Update in the Peruvian Caponiidae: New records and new species of Nyetnops Platnick & Lise, 2007 (Araneae: Caponiidae)

Eduardo VILLARREAL-BLANCO¹*, Leonel MARTÍNEZ² & Melisa EYES-ESCALANTE³

¹,³Grupo de Investigación Biodiversidad del Caribe Colombiano, Semillero de Investigación Sistemática de Artrópodos Neotropicales, Departamento de Biología, Universidad del Atlántico, Barranquilla, Colombia.

*Corresponding author: ervillarreal95@gmail.com
²Email: leonelmarbio@gmail.com
³Email: meyese@mail.uniatlantico.edu.co

Abstract. An update on the diversity and distribution of Caponiidae from Peru is presented. New distributional records for Caponina cajabamba Platnick, 1994 are given and the male is described for the first time. Additionally, three new species of the genus Nyetnops Platnick & Lise, 2007 are described: Nyetnops alexanderi Villarreal & Martínez sp. nov. (♂♀), Nyetnops madre Villarreal & Martínez sp. nov. (♂♀) and Nyetnops josei Villarreal & Martínez sp. nov. (♂). The taxonomic key proposed by Sánchez-Ruiz et al. (2020) for Nyetnops is updated to include all the described species as well as the new ones proposed herein. Maps showing the distribution of the records of Caponiidae species in Peru, mainly focused on the genus Nyetnops is included.

Key words. Arachnida, Caponina, Neotropic, Synspermiata.

Introduction
Caponiidae Simon, 1890 is a family of haplogynae spiders’ with the bulk of its diversity distributed in tropical regions, particularly in the Neotropic where is represented by 15 of the 20 described genera (World Spider Catalog 2024). The largest species richness in the Americas is grouped in Nops MacLeay, 1839, currently with 38 proposed species, followed by Caponina Simon, 1892 with 13 (World Spider Catalog 2024; Sánchez-Ruiz & Bonaldo 2023).
A great part of this diversity has been recently discovered (e.g., Platnick & Lise 2007; Jiménez et al. 2011; Sánchez-Ruiz et al. 2015, 2022; Duperre 2014; Galán-Sánchez & Álvarez-Padilla 2022). However, in some countries, the knowledge about the diversity and distribution of the family remains largely neglected. Specifically, this is the case for Peru, a country boasting both a multitude of diverse ecosystems and a vast range of altitudes, extending from sea level to a staggering 6757 meters atop Huascarán in the Andes Mountain Range (Polk et al. 2019).

With regard to the fauna of Caponiidae, only four species have been recorded in the country, based on a few specimens, including Caponina cajabamba Platnick, 1994, with only one female individual from its type locality in Cajamarca; Nops bellulus Chamberlin, 1916, which was considered as a ‘species inquerenda’ by Sanchez-Ruiz & Brescovit (2018) because it was based on an single immature from Ollantaytambo, Cusco; Nyetnops naylianae Sánchez-Ruiz, Brescovit & Bonaldo, 2020, and Nopsma enriquei Sánchez-Ruiz, Brescovit & Bonaldo, 2020 from Huanuco. Furthermore, Jiménez et al. (2011) reported an immature specimen with the same somatic characters as Nopsides Chamberlin, 1924 indicating that this genus could also be represented in the country, but because of its juvenile nature, its identity could not be established (Jiménez et al. 2011).

Nyetnops Platnick & Lise, 2007 was described by Platnick & Lise (2007) with specimens from Paraná, Rio Grande do Sul and Santa Catarina in Brazil. The genus was placed in the subfamily Nopinae Petrunkevitch, 1939 by the subsegmented tarsi; the authors suggested it as one of the basal members of the subfamily due to the lack of modifications on the anterior legs (i.e., crista, gladius, and arolium) (Platnick & Lise 2007: 2). However, considering new information, such as the discovery of the new genera Nopsma Sánchez-Ruiz, Brescovit & Bonaldo, 2020, Roddemberryus Sánchez-Ruiz-Bonaldo, 2023, and Aamaunops Galán-Sánchez & Álvarez-Padilla, 2022, this hypothesis has been tested with a new phylogenetic assessment for the subfamily Nopinae, in which Nyetnops is not among the basal members of this subfamily (Sánchez-Ruiz et al. in press).

