



Additional information for *Leptoglossus impictus* (Stål 1859) (Hemiptera: Heteroptera: Coreidae: Coreinae: Anisoscelini) from Patagonia, Argentina

FERNANDO DIEZ¹, MILTON RUIZ ESPINDOLA¹, MARCELA CORNELIS¹
& MARÍA DEL CARMEN COSCARÓN²

¹Universidad Nacional de La Pampa. Facultad de Ciencias Exactas y Naturales. Uruguay 151 L6300CLB, Santa Rosa, La Pampa. Argentina. E-mail: fddiez@gmail.com.

²Universidad Nacional de La Plata. Facultad de Ciencias Naturales y Museo. División Entomología. Paseo del Bosque s/n 1900, La Plata, Buenos Aires. Argentina. E-mail: mcoscaron@fcnym.unlp.edu.ar.

The Patagonian subregion belongs to the Andean region, and is comprised of two provinces: Central Patagonia and Subandean Patagonia. It extends from central Mendoza, widening through Neuquén, Río Negro, Chubut, and Santa Cruz, to northern Tierra del Fuego, and reaches Chile (Morrone 2006). The knowledge of terrestrial Heteroptera in this region is poor and is limited to a few contributions (e.g. Berg 1979, Breddin 1898, Pennington 1920, Faúndez & Carvajal 2011, Faúndez 2015).

The genus *Leptoglossus* Guérin-Méneville, 1831, often called the “leaf-footed bug”, is one of the most diverse and complex taxa of Anisoscelini (Brailovsky 2014). *Leptoglossus* species have feeding variable habits, ranging from extreme polyphagy to specialization on a single genus (Wheeler & Miller 1990, Mitchell 2000). Nymphs and adults of some species were recorded feeding on mainly reproductive structures like as fruits and developing seeds (Wheeler & Miller 1990, Krugman & Koerber 1969). It is for that reason, *Leptoglossus* acts as a forest pest which reduces the germinating capacity of conifer seeds (Hedlin et al. 1981) or causes young fruit abscission and darkening and distortion of larger fruit on *Magnolia* spp. Magnoliaceae (Heidemann 1910).

Allen (1969) presented a revision of the genus *Leptoglossus* and included keys to its species. According to Brailovsky (2014), in the Western Hemisphere, this genus includes 61 species and 2 subspecies. *Leptoglossus* species are widely distributed from southern Canada throughout the United States, Mexico, the Antilles, Central America and South America, including Chile and Argentina (Brailovsky 2014). This genus is comprised of ten species group: *alatus*, *chilensis*, *cinctus*, *clypealis*, *dilaticollis*, *gonagra*, *harpagon*, *lineosus*, *phyllopus* and *stigma* (Brailovsky 2014). *Leptoglossus* is the sister genus of *Narnia* Stål and, together with the genera *Diactor* Perty, *Leptoscelis* Laporte, *Malvana* Stål, *Phthia* Stål and *Ugnius* (Stål) form a well supported monophyletic group (Packauskas 2008). Recently, four genera have been described, *Phthiadema* Brailovsky, *Phthiacnemis* Brailovsky, *Rhytidophthia* Brailovsky and *Phthiarella* Brailovsky, which are very close to *Phthia* Stål (Brailovsky 2015). Phylogenetic studies of all these genera are needed. Allen (1969) considered *Leptoglossus impictus* belonging to the *chilensis* species group. Packauskas & Schaefer (2001) transferred *L. impictus* to the *zonatus* species group, and recently, Brailovsky (2014) placed this species in the *chilensis* group together with six other species. Bosq (1937) mentions the possible preference of solanaceae by *L. impictus* and indicates that this specie is probably a *Solanum lycopersicum* and *Solanum tuberosum* pest. In addition, *L. chilensis* (Spinola), a very close specie to *L. impictus*, has been recorded from peaches, nectarines, plums, grapes, figs, and grapefruit (Allen 1969). Faúndez & Carvajal (2011) also disclosed the first record of a bite in a human.

The aim of this contribution is to describe and illustrate nymphal instars IV–V of *L. impictus*, together with a new geographic and host plant records.

