specimens were conducted using Olympus (SZ61) stereomicroscope, mounted with ToupCAM (Xcam Full HD Camera) manually calibrated using millimeter slides and Toupview (OMAX) digital software. The specimens are measured on the left side of the spiders (or mentioned otherwise) in millimeters (mm) to the nearest 0.01 mm. The ratio of the length of leg I to leg IV was calculated using the leg relation factor (RF) by von Wirth and Striffler (2005). The leg formula is presented in decreasing order of the leg lengths. The eye diameters were measured by the widest point or major axis of the eyes. The width of the fovea is measured by connecting the endpoints of the fovea and the curvature of the fovea is measured by connecting a three-point angle on the

endpoints and midpoint of the fovea. The genitalia of females were dissected and cleaned using lactic acid to dissolve the excess tissues (von Wirth & Hildebrandt, 2023). The male palpal organ was detached from the palp for easier
examination. The palpal organ terminologies and structure followed Bertani (2000, 2023). Labial and maxillary cuspules and the mesoventral denticles were counted under a microscope by plotting using Toupview software. The total length (TL) was measured dorsally from the anterior tip of chelicerae to the posterior tip of the abdomen, excluding spinnerets.

The specimens were compared to the type and non-type specimens of all known *Orphnaecus* species, provided below:

Orphnaecus adamsoni. Philippines: **Dinagat Is.**, Dinagat Islands Prov. • *Holotype* ♂ PNM 14889; Loreto, Mt. Mangkuno; Oct 2018, J Santos & GG Villancio leg., forest grounds; • *Paratype* ♀ PNM 14888 [Ornithoctoninae sp., misplaced/ misidentified]; Cagdianao-Basilisa, 'Mt. Arayat', Oct 2018, J Santos & GG Villancio leg.; PNM (DCA examined).

Orphnaecus kwebaburdeos. Philippines: **Polillo Is.**, Quezon Prov. • *Paratypes* 3♂, 1♀ BPB 2112012-4, BPB 2112012-12, BPB 2112012-13, BPB 2112012-2; Burdeos, [Brgy. Aluyon], Puting Bato Cave 2–4 Nov 2012, J. Rasalan leg.; UPLB-MNH (DCA examined); • 4 ♂, 14♀ 7j UST-ARC 0059–0083; Burdeos, Brgy. Aluyon, inside Puting Bato Cave 2 & 3, 150 m horiz. depth, 13–14 May 2023, DC Acuña & JD Fornillos leg.; UST-ARC (DCA examined).

Orphnaecus pellitus. Philippines: **Luzon Is.**, Bicol Peninsula. • *Syntypes* 1♂, 2♀ MNHN AR4678; Camarines Sur Province, Libmanan, [Brgy. Sigamot], 'Calapnitan Caves' [Culapnitan Caves] (now Libmanan Caves National Park) (examined through images sent by V. von Wirth and A.-E. Leguin); • 2♂, 3♀, 12j, UST-ARC 0031–0047; [same general locality as for the syntypes], inside Kalangkawan Cave; 50–300 m horiz. depth, 20 Apr 2023, LA Guevarra, DC Acuña, CN Noriega, JD Fornillos leg. 4j UST-ARC 0048–0051; [same general locality as for the syntypes], inside Alinsanay Cave; 50 m horiz. depth, [same collection data as for the latter]; • 2♂, 4♀ 1j, UST-ARC 0052–0058; [same general locality data as for the syntypes], inside Laya Cave; 30–50 m horiz. depth, 20 Jul 2023, LA Guevarra, DC Acuña, JD Fornillos leg. (DCA examined).

Orphnaecus philippinus. Philippines: **Negros Is.**, Negros Occidental Prov. • *Holotype* ♀, SMF 39202-84; Mambucal (now Mambucal Resort and Wildlife Sanctuary), Perboom leg.; SMF (examined through images at SMF database); • ♂, PASI ara0006, 9♀, 8 j, UST-ARC 0112–UST-ARC 0127 (field#NOM1A-01–NOM1A-16); Mambucal Resort and Wildlife Sanctuary; 365 m a.s.l., 26 Jun 2023, burrows under metamorphic rock boulders and crevices, LA Guevarra, DC Acuña, CN Noriega, R Enguito, LJS Villaflor leg.; PASI/ UST ARC (DCA examined) • ♀, SMNS Aran-004192, 5♂, SMNS Aran-004187–Aran-004191; Mount Canlaon; 2010, JM Verdez leg.; SMNS (examined through images sent by V. von Wirth).

