

Presence of *Gea heptagon* (Hentz) and New Records of *Argiope* from Argentina with the Description of a New Species *Argiope kaingang* (Araneae: Araneidae)

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Abstract.- *Argiope* (Araneae: Araneidae) is represented in Argentina by three species (*A. argentata* (Fabricius), *A. trifasciata* (Forsskål) and *A. ericae* Levi). *Gea heptagon* (Hentz) has been found in the northern part of Argentina. In this paper, we describe and illustrated a new species *Argiope kaingang* nov. sp. (female only) collected in Mercedes, Corrientes Province. New records of *A. argentata*, *A. trifasciata*, and the first record of *G. heptagon* are also reported from the north of Argentina.

Keywords. Spiders, *Argiope*, *Gea*, new records, *Argiope kaingang* new species.

INTRODUCTION

The taxonomical revision of American species of *Gea* and *Argiope* was made by Levi (1968) and an update was published by him during 2004, where he comments and provides additional records of both genera in this continent. In the recent years, Motta and Levi (2009) described a new species of *Argiope*, *A. legionis* Motta & Levi, from Brasilia, Brazil. At present, three species of *Argiope* were cited from Argentina (*A. argentata* (Fabricius), *A. trifasciata* (Forsskål) and *A. ericae* Levi). *Gea heptagon* (Hentz) is the only species of this genus distributed in America, where it probably was introduced and was found from eastern United States and West Indies, probably to Argentina (Levi, 2004). In that paper, Levi mentions that he examined specimens of *G. heptagon* from northern Argentina without recording the data.

During the last decade, in the IEBI (Instituto para el Estudio de la Biodiversidad de Invertebrados de la Facultad de Ciencias Naturales, Universidad Nacional de Salta) different collecting trips were made in the north of Argentina and large number of arthropods were collected from different eco-regions of Argentina. In addition spiders are being reported from this collection as new records such

as *A. argentata*, *A. trifasciata* and *Gea heptagon*. We also report a new species of *Argiope*.

MATERIALS AND METHODS

Spiders were collected during ecological studies of the arthropod biodiversity carried out in Corrientes, Salta and Jujuy Provinces-Argentina, using the G-Vac (garden vacuum) method to collect arthropods on vegetation. The majority of the specimens collected were immature stages of spiders. The immature specimens of *Argiope* were identified on the basis of general colouration, and the dorsal and ventral colour pattern of the abdomen, in addition to the presence of dorsal tubercles on the abdomen. The material was deposited in FML (Miguel Lillo Foundation, Tucumán-Argentina) and in IEBI-MCN (Collection of the IEBI, Museum of Natural Sciences-Salta National University, Salta-Argentina). General morphological characters were examined under Olympus SZ4045 stereomicroscope and the measurements were taken with a micrometer scale inside one of the oculars. The illustrations were made from digital photographs captured using a Canon Powershot G10 camera fixed to the stereomicroscope and transferred to Adobe Photoshop CS5 to make the figures. The description and terminology follow Levi (1993). All measurements are given in millimetres.

Abbreviations used are as follows: ALE,

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anterior lateral eyes; AME, anterior median eyes; PLE, posterior lateral eyes; PME, posterior median eyes.

Argiope kaingang, new species
(Fig. 1)

Type

Holotype: Female holotype from Route 119 5km SW of Mercedes, Corrientes Province, Argentina (29°12'57.55"S, 58°6'48.08"W), 05 June 2007; JA Corronca, MC Coscarón & MB Cava Colls., deposited in FML (N°02171). *Paratypes*: three females from Route 119 5Km SW of Mercedes, Corrientes Province, Argentina (29°12'57.55"S, 58°6'48.08"W), 05 June 2007; JA Corronca, MC Coscarón & MB Cava Colls.; deposited in IEBI-MCN.

Etymology

The specific name is dedicated to the Kaingang (men of the forest) ethnic group that lived in the Mesopotamia region of Argentina before the arrival of the guarani tribe.