Material and methods

Specimens were collected from Chubut by means of a suction sampler, Garden vacuum model 56/86 Stihl, and sweep-net with a diameter of 35 cm, in January 2014. All stages of *L. impictus*, including nymphs and adults, were found on the same host plant *Grindelia anethifolia* (Phil.) A. Bartoli & Tortosa (Asteraceae). Specimens are preserved in 96 percent ethanol and we will be deposited it in the collection of the Museo de La Plata, La Plata, Argentina when we finish futures morphological studies. A total of 10 males, 12 females and 12 nymphal instars were captured. The measurements are

expressed in millimeters. The terminology used is after Allen (1969) and Brailovsky (2014). The distribution was taken from Coscarón (in press). Images were taken with a digital camera (PANASONIC DMC-S3) and a Wild M-stereomicroscope. For the specific identification we followed Allen (1969) and Brailovsky (2014) and the specimens were compared with photographs of type specimens from the Naturhistoriska Riksmuseet of Stockholm, Sweden web (Nrms 2015). Specific identification of nymphs was confirmed through adults (Fig 1 A-D) collected in same sample. For the construction of geographic distribution map we used the program QUANTUM-GIS 2.8.2 (<http://www.qgis.org>).

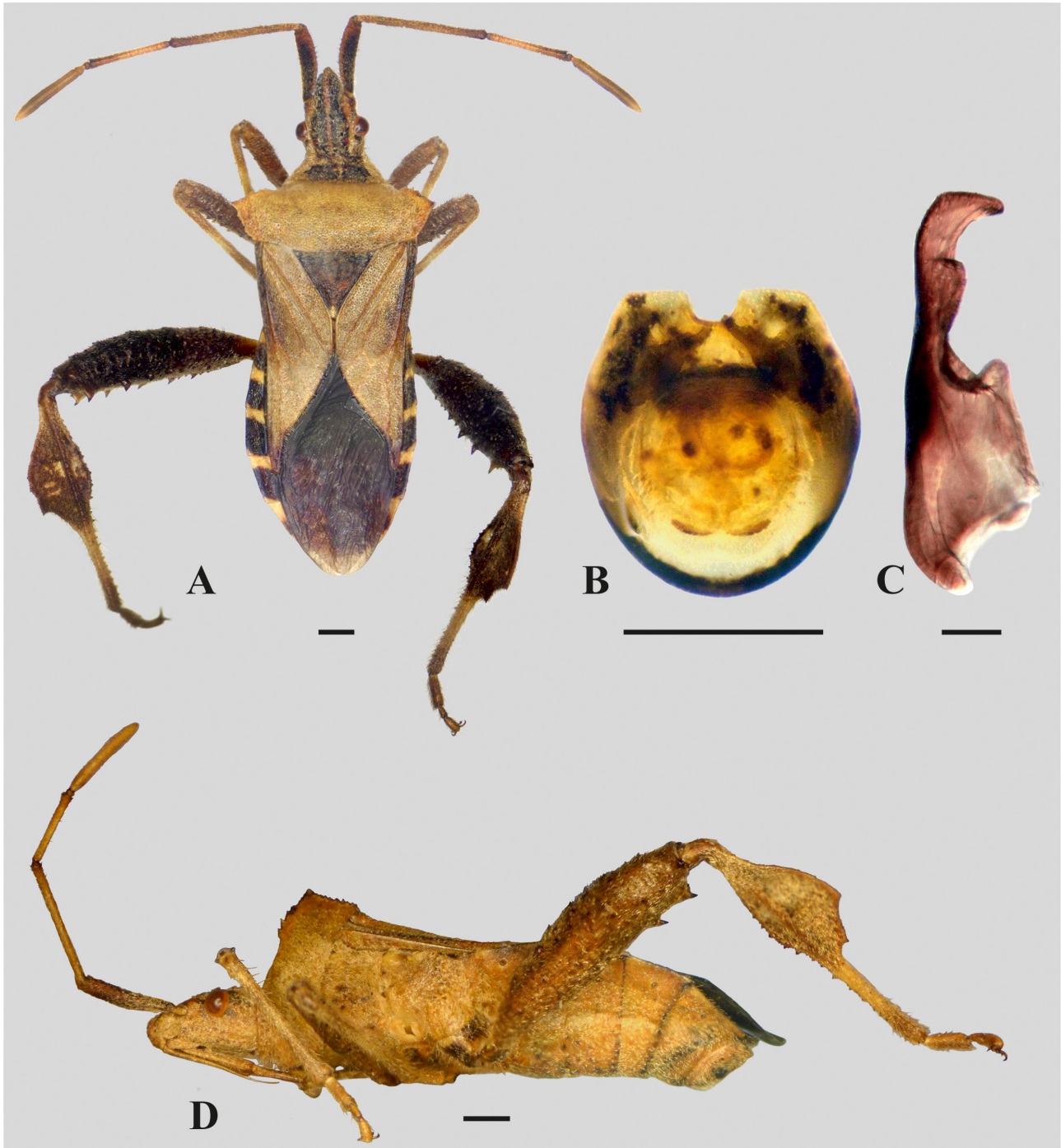


FIGURE 1. Adult male of *L. impictus*. (A) Dorsal view, scale bar = 1mm. (B) Pygophore ventral view, scale bar = 1mm. (C) Right paramere, Scale bar = 0.1mm. (D) Lateral view, scale bar = 1mm.

Results

Tribu Anisoscelini Laporte (1832)

1832 Anisoscérites Laporte, 52: 24.

***Leptoglossus* Guérin-Méneville 1831**

1831 *Leptoglossus* Guérin-Méneville, pl. 12. Fig. 9.

***Leptoglossus* *impictus* (Stål 1859)**

(Figs 1A–D)

http://www2.nrm.se/en/het_nrm/i/leptoglossus_impictus.html

1859 *Anisoscelis impicta* Stål, 34: 233.

1866 *Theognis impictus* Mayr, p104.

1871 *Anisoscelis impicta* Walker, 4: 126.