The following abbreviations are used in the text: **ALE** – anterior lateral eyes; **AME** – anterior median eyes; **PLE** – posterior lateral eyes; **PME** – posterior median eyes; **OT** – ocular tubercle; **PLS** – posterior lateral spinnerets; **PMS** – posterior median spinnerets; **fem** – femur; **pat** – patella; **tib** – tibia; **met** – metatarsus; **tar** – tarsus; **TL** – total length; **CL** – carapace length; **CW** – carapace width; **CH** – carapace height; **RF** – leg relation factor; **TLL** – total leg length; **A** – apical keel; **PI** – prolateral inferior keel; **PS** – prolateral superior keel; **BL** – basal lobe; **StR** – subtegular ridge.

Abbreviations of museums and collections: NSM-MSUIIT – Natural Science Museum-Mindanao State University- Iligan Institute of Technology, Iligan City; MNHN – Muséum

National d'Histoire Naturelle, Paris; PASI – Philippine Arachnological Society, Inc. - Natural Science Collection, Manila; PNM – Philippine National Museum- Museum of Natural History, Manila; UPLB-MNH – University of the Philippines Los Baños Museum of Natural History, Laguna; UST-ARC – University of Santo Tomas - Arachnid Research Collection, Manila; SMF Senckenberg Museum, Frankfurt am Main; SMNS – Staatliches Museum für Naturkunde, Stuttgart.

TAXONOMY

Order Araneae

Family Theraphosidae Thorell, 1869

Subfamily Selenocosmiinae Simon, 1889

Tribe Yamiini Kishida, 1920

Genus *Orphnaecus* Simon, 1892

Type species: *Orphnaecus pellitus* Simon, 1892, by monotypy.

COMPOSITION. This genus consists of five species: *O. adamsoni*, *O. dichromatus*, *O. kwebaburdeos*, *O. mimbilisanensis* sp. n., and *O. pellitus* (Fig. 1).

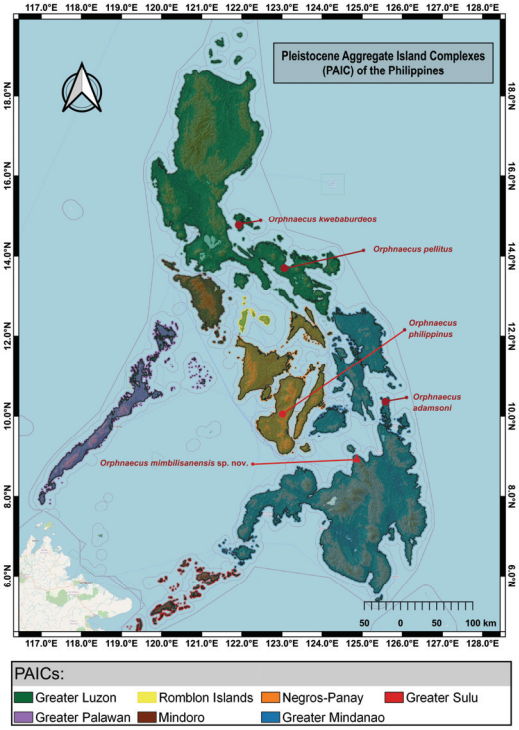

Fig. 1. The distribution of the currently known *Orphnaecus* species in the Philippines (red circles) including the new species, *O. mimbilisanensis* sp. n. (red triangle) and the seven major faunal regions of the Philippines based on Pleistocene Aggregate Island Complexes (PAICs) model.