Diagnosis

The ventral colouration of the abdomen, with a dark trapezoid spot surrounded by white strips and posterior transversal white band, is similar to *A. argentata* and *A. blanda* O.P. Cambridge, but the new species differs in the proportion of the trapezoid spot that is bigger than in *A. argentata* covering almost the half distance between the epigynum and the spinnerets (Fig. 1c). The sternum of *A. kaingang* nov. sp. (Fig. 1b) is marking as in *A. ericae* (Levi, 2004; Fig. 67) and resembles that of *A. florida* Chamberlin & Ivie, but differs in the colour pattern of the ventral portion of the abdomen (Fig. 1c). The shape of the septum of the epigynum of *A. kaingang* nov. sp. resembles those of the *A. floridae*, and *A. blanda*, but the proportions are different, the same as the ventral colouration of the abdomen. The septum of the epigynum (Fig. 1d) of the new species is also different from that of *A. argentata*, the same as the shape of the anterior and posterior lips of the openings (Figs. 1e, f).

Description of holotype

Carapace dark brown, lighter in median longitudinal area (Fig. 1a). Queliceræ yellow-brown. Endites and labium yellow-brown with brown base (Fig. 1b). Sternum yellow-brown with lighter midline, with two anterior rounded grey markings and a posterior white spots between coxae IV (Fig. 1b). Femur yellow-brown with three wide dark brown incomplete rings, tibiae and metatarsi yellow-brown with three brown rings, tarsi yellow-brown darker in distal portion. Abdomen (in alcohol) white anteriorly, with two parallel and longitudinal posterior dark bands, with two posterior pair of dark tubercles (Fig. 1a). Venter dark brown with a transverse median white band and two thin oblique lines from the epigynum ending on the tips of the transversal band, and two small oval white spots beside of the spinnerets (Fig. 1c). Measurements: PME 1.0, ALE 0.6, PLE 1.2 diameter of the AME; AME 1.4 diameter apart between them, and 0.6 from the ALE; PME 2.2 diameter apart between them, and 2.6 from the PLE. Total length 6.8. Carapace 2.7 long, and 2.4 wide in thoracic region. First femur 3.8, patella and tibia 4.4, metatarsus 3.9, tarsus 1.3. Second patella and tibia 4.2, and third 2.4. Fourth femur 4.1, patella and tibia 3.4, metatarsus 3.6, tarsus 1.2.

Variation

Total length of other females varied from 8 to 8.8mm. The shape of the epigynum is invariable but the relation length-width can change.

Distribution

Only known to locality type (Fig. 2a).

Argiope argentata (Fabricius)

New records

Argentina (Fig. 2a). *Jujuy Province*: Calilegua National Park (23°37'01.5"S 64°36'03"W), female, 07 June 2011, IEBI Team Colls., IEBI-MCN. *Salta Province*: Vaqueros (24°43'S 65°25'W), female, 21 August 2004, VI Olivo & JA Corronca Colls., IEBI-MCN. *Corrientes Province*: Apipé: San Antonio Island (27°26'53.38"S 56°52'59.64"W), male, 16 November 2006, JA

Corronca & MC Coscarón Colls., IEBI-MCN; Berón de Astrada Dept.: near to Santa María Stream, between Berón de Astrada and Valencia (27°30'8.09"S 57°40'1.99"W), female, 28 November 2006, JA Corronca & MC Coscarón Colls., IEBI-MCN; Santo Tomé Dept.: Estancia Santa Elena, Route 14- 32km S of Santo Tomé (28°40'58.64"S 56°12'14.41"W), female, 19 November 2006, JA Corronca & MC Coscarón Colls., IEBI-MCN; immature, 02 June 2007, JA Corronca, MC Coscarón & MB Cava Colls., IEBI-MCN; Monte Caseros Dept.: Route 119, 4km near to Cuatié Curé (30°6'53.22"S 57°59'20.05"W), subadult female, 20 November 2006, JA Corronca & MC Coscarón Colls., IEBI-MCN.

Argiope trifasciata (Forsskål)