Diagnosis. After Allen (1969) and Brailovsky (2014): small species, less than 25 mm. Total body length less than 2.5 times width across humeri (Fig. 1A). Posterior lobe of pronotal disk pale yellowish orange without black discoidal spots (Fig. 1A). Width across humeri at most 5 times width anterior pronotal margin (Fig. 1A). Anterior half of pronotal lateral margins entire, only the posterior half and postero-lateral margin serrate (Fig. 1 A, D). Dorsal surface of male hind femora with 15–20 prominent tubercles. Abdominal dorsum totally dark

Distribution in ARGENTINA: (Fig. 2) Buenos Aires (Berg, 1879; Pennington, 1920): Baradero (33°48'26"S; 59°30'40"W) (Berg 1879), Carmen de Patagones (40°47'38.8"S; 62°59'07.4"W) (Allen, 1969), Isla Martín García (34°10'58"S; 58°15'36"W) (Carpintero & De Biase, 2011), Reserva Ecológica Costanera Sur (34°35'52.29"S; 58°21'42.48"W) (Carpintero *et al.* 2014), La Plata (34°55'14"S; 57°59'18"W) (Pennington, 1922); Catamarca (Pennington, 1920); Córdoba (Berg, 1879; Pennington, 1920; Bosq 1940): El sauce (31°5'54"S; 64°19'48"W) (Viana & Williner, 1972), Tanti (31°21'28"S; 64°35'41"W) (Coscarón & Pall, 2015); Corrientes (Berg, 1879; Pennington, 1920): Curuzú Cuatiá Departament, Pasos de los Libres Departament, Saladas Departament (Quintanilla *et al.* 1975); Entre Ríos (Pennington, 1920): Ceibas (33°29'53"S; 58°47'46"W), Gualeguaychú (33°0'56"S; 58°32'16"W) (Bressa *et al.* 2005), Concordia Departament, Paraná Departament (Quintanilla *et al.* 1968); La Pampa; La Rioja (Pennington, 1920); Mendoza (Berg, 1879; Pennington, 1920): Tupungato (33°21'56"S; 69°09'39"W) (Torres, 1950); Misiones: Belgrano Departament, Eldorado Departament, San Ignacio Departament (Quintanilla *et al.* 1981); Neuquén: Piedra Pintada (40°18'30"S; 70°38'45"W) Río Negro (Coscarón & Pall, 2015): Allen (38°58'47"S; 67°50'13"W), Laguna Chanquín (40°43'8"S; 66°15'19"W), General Fernández Oro (38°57'16"S; 67°56'7"W), Ingeniero Huergo (39°04'25"S; 67°15'51"W) (Torres 1950), Río Colorado (38°59'29"S; 64°5'59"W) (Allen, 1969); Santa Fé (Pennington, 1920; Allen, 1969, Coscarón & Pall, 2015); Salta: Chioana (25°06'13.5"S 65°32'10.3"W) (Allen, 1969); San Juan (Pennington, 1920): Jachal Departament (Torres, 1950); San Luis (Pennington, 1920): Lavaisse (33°48'56.7"S 65°24'54.9"W), Estancia Don Roberto; Santiago del Estero (Pennington, 1920): Río Salado (Allen, 1969).