***Orphnaecus mimbilisanensis* Sumogat, Acuña et Nuñeza, sp. n.**

https://zoobank.org/NomenclaturalActs/BF3CE96F-C671-48BA-B0E4-70B073E0B066

Figs 2–9

TYPE MATERIAL. Holotype: ♂ PNM-18876 (field#MPL02), **Philippines**: Mindanao Island, Misamis Oriental, Municipality of Balingoan, Brgy. Mapua, Mimbilisan Protected Landscape, 470 m a.s.l., 1–8 April 2023, JJ Sumogat leg. Paratypes: 3 ♀, UST-ARC 0230 (field#MPL01), NSM-2449 (field#MPL04), PNM-18878 (field#MPL03), same data as for the holotype; 1 ♂, PNM-18877 (field#MPL07), same data as for the holotype, 14 January 2025; NSM-MSUIIT/ PNM/ UST-ARC.

Fig. 2. *Orphnaecus mimbilisanensis* sp. n., holotype male (MPL02) habitus in life, ex situ. A – habitus, dorsal view, before maturity and ultimate molt; B, C – burrow laid with a silk mat and with the entrance covered with silk curtain.

New species is placed to the genus *Orphnaecus* in having a reniform lyra on the prolateral maxilla with a row of large club-shaped stridulatory setae (bacillae) (Fig. 5B), in having a palpal organ in males with stout lanceolate embolus having a pronounced basal lobe and long PS keel from tip to base (Fig. 5C–E), in the presence of dense scale brush on palpal patella of males (Fig. 5A), and in having spermathecae converging and mesoprolaterally concave. *O. mimbilisanensis* sp. n. can distinguished from all other known congeners (*Orphnaecus* sensu stricto) in having a relatively higher carapace with CH is around 1/2 of CL (congeners have CH around 1/3 of the CL), in having longer leg 1 than leg 4 in males, and in having relatively longer palpal organ with length 3/5 of palpal tibia in males (congeners have palpal organ length with 2/5 of the palpal tibia). This species further differs from *O. kwebaburdeos* in having a spermathecae being narrow and concave on both sides laterally, and in having shorter leg 1 than leg 4 in females. It also differs from *O. pellitus* in not exhibiting troglomorphism. *O. mimbilisanensis* sp. n. is currently the only known species in mainland Mindanao.

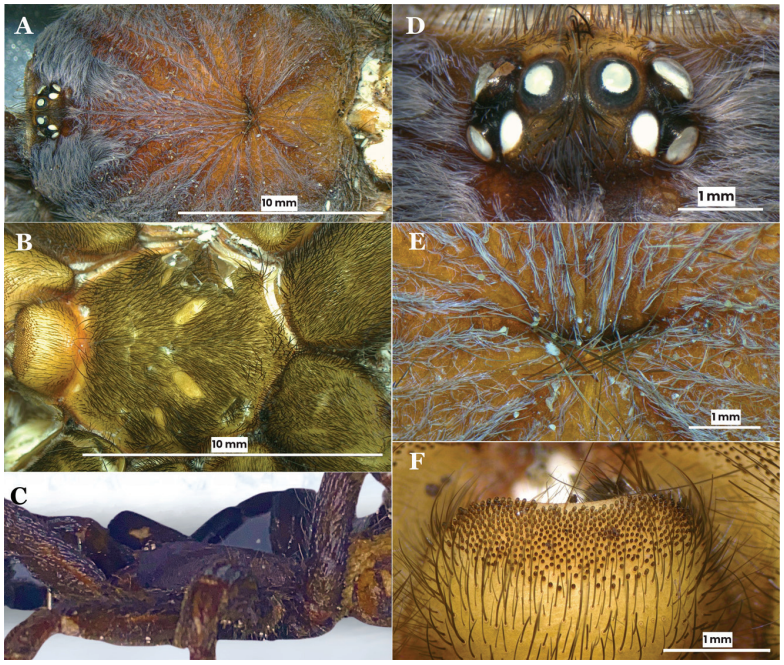

Fig. 3. *Orphnaecus mimbilisanensis* sp. nov. prosoma. A – carapace, dorsal view; B – prosoma, ventral view; C – prosoma, lateral view; D – ocular tubercle, dorsal view; E – fovea, dorsal view; F – labium with cuspules, ventral view.