Currently, the genus is supported by several characters, such as the general shape of the bulb, which together with the embolus is very elongate. Recently, Sánchez-Ruiz et al. (2020) made a modern revision of the genus, where Nyetnops juchuy Dupérré, 2014 was transferred to their new genus Nopsma and three species of Nyetnops were described: N. naylianae Sánchez-Ruiz, Brescovit & Bonaldo, 2020, N. lachonta Sánchez-Ruiz, Brescovit & Bonaldo, 2020 and N. buruti Sánchez-Ruiz, Brescovit & Bonaldo, 2020, expanding the knowledge of the morphology and distribution of the genus. Thus, to date the genus is composed of four species distributed in Brazil, Peru and Bolivia (Sánchez-Ruiz et al. 2020; World Spider Catalog 2024).

Herein, we present the description of three new species of Nyetnops from Peru: Nyetnops madre Villarreal & Martínez sp. nov., N. alexanderi Villarreal & Martínez sp. nov., both based in male and female, and Nyetnops josei Villarreal & Martínez sp. nov., based on one male; also, we update the key and the distribution map proposed by Sánchez-Ruiz et al. (2020). Additionally, we describe for the first time the male of Caponina cajabamba and we include new distributional records for this species.

Material and methods

The specimens herein examined are deposited in the Universidad Nacional Mayor de San Marcos (MUSM–ENT, D. Silva), Lima, Peru.

Descriptions were made following the general taxonomic method and description format proposed in Sanchez-Ruiz & Brescovit (2018) and Sánchez-Ruiz et al. (2020). Coloration patterns were described based on specimens preserved in 70–80% ethanol. For the description, all the measurements are expressed in millimeters and were taken with a Leica S8AP0 stereo microscope. Among the sexual
characters commonly used to diagnose the species of *Nyetnops* (see Sánchez-Ruiz *et al.* 2020) the length of the copulatory bulb (tegulum + embolus) has proved to be useful. This measure is taken from a straight line from the base of the bulb to the embolar tip. Interocular measurements were included based on Petrunkevitch (1925).

Female genitalia were dissected with fine forceps and scalpel, and their soft tissues were digested for 24 hours by immersion in a solution of pancreatin based on Álvarez-Padilla & Hormiga (2007) for better visualization of internal structures.

The multifocal images of the copulatory structures were taken with a Leica MC–190 HD, digital camera attached to a Leica S8AP0, and DM500 Leica stereo microscope and microscope, respectively, with extended focal range. All multifocal images were assembled with Helicon Focus Pro ver. 6.6. All images of male genitalia are from left palps, except when mentioned. SEM images were generated using a Zeiss Gemini SEM 360 Electron Microscope at the Museo Argentino de Ciencias Naturales Bernandino Rivadavia. The structures mounted on SEM stubs were preserved and labeled with the same collection code and number as the voucher specimen.

The figures and plates were edited and prepared in Adobe Photoshop® CS ver. 12.0. Maps were obtained in QGIS (QGIS Development Team 2021). Locality coordinates are presented in brackets and were obtained from specimen labels, or when not available estimated via online through GeoNames or Google Earth (GeoLocator© Development Team 2021).