Remarks. Pennington (1920) also gave records with symbol "N" but does not give the provinces reference for letter "N". Bosq (1937) also gave records from Argentina but very imprecise, the records are from Litoral, center and Andean region from Argentina.

Distribution outside Argentina. Brazil: Río de Janeiro, Cruz Alta: Rio Grande do Sul. (Blöte, 1936); Uruguay: Montevideo (Lethierry & Severin, 1894; Allen, 1969).

Material examined. Argentina: Chubut: 40 km from Giaman (43°22.546'S, 65°57.502'W) (5♂, 7♀ and 12 immature stages). Coscarón- Diez- Ruiz Espindola col.

Immature stages (Figs 3A–B). **Instar V:** (Fig. 3A) (n=7) Overall color light brown and brown, with red dots, ventral surface pale yellowish. Body covered with abundant whitish pilosity. Total length 10.10–10.98 (mean = 10.50). Head: length 1.63–2.01 (mean = 1.87), width 1.27–1.72 (mean = 1.51), with two longitudinal dark brown bands extending from mandibular plates apex to posterior margin of head, in some specimens, in lateral view, a dark brown longitudinal stripe; ventral surface often brown or pale with two fine lateral brown lines; eyes small, not prominent, width 0.31–0.38 (mean = 0.35), between eyes two tubercles with long erect setae; interocular space width 0.98–1.19, (mean = 1.06). Labium passing beyond metacoxae, fourth segment distally brown ratio of segment lengths about 1: 0.94: 0.57: 0.92. Antennal segments yellowish, except second and third segment, and fourth basally, reddish brown (Fig. 3A), ratio of segment lengths 1: 1.73: 0.97: 1.23. Pronotum length 1.61–1.96 (mean = 1.78), width across humeri 3.01–3.25 (mean = 3.18), light brown, anterior half with a dark brown macula; in the center of the structure, two yellow tubercles and anterior lobe with lateral margins entire, posterior lobe of pronotum with postero-lateral margins serrate. Pterothecae with edges and posterior region dark brown (Fig. 3A), length 2.60–3.11 (mean = 2.87), reaching proximal half of third abdominal segment. In some specimens thorax with small dark spots. Legs brown except one ring yellow in middle portion of femur and a pale brown one in the base and after the tibial dilations; tarsi usually dark brown; tibial dilations with two spots. Femur with two rows of five spine-like teeth (Fig. 3A). Abdomen: length 5.04–6.24 (mean = 5.97), width 3.97–4.04

(mean = 3.99), first and second abdominal segment with two brown tubercles, dorsal abdominal glands openings in 4/5 and 5/6 abdominal segments, conexivum with serrated edge.