REMARKS. The females of *O. mimbilisanensis* sp. n. cannot be distinguished from *O. adamsoni.* Based on our examination of the paratype female (PNM 14888) of *O. adamsoni*, the same specimen described in Salamanes *et al.* (2022), this specimen was misidentified and misplaced in *Orphnaecus*, due to the presence of a plumose setal field on retrolateral chelicerae, rows of thorn stridulatory setae on the prolateral maxilla, conspicuous white bands on leg segments, and stripe patterns on the dorsal abdomen, which characters are absent in Selenocosmiinae but synapomorphy to Ornithoctoninae (Acuña *et al*., 2025). Description of female *O. adamsoni* from other paratypes is necessary.

DESCRIPTION. Holotype male, PNM-18876, (field#MPL02): TL 55.48.

Prosoma (Figs 3, 4). Carapace (Fig. 3A), CL 15.95, CW 13.75, CH 7.2, longer than wide, oblong, integument light to dark brown, densely covered with short metallic gray to white scales, and with four pairs of dorsal weak furrows. Cephalic area larger than thoracic. Fovea (Fig. 3E) slightly procurved, 2.26 width, 2.32 curve length, 150.46° curvature, slightly narrower than ocular tubercle width. Ocular tubercle (Fig. 3D) 2.00 long. 2.74 wide, transversely oblong; clypeus 0.42. Anterior eye row slightly procurved, posterior eye row recurved. Eye diameters: ALE 0.69 > AME 0.66 > PME 0.57 > PLE 0.48. Interocular distances: ALE-ALE 1.41, ALE-AME 0.10, ALE-PLE 0.14, ALE-PME 0.18, AME-AME 0.27, AME-PLE 0.50, AME-PME 0.11, PLE-PLE 1.9, PLE-PME 0.13, PME-PME 1.17. AME circular, PME ovoid, PLE and ALE oblong. Rows of short tactile setae present longitudinally across OT dorsally from clypeus. Chelicerae (Fig. 4) with light brown paturon, darker dorsally,

with prominent tactile setae and grayish-white scales, dorsally, and with amber-colored fang. Paturon 8.43 long, 5.29 high. Fang curved length 5.97. Teeth 12 (Fig. 4B), parallel to long brown-orange oral fringe and36 mesoventral denticles (Fig. 4C, arrow). Cheliceral strikers (Fig. 4F) ~67 (primary to secondary rows) in 3 or 4 horizontal rows, needle-form to spiniform, primary rows with filiform ends, tertiary rows very short needleform. Ventral prosoma integument yellowish-amber. Sternum longer than wide, covered with dark tactile setae and gray scales, 6.92 long, 6.96 wide, with three pairs of sternal sigilla and a pair of labiosternal sigillum, anterior sternal sigilla inconspicuous, posterior sigilla prominent. Labium yellow-amber, 2.16 long, 3.21 wide, with ~492 cuspules. Maxillae (Fig. 5B) 4.83 long, 2.88 wide, with ~339 cuspules, yellow-amber ventrally, dark brown dorsolaterally, covered with brown tactile setae. Maxillary lyra (Fig. 5B) in a reniform patch, broader proximally, surrounded by fine pallid setae, and composed of ~462 short spiniform setae and a row of large 8 clavate rods increasing from 0.26 to 0.65 (proximal to distal).