**Institutional abbreviations**

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<tr>
<td>CAS</td>
<td>California Academy of science, California, USA</td>
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<tr>
<td>CICRA</td>
<td>Centro de Investigación y Capacitación Río Los Amigos, Madre de Dios, Peru</td>
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<tr>
<td>MUSM</td>
<td>Museo de Historia Natural de la Universidad Nacional Mayor de San Marco, Lima, Peru</td>
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**Abbreviations for anatomical terms**

<table>
<thead>
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<th>Abbreviation</th>
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<tr>
<td>ap</td>
<td>anterior plate</td>
</tr>
<tr>
<td>dmr</td>
<td>distal margin of receptaculum</td>
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<tr>
<td>ess</td>
<td>external sclerotization around spiracles</td>
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<td>PME</td>
<td>posterior median eyes</td>
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<td>pp</td>
<td>posterior plate</td>
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**Results**

**Taxonomy**

Class Arachnida Cuvier, 1812  
Order Araneae Clerck, 1757  
Family Caponiidae Simon, 1890  
Genus *Caponina* Simon, 1892

*Caponina cajabamba* Platnick, 1994  
Figs 1A–H, 2A–E, 11–12
**Diagnosis** (updated from Platnick 1994)

The female of this species resembles that of *C. chilensis* Platnick, 1994 in having relatively long epigynal sclerotizations but can be distinguished by the club-shaped anterior extensions of the sclerotizations, which reach almost to the pedicel (Fig. 2D–E). Males of *C. cajabamba* differ from those of *C. chilensis* by a more elongated, less pointed dorsal tubercle on the palpal femur and a wider embolar base, and from

![Spider Images](image_url)

of *C. paramo* Platnick, 1994 by having the embolar base proximal instead posteriorly directed as in *C. paramo* (Fig. 2A–C).

**Type material**

**Holotype**

PERU • ♀, not examined; Cajamarca, at an elevation of 3000–3100 m above Cajabamba; 25 Sep. 1955; W.K. Weyrauch leg.; CAS.

**Other material**

PERU • 1 ♂; Lima, Huaral; 11°23′14″ S, 77°17′18″ W; alt. 412 m; Nov. 2018; M. Lozano leg.; MUSM–ENT 0515824 • 1 ♂; same collection data as for preceding; MUSM–ENT 0515825 • 1 ♂, 2 ♀♀, 3 juvs; same collection data as for preceding; MUSM–ENT 0515826 • 1 ♀, 3 juvs; same collection data as for preceding; MUSM–ENT 0515827.

**Description**

**Male (MUSM–ENT 0515824)**

COLORATION (Fig. 1A–B, E, G). Carapace light orange with slightly darker edges. Chelicerae, endites, labium, and sternum light orange. Legs pale yellow. Abdomen: dorsally and ventrally light gray, without noticeable pattern (Fig. 1A–B, E, G). Spinnerets light gray.

MEASUREMENTS. Total length 4.68; carapace length 1.82; width 1.50; height 0.25. Clypeus height 0.25. Eye diameters and interdistances: PME 0.15, PME–PME 0.34. Chelicerae length 0.59. Sternum length 1.24; width 1.09. Legs: I: 5.39; II: 5.52; III: 4.05; IV: 6.36. Abdomen length 2.90.

PALP. Cymbium more than 2 × as long as tibia, rounded tip, tegulum oval, with long embolus protruding prolaterally from the middle surface of tegulum, with a wide curved anteriorly, third distal from the embolus less sclerotized, specially retrolateral side, tip very pointed (Fig. 2A–C).

**Female (MUSM–ENT 0515825)**

COLORATION AND ABDOMINAL PATTERN. As male, but with vivid color tones (Fig. 1C–D, F, H).

MEASUREMENTS. Total length 5.58, carapace length 1.81; width 1.62, height 0.43. Clypeus height 0.28. Eye diameters and interdistances: PME 0.14, PME–PME 0.34. Chelicerae length 0.76. Sternum length 1.27, width 1.07. Legs: I: 6.14; II: 6.09; III: 5.29; IV: 6.73. Abdomen length 4.09.

GENITALIA. External genital area with weakly sclerotized anterior plate and pair of sclerotized bars visible (Fig. 2D). Internal genitalia with very long pair of sclerotized bars and anterior extensions, reaching virtually to pedicel, anterior extensions club-shaped and fused to the sclerotized bars on its entire length (Fig. 2E).