New records

Argentina (Fig. 2b). *Jujuy Province*: Calilegua National Park (23°38'45.36"S 64°35'55.43"W), female, 26 October 2010, IEBI Team Colls., IEBI-MCN. *Corrientes Province*: Apipé: San Antonio Island (27°26'43.69"S 56°52'29.45"W), immature, 16 November 2006, JA Corronca & MC Coscarón Colls., IEBI-MCN; Berón de Astrada Dept.: near to Santa María Stream, between Berón de Astrada and Valencia (27°30'8.09"S 57°40'1.99"W), 9 immatures, 18 May 2007, JA Corronca, MC Coscarón & MB Cava Colls., IEBI-MCN; Ituzaingó Dept.: Paso Tirantes near to Aguapey River (27°36'1.46"S 56°14'49.04"W), immature, 17 November 2006, JA Corronca & MC Coscarón Colls., IEBI-MCN; Route 39 near to Estancia San Miguelito (27°41'23.88"S 56°10'55.02"W), 15 immatures, 01 June 2007, JA Corronca, MC Coscarón & MB Cava Colls., IEBI-MCN; Empedrado Dept.: Route 12 near to Los Vences (27°41'58.26"S 58°44'43.76"W), 2 immatures, 13 November 2006, JA Corronca & MC Coscarón Colls., IEBI-MCN; male, male subadult and 25 immatures, 28 May 2007, JA Corronca, MC Coscarón & MB Cava Colls., IEBI-MCN; Santo Tomé Dept.: Route 120, Cabi Poi (27°52'13.08"S 56°8'1.08"W), 5 immatures, 17 November 2006, JA Corronca & MC Coscarón Colls., IEBI-MCN; 2 immatures, 17 November

2006, JA Corronca & MC Coscarón Colls., IEBI-MCN; immature, 01 June 2007, JA Corronca, MC Coscarón & MB Cava Colls., IEBI-MCN; Route 120 near interception with Route 14 (27°57'48.36"S 56°0'53.15"W), 3 immatures, 01 June 2007, JA Corronca, MC Coscarón & MB Cava Colls., IEBI-MCN; 4Km N of Santo Tomé (28°32'27.68"S 56°3'27.36"W), immature, 17 November 2006, JA Corronca & MC Coscarón Colls., IEBI-MCN; Route 14, 32km SW Santo Tomé (28°40'58.64"S 56°12'14.41"W), 3 females and 64 immatures, 19 November 2006, JA Corronca & MC Coscarón Colls., IEBI-MCN; male and 27 immatures, 02 June 2007, JA Corronca, MC Coscarón & MB Cava Colls., IEBI-MCN; Concepción Dept.: Route 6, 7km NW Concepción (28°20'21.08"S 57°56'23.25"W), male, 12 November 2006, JA Corronca & MC Coscarón Colls., IEBI-MCN; San Roque Dept.: Route 118 near to Tabay (28°21'17.60"S 58°24'11.20"W), 3 immatures, 12 November 2006, JA Corronca & MC Coscarón Colls., IEBI-MCN; 11 immatures, 06 June 2007, JA Corronca, MC Coscarón & MB Cava Colls., IEBI-MCN; Route 22 near to Tacuarita (28°51'5.66"S 58°26'24.69"W), male subadult and 30 immatures, 05 June 2007, JA Corronca, MC Coscarón & MB Cava Colls., IEBI-MCN; Route 22 near to Chavarría (28°54'30.32"S 58°31'14.52"W), immature, 21 November 2006, JA Corronca & MC Coscarón Colls., IEBI-MCN; 6 immatures, 05 June 2007, JA Corronca, MC Coscarón & MB Cava Colls., IEBI-MCN; General Alvear Dept.: 11km NE of Alvear (29°2'1.75"S 56°30'2.08"W), male, female subadult and 6 immatures, 02 June 2007, JA Corronca, MC Coscarón & MB Cava Colls., IEBI-MCN; 10km NE of Alvear (29°2'5.50"S 56°30'5.73"W), immature, 19 November 2006, JA Corronca & MC Coscarón Colls., IEBI-MCN; 8 immatures, 03 June 2007, JA Corronca, MC Coscarón & MB Cava Colls., IEBI-MCN-UNSa; Route 14, Aguapey River, 5km W of Alvear (29°6'3.46"S 56°36'18.54"W), 28 immatures, 19 November 2006, JA Corronca & MC Coscarón Colls., IEBI-MCN; 8 immatures, 03 June 2007, JA Corronca, MC Coscarón & MB Cava Colls., IEBI-MCN; Mercedes Dept.: Route 119, 5Km SW of Mercedes (29°12'57.55"S 58°6'48.08"W), male, female and 14 immatures, 05 June 2007, JA Corronca, MC Coscarón and MB Cava Colls., IEBI-