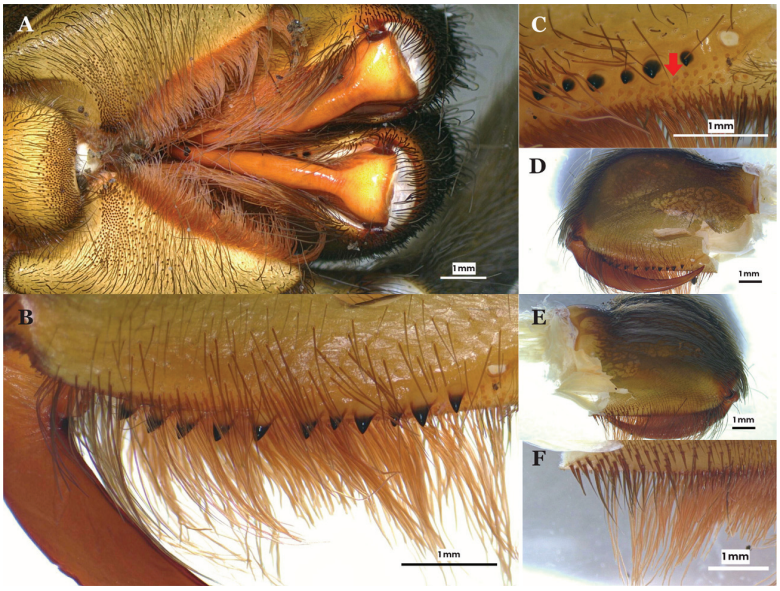

Fig. 4. *Orphnaecus mimbilisanensis* sp. n., holotype male chelicerae. A – chelicerae, ventral view; B – cheliceral teeth, prolateral view; C – mesoventral denticles (red arrow), ventrolateral view; D – paturon and fang, prolateral view; E – paturon and fang, retrolateral view; F – cheliceral strikers, retrolateral view.

Opisthosoma. Abdomen, 18.46 long, 11.67 wide, 10.14 high, oblong, dark brown to black integument, covered with long tactile setae dorsally, shorter ventrally, and covered with light brown scales which reflect deep purplish-blue sheen. PLS (6.33) slightly longer than PMS.

Genitalia (Fig. 5A, C–E). Palpal organ: tegulum 1.79 wide, bulbous, golden-brown to amber. Embolus 2.32 long, 0.85 wide basally, dark, lanceolate, moderately long, and slender with long PS emerged from tip to base, with short PI at around apical 1/5, with A keel emerging at the tip, and StR and BL pronounced.

Table 1. Leg and palp lengths of *O. mimbilisanensis* sp. n. holotype male (MPL02).

	Femur	Patella	Tibia	Metatarsus	Tarsus	TTL
Leg 1	15.32	6.82	14.9	10.84	6.54	54.42
Leg 2	12.96	5.69	15.62	9.87	6.2	50.34
Leg 3	10.6	5.92	7.36	9.22	4.63	37.73
Leg 4	14.13	5.71	12.57	15.32	6.36	54.09
Pedipalp	9.21	4.89	7.12	-	3.18	24.4

Legs. RF = 100.61%, leg formula: 1423. Leg and pedipalp lengths, see Table 1. Legs robust, long, covered with thin short and long light to dark tactile setae. Pedipalp (Fig. 5A) integument dark yellow-amber, covered with moderately long gray setae from femur to patella, longer, thinner setae on tibia. Palpal patella with dense long grayish scales, dorsally (Fig. 5A, arrow). Leg femur to patella moderately covered with short light black tactile setae, tibia to tarsus densely covered with long thin tactile setae. Dorsal side has two rows of trichobothria, interspersed with spines on the metatarsus of all legs. Ventral metatarsi 3 and 4 have rows of spines. Femora robust, with femur 1 longest and femur 3 shortest. Scopulae of legs 4 and 3 divided by rows of spines, legs 1 and 2 undivided. Metatarsal spines present on legs 3 and 4 dorsally, and on all legs ventrally. Tarsi 1 – 4 with pair of claws, tarsus 4 with third inferior claw.

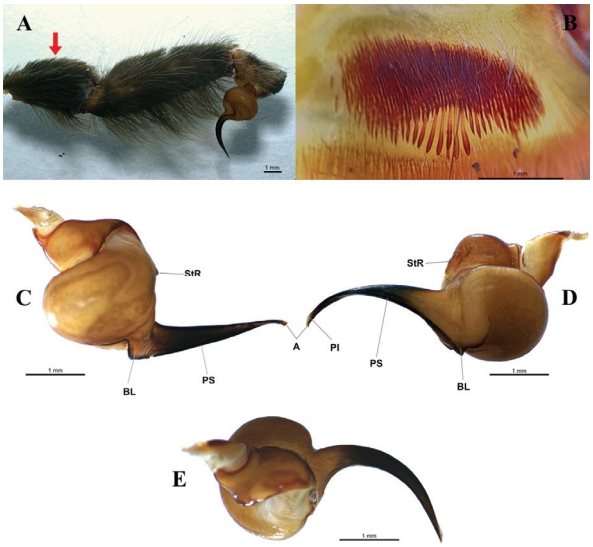

Fig. 5. *Orphnaecus mimbilisanensis* sp. n., holotype male pedipalp, lyra, and palpal organ. A – right pedipalp, retrolateral view, with the dense dorsal scale brush (arrow) on the palpal patella; B – lyra (stridulatory organ) on the left prolateral maxilla surface; C – right palpal organ, retrolateral view; D – right palpal organ, prolateral view; E – right palpal organ, dorsal view. Abbreviations: A – apical keel, BL – basal lobe, PI – prolateral inferior keel, PS – prolateral superior keel, StR – subtegular ridge.