**Variation**

Males (n = 2): total length: 4.39–4.68; carapace length: 1.73–1.82. Females (n = 3): total length: 4.66–5.58; carapace length: 1.79–2.01.

**Distribution**

Only known from Cajabamba in Cajamarca department and Huaral, Lima (Fig. 11).
Genus *Nyetnops* Platnick & Lise, 2007


**Type species**

*Nyetnops guarani* Platnick & Lise, 2007 (by original designation).

**Diagnosis**


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**Nyetnops alexanderi** Villarreal & Martínez sp. nov.
urn:lsid:zoobank.org:act:E703307B-DDE5-4EB2-822C-587DF032B938
Figs 3–5, 11–12

**Diagnosis**

Males of *Nyetnops alexanderi* Villarreal & Martínez sp. nov. resemble those of *N. guarani* Platnick & Lise, 2007, *N. naylienae* and *Nyetnops josei* Villarreal & Martínez sp. nov. by having a copulatory bulb (tegulum + embolus), less than 2.2 × as long as palpal tibia but differ from those of *Nyetnops josei* by the...
absence of a dorsal abdominal pattern of chevron stripes and from those of \textit{N. naylienae} and \textit{N. guarani} by the tegulum apical section not swollen in the median region for which the tegulum basal and apical sections have the same width (Figs 4A–B, 5A). Females can be differentiated from those of \textit{N. naylienae} by having internal genitalia area with a triangular distal margin of the receptaculum instead of concave and from those of \textit{N. guarani} by the posterior plate narrow and less sharp dorsal margin of receptaculum (Fig. 4C–D).

\textbf{Fig. 4.} \textit{Nyetnops alexanderi} Villarreal & Martinez sp. nov. A–B. $\delta$, holotype (MUSM–ENT 0506888). C–D. $\varphi$, paratype (MUSM–ENT 0506887). A. Left palp, prolateral view. B. Left palp, retrolateral view. C. External genitalia, ventral view. D. Internal genitalia, dorsal view. Scale bars = 0.5 mm.
Fig. 5. *Nyetrops alexanderi* Villarreal & Martínez sp. nov., ♂ (MUSM–ENT 0506895). A. Copulatory bulb, retrolateral view. B, D. Tip of the embolus, retrolateral view. C, E. Copulatory bulb, dorsal view. F. Tip of the embolus, proventral view. G. Copulatory bulb, prolateral view. H. Tip of the embolus, prolateral view. Scale bars: A, C, E, G=0.1 mm; B, D, F, H=0.01 mm.
Etymology
The specific epithet is a patronym in honor to Alexander Sanchez Ruiz for his contributions to the understanding of the spiders from Caponiidae family worldwide.

Type material

Holotype
PERU • ♂; Cusco department, Río Camisea, Pagoreni; 11°42′22.5″ S, 72°54′10.7″ W; alt. 465 m; 7–28 May 1998; S. Cordova leg.; MUSM–ENT 0506888.

Paratypes
PERU • 1 ♀; same collection data as for holotype; MUSM–ENT 0506887 • 1 ♂; same collection data as for holotype; MUSM–ENT 0506892 • 1 ♂; same collection data as for holotype; MUSM–ENT 0506897 • 4 ♂♂; same collection data as for holotype; MUSM–ENT 0506890 • 2 ♂♂; same collection data as for holotype; MUSM–ENT 0506894 • 2 ♂♂; same collection data as for holotype; MUSM–ENT 0506885 • 1 ♂; same collection data as for holotype; MUSM–ENT 0506889 • 3 ♂♂; same collection data as for holotype; MUSM–ENT 0506895 • 1 ♂, 1 ♀; same collection data as for holotype; MUSM–ENT 0506891 • 1 ♂; same collection data as for holotype; MUSM–ENT 0506896 • 2 ♂♂; Cusco department, Río Camisea, Armihuari; 11°5′ S, 72°46′ W; alt. 560 m; May–Jun. 1997; S. Cordova leg.; MUSM–ENT 0506884.