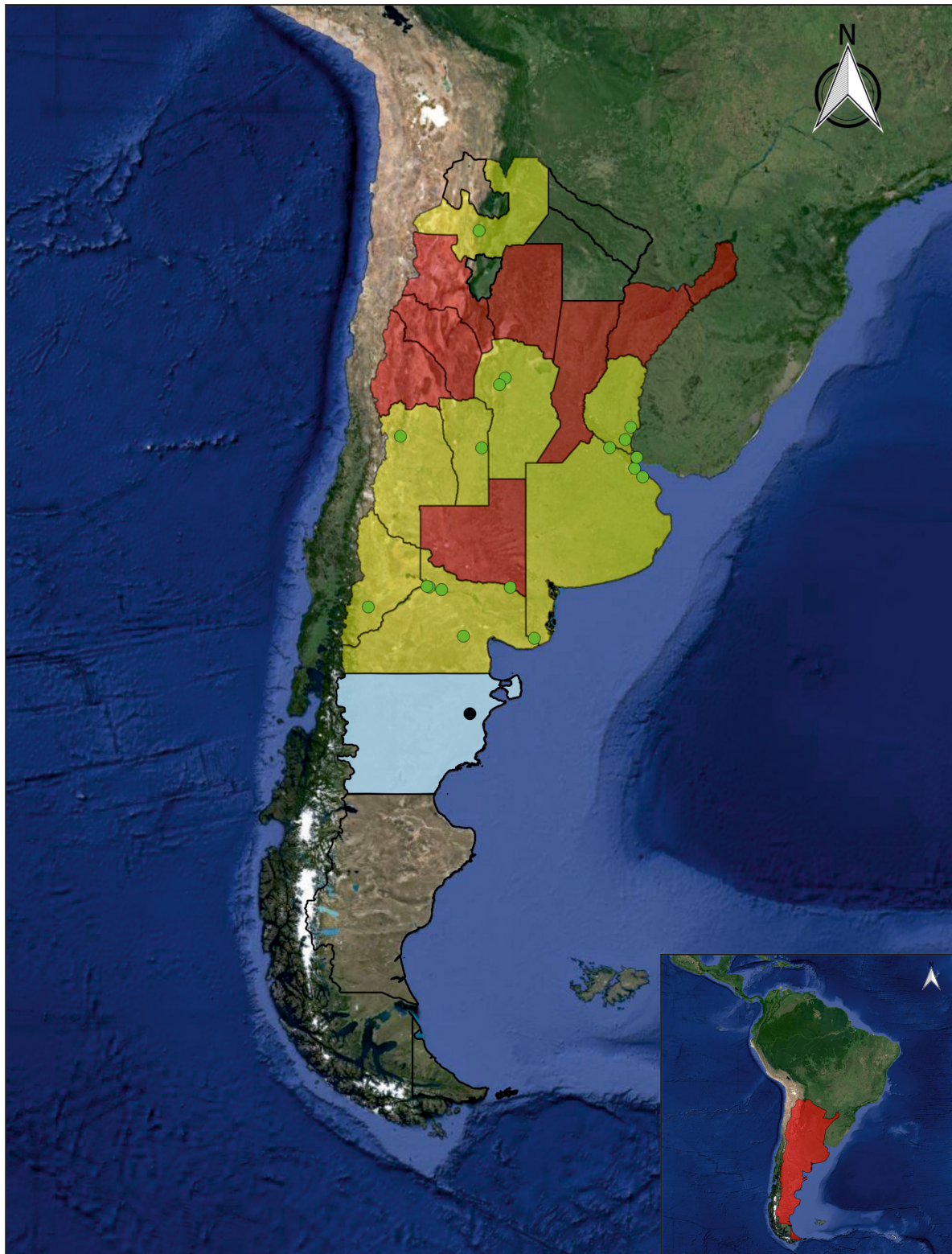


FIGURE 2. Geographic distributions of *L. impictus* in Argentina: Red, provinces without locality of capture according to literature. Yellow, provinces with locality of capture according to literature. Light blue, Chubut province. Black circle, new records. Green circle, records of locality according to bibliography.