Fig. 6. *Orphnaecus mimbilisanensis* sp. n., paratype female (MPL03). A – habitus, dorsal view; B, C – female in its burrow under piles of coconut husks.

Paratype female, PNM-18878 (field#MPL03): TL 41.46.

Prosoma (Figs 7, 8). Carapace (Fig. 7A), CL 17.11, CW 14.11, CH 9.7, longer than wide, larger than opisthosoma, recurved near pedicel, reddish brown to dark brown, covered with moderately dense gray scales and dark setae, and with four pairs of weak furrows. Fovea (Fig. 7E) 2.43 curve length, 2.43 width, 133.94° curvature, procurved. Ocular tubercle (Fig. 7D) 1.97 long, 2.82 wide, wider than fovea, transversely oblong; clypeus 0.58. Anterior eye row slightly procurved, posterior eye row recurved. Eye sizes: ALE 0.75 > AME 0.67 > PME 0.57 > PLE 0.53. Inter-eye distances: ALE-ALE 1.56, ALE-AME 0.23, ALE-PLE 0.42, ALE-PME 0.39, AME-AME 0.29, AME-PLE 0.66, AME-PME 0.12, PLE-PLE 2.07, PLE-PME 0.19, PME-PME 1.19. AME circular, PME ovoid, PLE and ALE oblong. Rows of short dark setae cover from posterior surface of OT to clypeus, medially (Fig. 7D). Chelicerae (Fig. 8) 10.18 long, 7.29 high, with dark brown paturon, dense brown setae dorsally, smooth retrolaterally. Fang dark brown with crimson hint, 7.46 c. Row of 12 promarginal teeth (Fig. 8B) parallel to rows of brown-orange oral fringe and 66 mesoventral denticles (Fig. 8C, arrow). Cheliceral strikers (Fig. 8F) ~65 (primary to secondary rows) in 3 or 4 horizontal rows, needle-form to spiniform, primary rows with filiform ends, tertiary rows very short needleform. Ventral prosoma integument reddish brown to dark brown (Fig. 7B). Sternum (Fig. 7B) 7.70 long, 7.47 wide, covered with dense short black setae and grayish brown scales, with three pairs of sternal sigilla and a pair of labiosternal sigillum, anterior sternal sigilla inconspicuous, posterior sigilla prominent. Labium (Fig. 7F) amber-brown, 2.42 length, 3.28 width, with ~584 cuspules. Maxillae, 6.44 length, 3.31 width, with ~221 cuspules, brown-amber ventromedial, dark brown dorsolaterally, covered with brown tactile setae. Maxillary lyra (Fig. 9B) with ~296 short spiniform setae and 16 clavate spines, length ranging from 0.30–1.09. Lyrate setae form a reniform patch, with dark brown tips and red stalks, surrounded by pallid fine setae.

Table 2. Leg and palp lengths of *O. mimbilisanensis* sp. n., holotype female (MPL03).

	Femur	Patella	Tibia	Metatarsus	Tarsus	TTL
Leg 1	13.24	8.5	10.68	7.97	5.4	45.79
Leg 2	11.44	6.54	7.79	7.3	5.95	39.02
Leg 3	9.44	5.76	6.53	7.32	3.9	32.95
Leg 4	13.03	6.82	10.78	11.54	4.24	46.41
Pedipalp	9.14	5.63	6.35	-	3.25	24.37

Opisthosoma. Abdomen 16.98 length, 10.16 width, 8.98 height, oblong, dark brown to black, covered with long tactile setae and light brown scales that reflect purplish-blue sheen, with pronounced epigastric furrow, and book lungs light yellow. PLS 6.10 length, PMS 2.61 length, both projecting posteriorly.