Other material
PERU • 1 ♂; Madre de Dios department, Boca Río Los Amigos, CICRA; 12°34′9″ S, 70°6′0.40″ W; alt. 270 m; 8–12 Jul. 2010; Silva and M. Viccez leg.; MUSM–ENT 0503472 • 2 ♂♂; Cusco department, Ce Malvinas; Aug. 2013; V. Borda leg.; MUSM–ENT 0515834 • 9 ♂♂; Puno department, Sandia, San Pedro de Putina, Punco, PN Bahuaja-Sonene; 13°20′24.6″ S, 69°29′13.9″ W; alt. 335 m; 18–19 Sep. 2010; E. Razuri and E. Guillermo leg.; MUSM–ENT 0515835.

Description

Male (holotype, MUSM–ENT 0506888)
COLORATION (Fig. 3A–B, E, G). Carapace orange. Chelicerae, endites, labium, and sternum light orange. Legs light orange. Abdomen: dorsally dark gray, without noticeable pattern (Fig. 3A). Ventrally gray yellowish, darker on epianadic area. Spinnerets beige. Anterior legs without arolium, crista or gladius.

MEASUREMENTS. Total length 3.19; carapace length 1.62; width 1.41; height 0.45. Clypeus height 0.34. Eye diameters and interdistances: PME 0.16; PME–PME 0.37. Chelicerae length 0.56. Sternum length 1.06; width 0.98. Legs: I: 5.48; II: 5.25; III: 4.45; IV: 6.39. Abdomen length 1.60.

GENITALIA. Elongated copulatory bulb, tegulum basal section not swollen and almost as width as apical section (Fig. 4A–B), tegulum surface smooth, embolus surface with longitudinal grooves, embolus tapering to tip, with one long dorsal projection and three ventral projections, one of them with several small dentitions (Fig. 5A–H).

Female (paratype, MUSM–ENT 0506887)
COLORATION AND ABDOMINAL PATTERN. As male but with vivid color tones (Fig. 3C–D, F, H).

MEASUREMENTS. Total length 4.11; carapace length 1.70; width 1.47; height 0.59. Clypeus height 0.26. Eye diameters and interdistances: PME 0.18; PME–PME 0.35. Chelicerae length 0.56. Sternum length 1.08; width 0.99. Legs: I: 5.66; II: 5.29; III: 4.73; IV: 6.66. Abdomen length 2.44.
**Genitalia.** External genital area with weakly sclerotized anterior plate, sclerotized lep and remarkable ess, posterior plate narrow (Fig. 4C). Internal genitalia with receptaculum with triangular shape (Fig. 4D).

**Variation**

Males (n=4): total length: 3.00–3.79; carapace length: 1.43–1.67. Females (n=2): total length: 4.11–4.89; carapace length: 1.66–1.70.

**Distribution**

Known from several localities in Peru, in the departments of Cusco, Madre de Dios and Puno (Figs 11–12).

*Nyetnops madre* Villarreal & Martínez sp. nov.

urn:lsid:zoobank.org:act:F8AC2BF8-9BA7-469C-9EF9-8C6A6D3F727D

Figs 6–8, 11–12

**Diagnosis**

Males of *Nyetnops madre* Villarreal & Martínez sp. nov. resemble those of *N. lachonta* and *N. buruti* by having a copulatory bulb (tegulum + embolus), more than 2.2 × as long as palpal tibia but differ from those of *N. buruti* and *N. lachonta* by having the tegulum basal section of almost the same width as the distal section across the entire length of the bulb (Fig. 7A–B), instead of a distinctly narrower basal section as in *N. buruti* and the narrowing in the anterior section of the tegulum apical section in *N. lachonta*; additionally, the males of this species have an embolar subapical dorsal and ventral serrated keel unique in the genus. Females are similar to those of *N. guarani* by having the posterior plate wide and a triangular distal margin of the receptaculum but can be distinguished by the less sharp dorsal margin of the receptaculum (Fig. 7C–D).