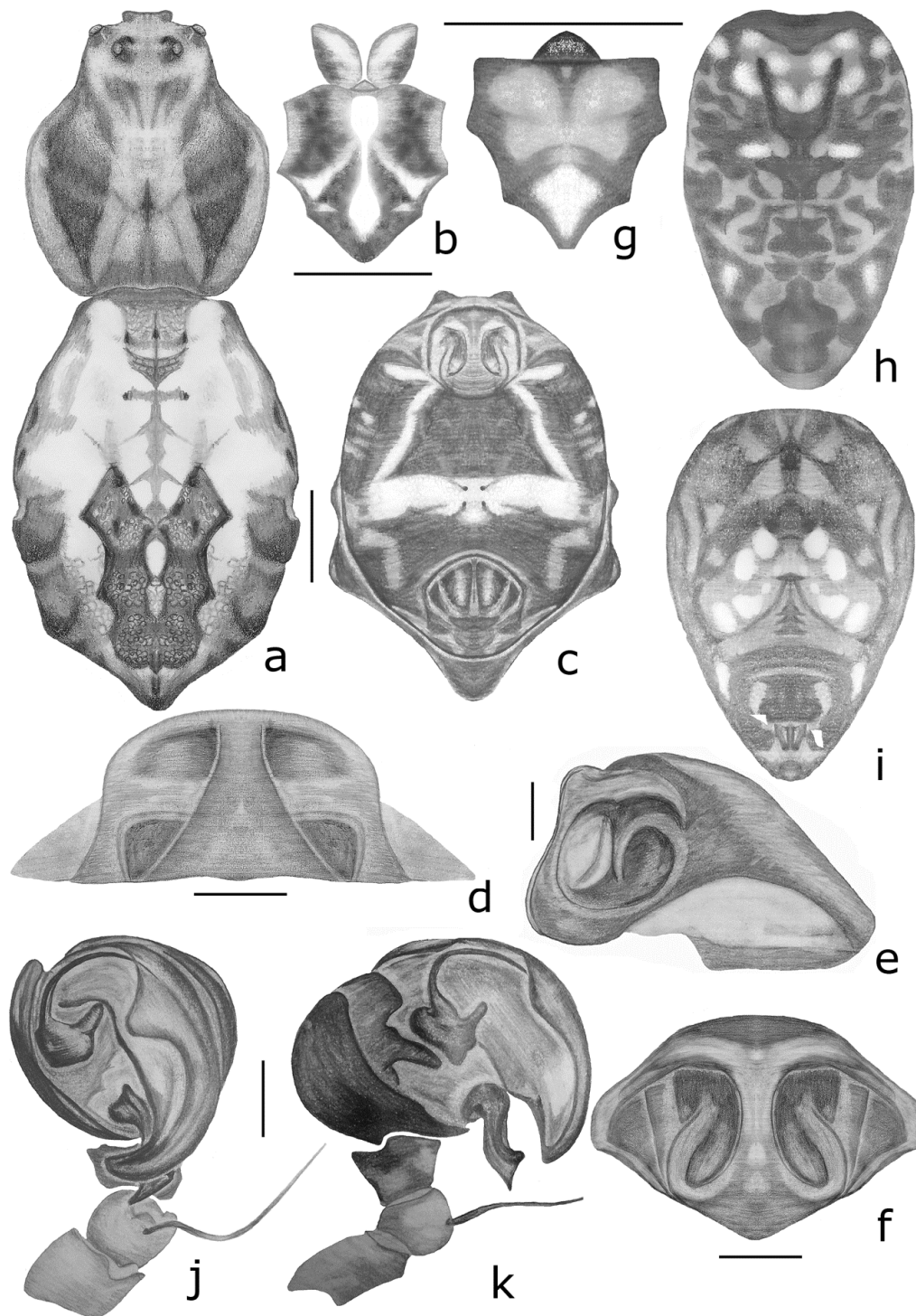


Fig. 1. *Argiope kaingang* new species, female: a, habitus, dorsal view; b, sternum; c, abdomen, ventral view; d-f epigynum: d, posterior view; e, lateral view. f, ventral view. Scale bars: 1-3= 1mm; 4-6= 0.2 mm. *Gea heptagon* - male; g, sternum; h, abdomen, dorsal view; i, abdomen, ventral view; j-k, left palpus; j, ventral view; k, mesal view; Scale bars: 7-9= 1mm; 10-11= 0.2mm.