Genitalia (Fig. 9A). Spermatheca 1.47 long, both receptacles 2.47 wide, median gap 0.63, left receptacle apically 0.56 wide, medially 0.49 wide, basally 0.76 wide. Spermatheca unilobed, narrow, slightly similar to *O. pellitus* in shape but broader apically, in peanut-like shape, converging or apically narrower than the base, mesolaterally concave on both sides and slightly pointing inwards. Covered with translucent sheath and with translucent uterus externus, similar to bursa copulatrix.

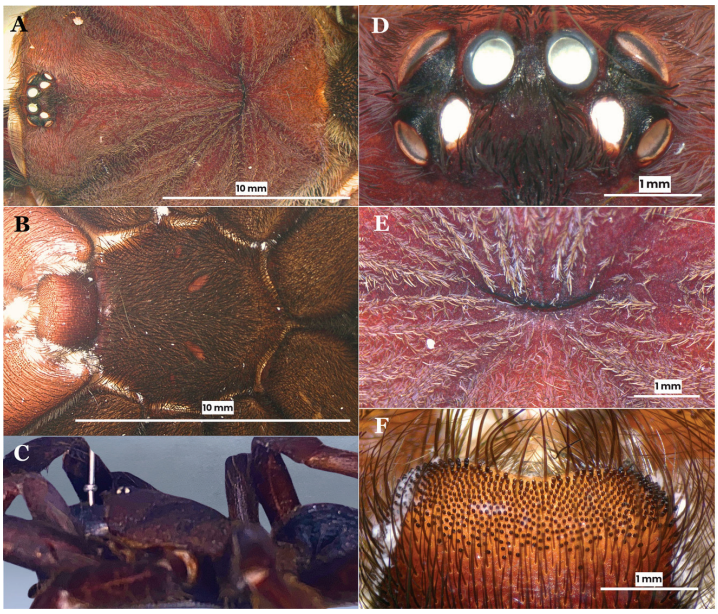

Fig. 7. *Orphnaecus mimbilisanensis* sp. n., paratype female (MPL03) prosoma. A – carapace, dorsal view; B – sternum, labium, maxillae, and coxae, ventral view; C – prosoma, lateral view; D – ocular tubercle, ventral view; E – fovea, dorsal view; F – labium with cuspules ventral view.

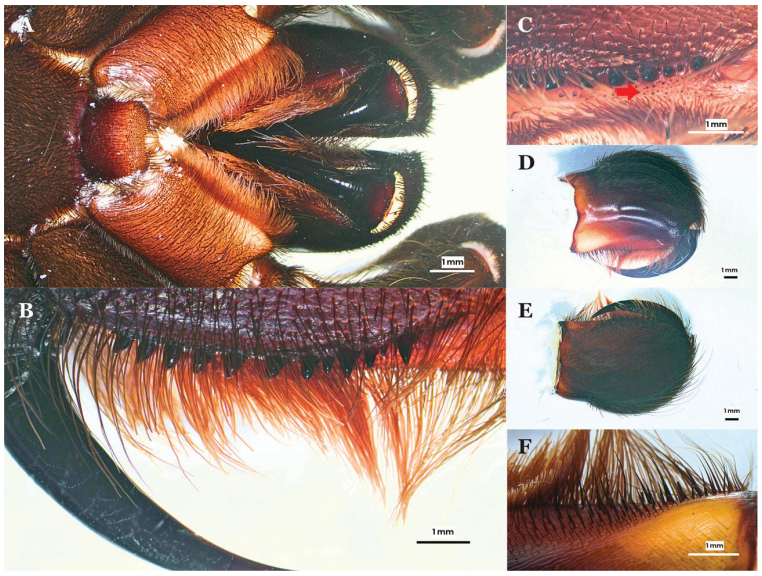

Fig. 8. *Orphnaecus mimbilisanensis* sp. n., paratype female (MPL03) chelicerae. A – chelicerae, ventral view; B – cheliceral teeth, prolateral view; C – denticles (red arrow) with cheliceral teeth, mesoventral view; D – paturon and fang, prolateral view; E – paturon and fang, retrolateral view; F – cheliceral strikers, retrolateral view.