**Etymology**

The specific epithet is a noun in apposition taken from the type locality Madre de Dios.

**Type material**

**Holotype**

PERU • ♂; Madre de Dios department, Boca Río Los Amigos, CICRA; 12°34′9″ S, 70°6′0.40″ W; alt. 270 m; 9–13 Jun. 2010; H. Silva leg.; MUSM–ENT 0503213.

**Paratypes**

PERU • 1 ♀; same collection data as for holotype; MUSM–ENT 0503206 • 1 ♂; same collection data as for holotype; MUSM–ENT 0515831 • 2 ♂♂; same collection data as for holotype; MUSM–ENT 0515830 • 1 ♂; same collection data as for holotype; 14 Jun. 2010; M. Vicchez leg.; MUSM–ENT 0503223.

**Other material**

PERU • 1 ♂; Cusco department, Río Camisea, Pagoreni; 11°42′22.5″ S, 72°54′10.7″ W; alt. 465 m; 7–28 May 1998; S. Cordova leg.; MUSM–ENT 0506898 • 1 ♂; same collection data as for preceding; 7–29 May 1998; S. Cordova *et al.* leg.; MUSM–ENT 0515832.

**Description**

**Male** (holotype, MUSM–ENT 0503213)
COLORATION (Fig. 6A–B, E, G). Carapace orange. Chelicerae, endites, labium, and sternum light orange. Legs light orange. Abdomen: dorsally dark gray, without noticeable pattern (Fig. 6A). Ventrally gray yellowish, darker on epiandric area. Spinnerets beige. Anterior legs without arolium, crista or gladius.

MEASUREMENTS. Total length 3.51; carapace length 1.54; width 1.30; height 0.68. Clypeus height 0.31. Eye diameters and interdistances: PME 0.17; PME–PME 0.39. Chelicerae length 0.47. Sternum length 0.98; width 0.85. Legs: I: 5.21; II: 4.70; III: 4.29; IV: 6.37. Abdomen length 1.95.

GENITALIA. Very elongated copulatory bulb, tegulum basal section slightly swollen and almost as width as apical section, tegulum surface smooth, embolus surface with sparse longitudinal grooves, embolus

with dorsal and ventral dentated keel and tip with very long projections, dorsally petal-like and ventrally rooster-like (Figs 7A–B, 8A–F).

**Female** (paratype, MUSM–ENT 0503206)
COLORATION AND ABDOMINAL PATTERN. As male, but with lighter color tones (Fig. 6C–D, F, H).

MEASUREMENTS. Total length 5.08, carapace length 1.65, width 1.50, height 0.44. Clypeus height 0.33. Eye diameters and interdistances: PME 0.16, PME–PME 0.38. Chelicerae length 0.51. Sternum length 1.16, width 1.05. Legs: I: 6.20; II: 5.76; III: 5.37; IV: 7.55. Abdomen length 3.24.

GENITALIA. External genital area with weakly sclerotized anterior plate, lep and ess, posterior plate narrow (Fig. 7C). Internal genitalia with triangular margin of receptaculum, posterior plate well developed (Fig. 7D).

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![Fig. 7. Nyetnops madre Villarreal & Martínez sp. nov. A–B. ♂, holotype (MUSM–ENT 0503213). C–D. ♀, paratype (MUSM–ENT 0503206). A. Left palp, prolateral view. B. Left palp, retrolateral view. C. External genitalia, ventral view. D. Internal genitalia, dorsal view. Scale bars = 0.5 mm.](image-url)
Variation
Males (n = 3): total length: 3.51–3.96; carapace length: 1.49–1.83.

Distribution
Widespread distribution is known from one locality in Madre de Dios and Cusco departments each (Figs 11–12).