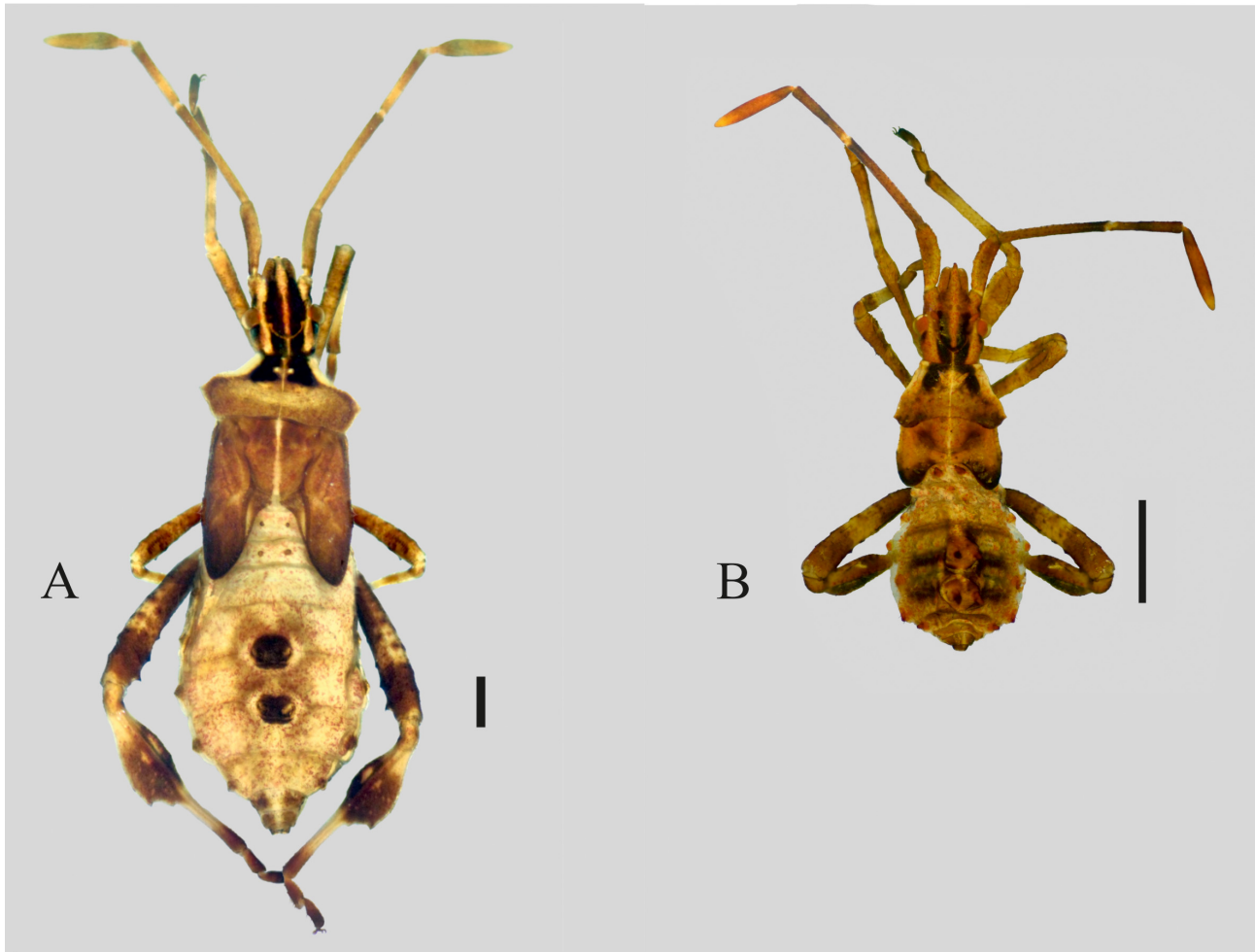


FIGURE 3. Dorsal view nymphal stages of *L. impictus*. (A) Fifth instar. (B) Fourth instar. Scale bars = 1mm.

Instar IV: (Fig. 3B) (n=3) General color similar to instar V, body covered with whitish pilosity and long brown setae scattered. Total length 5.96–6.67 (mean = 6.24). Head: length 1.70–1.77 (mean = 1.70), width 0.92–1.20 (mean = 0.99); with two longitudinal dark brown bands extending from mandibular plates base to posterior margin of head; in lateral view, dark brown longitudinal stripe reduced; ventral surface with two lateral brown bands; eyes width 0.21–0.31 (mean = 0.24), interocular space width 0.56–0.70 (mean = 0.63). Labium: ratio of labial segment lengths 1: 1.07: 0.66: 1.09. Antennal segments light brown or brown, except second and third segment, and fourth basally, reddish brown; antenna with abundant setae, ratio of segment lengths 1: 1.59: 1.09: 1.18. Pronotum length 0.94–1.15 (mean = 1.01), width 1.82–2.02 (mean = 1.89). Pronotum light brown, a dark brown macula reduced or absent, posterior margin convexo. Pterothecae light brown with posterior region dark brown (Fig. 3B), length 1.33–1.43 (mean = 1.40), reaching distal half of second abdominal segment. Abdomen: length 3.18–3.36 (mean = 3.25), width 1.96–2.10 (mean = 2.03).

Conclusion

We expanded the distributions for the species to Argentina southern. This record is the southernmost for *L. impictus* (43°S in Chubut Province) and the first of Chubut Province. *Grindelia anethifolia* is a new host plant for *L. impictus*. This record is truly important due to the fact that *Solanum tuberosum* is a crop in Chubut and *L. impictus* presence will be a problem to it. Further biology studies and effects of *L. impictus* feeding on different crops are needed.

Acknowledgments

Special thanks to Dr. Prina, Anibal Universidad Nacional de La Pampa, Argentina (UNLPam) and Dr. Muiño Walter (UNLPam) for the identification of the host plant. We thank anonymous reviewers for revising and improving the

manuscript. This research was supported by the Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Agencia Nacional de Promoción Científica y Tecnológica from Argentina and UNLPam, Facultad de Ciencias Exactas y Naturales.

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