Legs (left side). RF 98.66%, leg formula: 4123. Leg and pedipalp lengths (see Table 2). Pedipalp integument dark brown, covered with moderately long brown tactile setae from femur to tarsus, and with rows of trichobothria in the tarsus, dorsally. Legs robust and long, covered with intermixed thin short and long dark tactile setae. Leg 4 longest, leg 3 shortest. Each leg has two tarsal claws, tarsus 4 with a third inferior claw. Trichobothria present on all tarsi, dorsally. Metatarsal spines are present on legs 3 and 4, dorsally, and on all legs, ventrally. Scopulae of legs 4 and 3 divided, legs 1 and 2 undivided.

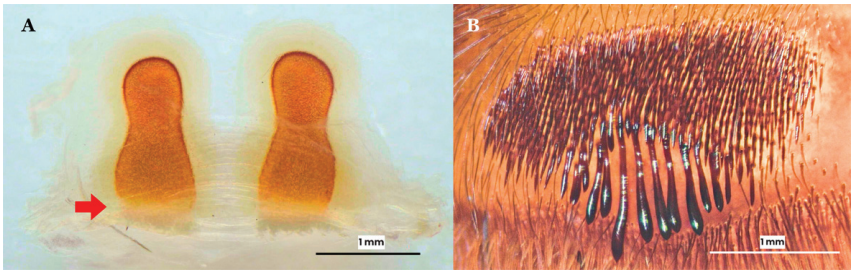

Fig. 9. *Orphnaecus mimbilisanensis* sp. nov., paratype female (MPL03) genitalia and lyra. A – spermatheca covered with translucent sheath (red arrow) and with translucent uterus externus, ventral view; B – right maxillary lyra on the prolateral maxilla surface.

ECOLOGY. The habitat of *O. mimbilisanensis* sp. n. in MPL features an undulating slope ranging from 35° to 40°. The area experiences significant shading due to the abundance of

canopy and dipterocarp trees. Predominantly, the lauan tree (*Shorea* spp.) stands out as the emergent tree species. Within the canopy layer, red lauan (*Shorea negrosensis* Foxw.) and white lauan (*Shorea contorta* S.Vidal) are the dominant tree species, with height of 20 to 35 m. The lower vegetation layer comprises palm species, sedges, and aroids, while a diverse range of fern species envelop the ground. Both rocky surfaces and decomposing logs display abundant moss varieties, while a layer of leaf litter, approximately 4 cm in thickness, conceals the clay-rich soil. The collection area was an abandoned agricultural land with the cultivation of coffee, coconut palms, and fruit-bearing trees. All activities ceased due to the prohibition from the Department of Environment and Natural Resources and the local government. However, the area still experiences minor disturbances due to few illegal intrusions and the clearing activities intended for conservation enhancement. The collected specimens were dwelling in mounds of coconut husks, found in an area with an elevation of 470 m a.s.l. The nests are shallow, approximately 2 inches deep, and 5 inches wide, and were built under or between coconut husks and shells. Their microhabitat is moderately damp, and not in direct sunlight. They cohabitated with ants, scorpions, forest lizards, and small frogs. *O. mimbilisanensis* sp. n. is referred to as "*duplak*" by the locals.

DISTRIBUTION. Known only from Mimbilisan Protected Landscape in Misamis Oriental, Mindanao Island, Philippines.

ETYMOLOGY. The specific epithet is a Latin adjective derived from the Mimbilisan Protected Landscape, where this species is found.

CONCLUSION

Orphnaecus mimbilisanensis sp. n. is the first species of *Orphnaecus* in mainland Mindanao Island and the second in the Mindanao faunal region, with *O. adamsoni* whereas the latter is found on Dinagat Island. This new species adds to the poorly studied theraphosid diversity in the Philippines and highlights the need for further research and exploration, and the need for conservation to protect the Mindanao spider fauna amidst risks from illegal pet trade and habitat loss, particularly in the underexplored region of the mainland. Our contribution to the taxonomy reinforces the importance of safeguarding the country's rich yet vulnerable tarantula biodiversity. We proposed further analysis of *O. mimbilisanensis* sp. n. using molecular techniques to better understand its relationship to other *Orphnaecus* species.

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