*Nyetnops josei* Villarreal & Martínez sp. nov.
urn:lsid:zoobank.org:act:F3EA2820-CB46-4BF5-825C-FF09ED76BB50
Figs 9–12

Diagnosis
The male of *Nyetnops josei* Villarreal & Martínez sp. nov. resembles those of *N. guarani*, *N. naylienae* and *Nyetnops alexanderi* Villarreal & Martínez sp. nov. by having a copulatory bulb (tegulum + embolus), less than 2.2 × as long as palpal tibia but differ from them by having a remarkable dorsal abdominal pattern with chevron stripes.

Etymology
The specific epithet is a patronym in honor of Jose Ochoa for his contributions to the knowledge of the arachnids, mainly scorpions in the new world.

Fig. 9. *Nyetnops josei* Villarreal & Martínez sp. nov., ♂, holotype (MUSM–ENT 0515886). A. Habitus, dorsal view. B. Habitus, ventral view. C. Prosoma, dorsal view. D. Prosoma, ventral view. Scale bars: A–B = 1 mm; C–D = 0.5 mm.
Type material

Holotype
PERU • ♂; Cusco department, Oropesa, Tipón; 12 Sep. 1993; MUSM–ENT 0515886.

Description

Male (holotype, MUSM–ENT 0515886)
COLORATION (Fig. 9A–D). Carapace light orange. Chelicerae, endites, labium, and sternum light orange. Legs light orange. Abdomen: dorsally gray, with a dark pattern composed by chevron stripes (Fig. 9A). Ventrally gray yellowish, darker on epiandric area. Spinnerets beige. Anterior legs without arolium, crista or gladius.

Fig. 10. Nyetnops josei Villarreal & Martínez sp. nov., ♂, holotype (MUSM–ENT 0515886). A. Left palp, prolateral view. B. Left palp, retrolateral view. Scale bars = 0.5 mm.
MEASUREMENTS. Total length 3.83; carapace length 1.43; width 1.20; height 0.53. Clypeus height 0.24. Eye diameters and interdistances: PME 0.08; PME–PME 0.24. Chelicerae length 0.38. Sternum length 0.91; width 0.85. Legs: I: 3.98; II: 3.66; III: 3.21; IV: 4.48. Abdomen length 2.27.

GENITALIA. Elongated copulatory bulb 2 × as long as palpal tibia; tegulum basal section only slightly swollen and almost as width as apical section, embolus tip weakly sclerotized (Fig. 10A–B).

**Female**
Unknown.

**Distribution**
Only known from the type locality in Cusco department (Figs 11–12).

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Fig. 11. Distribution map of species of Caponiidae Simon, 1890 recorded from Peru.
Key to the males of *Nyetnops* Platnick & Lise, 2007 updated from Sánchez-Ruiz et al. (2020)

1. Without remarkable dorsal abdominal pattern (Sánchez-Ruiz et al. 2020: figs 1a, g, 4a, g) ........... 2
   - With remarkable dorsal abdominal pattern of chevron stripes (Fig. 9A) ...................................................... *Nyetnops josei* Villarreal & Martínez sp. nov.

2. Length of copulatory bulb (tegulum + embolus) just two times or less the palpal tibia length (Fig. 4A–B Sánchez-Ruiz et al. 2020: figs 1b–d, 4b–c) ........................................ 3
   - Length of copulatory bulb (tegulum + embolus) more than 2.2 × as long as palpal tibia (Sánchez-Ruiz et al. 2020: figs 8b–c; 9b–c) ................................................................. 5

3. Tegulum apical section not swollen on median portion, same width as tegulum basal section (Figs 4A–B, 5A, G) ..................................................... *N. alexanderi* Villarreal & Martínez sp. nov.
   - Tegulum apical section swollen on median portion (Sánchez-Ruiz et al. 2020: fig. 7a–f) .............. 4