MCN; San Martín Dept.: Yapeyú (29°28'41.16"S 56°49'22.82"W), immature, 19 November 2006, JA Corronca & MC Coscarón Colls., IEI-MCN; 56 immatures, 03 June, 2007, JA Corronca, MC Coscarón & MB Cava Colls., IEI-MCN; Curuzú-Cuatiá Dept.: Route 23, 5.5km S of Perugorria (29°23'5.59"S 58°37'44.53"W), immature, 20 November 2006, JA Corronca & MC Coscarón Colls., IEI-MCN; 6 immatures, 04 June 2007, JA Corronca, MC Coscarón & MB Cava Colls., IEI-MCN; Route 23 near to Ñandubay (29°23'23.05"S 58°37'50.50"W), 3 immatures, 04 June 2007, JA Corronca, MC Coscarón & MB Cava Colls., IEI-MCN; Route 25, 20km NW of Curuzú Cuatiá (29°40'58.79"S 58°14'30.94"W), immature, 20 November 2006, JA Corronca & MC Coscarón Colls., 7 immatures, 04 June 2007, JA Corronca, MC Coscarón & MB Cava Colls., IEI-MCN; Monte Caseros Dept.: Estancia El Retiro, 16km S of Curuzú Cuatiá by Route 119 (29°55'18.89"S 58°2'58.24"W), 3 immatures, 20 November 2006, JA Corronca & MC Coscarón Colls., IEI-MCN; male and 23 immatures, 04 June 2007, JA Corronca, MC Coscarón & MB Cava Colls., IEI-MCN; Cuatro Bocas, 4Km S of crossing R129 and R119 (30°6'53.22"S 57°59'20.05"W), 7 immatures, 04 June 2007, JA Corronca, MC Coscarón & MB Cava Colls., IEI-MCN.

Gea heptagon (Hentz)
(Fig. 2)

New record

Argentina (Fig. 2a): *Corrientes Province*: General Alvear Dept.: 10km NE of Alvear (29°2'5.50"S, 56°30'5.73"W), male, 03 June 2007, JA Corronca, MC Coscarón & MB Cava Colls., FML (N°02172).

Note. Levi (2004) mentioned the distribution of this species as follows: ...“Pacific, probably introduced to America and found from Eastern of United States and West Indies, probably to Argentina”..... In other paragraph of the same paper, he mentioned that specimens from the northern of Argentina were examined but without recording the data. Here, we report this species for the first time to a geographical locality of Argentina.

The specimen was collected together with specimens of *A. trifasciata* in the same locality and the same date, not with *A. argentata* as was suggested by Levi (1968), but the later species was recorded few kilometres near of General Alvear (Corrientes). We provided here drawings of the recorded specimen (Fig. 1g-k).

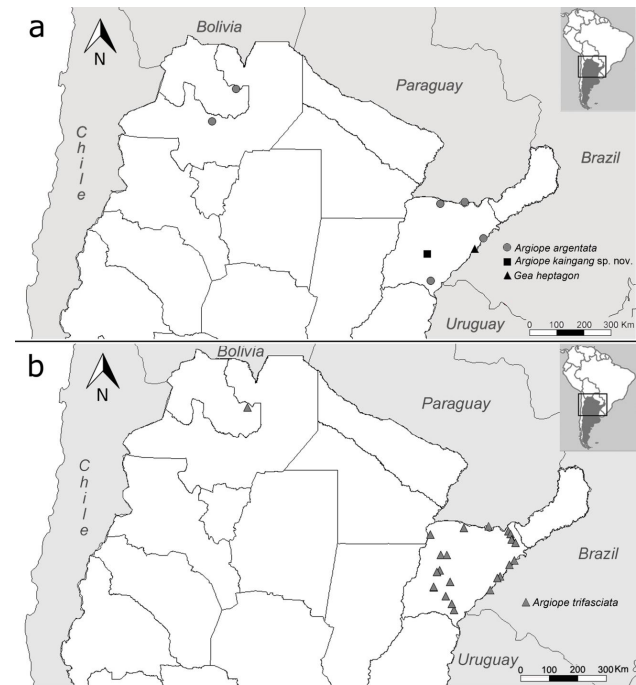


Fig. 2. Map of distribution: a, *Argiope argentata*, *Argiope kaingang* new species and *Gea heptagon*. b, *Argiope trifasciata*.

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