4. Tegulum apical section swollen on median portion, width similar to palpal tibia (Sánchez-Ruiz et al. 2020: figs 4b–c, 8h), embolus tip with very long rooster’s crest like projections (Sánchez-Ruiz et al. 2020: fig. 7a–f) .................................................. *N. naylienae* Sánchez-Ruiz, Brescovit & Bonaldo, 2020
   - Tegulum apical section weakly swollen on median portion, narrower than palpal tibia width (Sánchez-Ruiz et al. 2020: fig. 1b–c), embolus tip beveled with short projections (Sánchez-Ruiz et al. 2020: fig. 3g–i) .................................................. *N. guarani* Platnick & Lise, 2007

Fig. 12. Distribution map of the genus *Nyetnops* Platnick & Lise, 2007.
5. Mid of palpal tibia strongly swollen, 1.8 × as wide as proximal and distal portions (Sánchez-Ruiz et al. 2020: fig. 8b–c); copulatory bulb slender, weakly swollen on tegulum apical section, only a half palpal tibia width (Sánchez-Ruiz et al. 2020: fig. 8b–c) ..............................................................N. lachonta Sánchez-Ruiz, Brescovit & Bonaldo, 2020
   – Mid of palpal tibia weakly swollen, only 1.2 × as wide as proximal and distal portions (Fig. 6A–B; Sánchez-Ruiz et al. 2020: fig. 9b–c) ................................................................................................. 6

6. Copulatory bulb thick, slightly swollen at tegulum apical section and narrow at basal section (Sánchez-Ruiz et al. 2020: figs 8i, 9b–c) ..........N. buruti Sánchez-Ruiz, Brescovit & Bonaldo, 2020
   – Copulatory bulb very slender, not swollen at tegulum apical section and slightly swollen at basal section (Fig. 6A–B) ..............................................................Nyetnops madre Villarreal & Martínez sp. nov.

Discussion

The knowledge on the diversity of the Peruvian Caponiidae is increased with the new data included in this work. The current checklist of Caponiidae is represented by seven species, with Nyetnops being the most diverse group with four species recorded. Currently, the distribution of species of Nyetnops is restricted to the southern part of South America, from Peru to Brazil. With respect to the altitude, the majority of the species, such as N. guarani, N. lachonta, N. buruti and N. naylienae, are known from lowlands. Meanwhile, the new species Nyetnops alexanderi Villarreal & Martínez sp. nov. and Nyetnops madre Villarreal & Martínez sp. nov. were mainly collected in zones with altitudes between 270 and 560 meters. However, for the first time, we register species in high altitude zones, such as Nyetnops josei Villarreal & Martínez sp. nov. (above 3000 m) distributed in the Andean zones of Cusco.

The somatic morphology of the genus is very conservative, some differences could be discerned in the dorsal carapace pattern which can be marked as in N. guarani, N. alexanderi Villarreal & Martínez sp. nov. and N. madre Villarreal & Martínez sp. nov. or faint as in N. naylienae and N. buruti. In the abdomen dorsally, the only species with a notable pattern is N. josei Villarreal & Martínez sp. nov.

In the male genital morphology, the differences are easily identified, mainly the conformation of the tegulum and the length of the tegulum plus embolus. All the previously known species have differences between the basal and the apical section of the tegulum, being swollen or narrow, although the new species described herein, N. alexanderi Villarreal & Martínez sp. nov. and N. madre Villarreal & Martínez sp. nov., show slight differences between these two sections of the tegulum: in N. madre the tegulum basal section is slightly swollen in the first posterior third and in N. alexanderi the difference is also almost unnoticeable.

In females the differences are given by the shape of the posterior plate, which is narrow in N. naylienae and N. alexanderi Villarreal & Martínez sp. nov. and wide in N. guarani and N. madre Villarreal & Martínez sp. nov. The receptaculum also varies in shape being triangular in N. naylienae, N. madre and N. alexanderi or with a concavity and two lobes on both lateral sides in N. naylienae.

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