



A review of genus *Nysius* Dallas in Argentina (Hemiptera: Heteroptera: Orsillidae)

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Abstract

The orsillid genus *Nysius* Dallas is a complex and large genus with more than 100 described species worldwide, and includes many species of agricultural importance, one such example is *N. simulans* (Stål) from Argentina. Three species of *Nysius* are found in this country: *N. simulans* (Stål), *N. irroratus* (Spinola) and *N. puberulus* Berg. The material available for the present study, consisting of over 610 specimens, was collected by sweep-net, G-Vac and light trap in the provinces of Chubut (42° to 46°S; 63.5° to 72° W), La Pampa (35° to 39° south; 63° to 68° West), Neuquén (36° to 41° S; 68° to 71°W) and Río Negro (37° to 42°S; 62° to 71°W), in the central region of Argentina, during the years 2010–2014. Although the species *N. simulans* is frequently recorded as a pest of soybean crop, there exist no detailed description but only a brief general diagnosis. In the present contribution, therefore, we provide a detailed redescription as well as an updated distribution of *N. simulans* and *N. irroratus*, and a key for species of genus *Nysius* present in Argentina.

Key words: true bugs, soybean, species complex, Orsillidae, *Nysius*, key to species

Introduction

The family Orsillidae includes more than 200 species described in 27 genera (Ashlock 1967, Malipatil 2005), in which there are many species of agricultural importance, such as of the genus *Nysius* Dallas (Ashlock 1967; Malipatil 2005; Malipatil 2010), especially *N. simulans* (Stål) (Molinari & Gamundi 2010), and *N. caledoniae* Evans (Malipatil 2010), *N. huttoni* Buchanan-White, *N. niger* Baker, *N. plebeius* Distant, *N. raphanus* Howard, *N. vinitor* Bergroth (Schaefer & Panizzi 2000). *Nysius simulans* attacks seeds, vascular tissue plants, some cotyledons and buds (Aragón & Flores 2006; Molinari & Gamundi 2010). Much of the damage caused is performed when a period of water stress is crossed and individuals migrate to crops or wild plants (Ashlock 1967).

Nysius is a complex and large genus with more than 100 species described (Ashlock 1967). Because of the apparent difficulty in identification of *Nysius*, a distressingly large number of reports in the economic literature, even in supposedly well-known North America, merely refer to “*Nysius* sp.” (Schaefer & Panizzi 2000). According to Ashlock (1967) “Virtually no place in the world where orsillines are found is lacking a species of *Nysius*. Members of the genus have been found on all the continents of the world except Antarctica, and in most island groups except southeastern Polynesia. Since the genus contains several species that occasionally are of economic importance, there has been more than casual interest in the group”.

In Argentina, there occur three species of *Nysius* according to Coscarón (in press) and Dellapé (2014): *N. simulans* is distributed throughout the country, while *N. irroratus* (Spinola) and *N. puberulus* Berg are found only in the southern-most tip of the country and they have not been recorded as causing damage to crops.

In Argentina, *Nysius simulans* has been mentioned by Rizzo (1976) as harmful to various cultivated and wild plants, particularly on potatoes. Bosq (1937, 1940) notes it as very damaging to alfalfa and flax as a pest, wheat, corn and cotton, among others. It has also been reported causing damage in soybeans. These bugs can cause severe damage to seedlings of soybean and corn when fed in large numbers. In the province of Córdoba, Aragon & Flores (2006) determined the presence of this species in numerous batches of soybean production stage of birth, bug fed hypocotyl, cotyledons and buds, affecting the development and killing large numbers of plants. They have reported severe damage by this pest in many locations in Southeast and Central Córdoba and in other parts of the country.

N. simulans is distributed in the provinces of Buenos Aires, Catamarca, Córdoba, Corrientes, Chaco, Entre Ríos, La Rioja, Mendoza, Misiones, Neuquén, Río Negro, Salta, Santa Fe, Santiago del Estero, San Juan, San Luis and Tucumán (Dellapé *et al.* 2015; Melo *et al.* 2004, 2011) and Chubut Cheli *et al.* (2010).

The first record of *N. simulans* in Argentina was associated with soybean (Fabaceae: *Glycine max* (L.) Merr) in the province of Buenos Aires (Rizzo & Losada 1975), it was later quoted by Quintanilla *et al.* (1981) for the province of Misiones, Caingúas, Eldorado; on the other hand, this species was cited for the vast majority of soybean crops in the country (Gamundi & Sosa 2007; Molinari & Gamundi 2010).

A list of plants associated with the attack by *N. simulans* in Argentina is: Gramineae: *Zea mays* L., Linaceae: *Linum usitatissimum* L., Poaceae: *Triticum aestivum* L., Malvaceae: *Gossypium hirsutum* (L.), Asteraceae: *Lactuca sativa* L., Solanaceae: *Nicotiana tabacum* L., Solanaceae: *Solanum tuberosum* L., Rosaceae: *Prunus persica* L., Vitaceae: *Vitis vinifera* L., *Glycine max* (Di Iorio 2004). Also, other plants, Asteraceae: *Gamochaeta* sp., Brassicaceae: *Capsella bursa-pastoris* L., Brassicaceae: *Brassica rapa* L., Brassicaceae: *B. napus* L. and Brassicaceae: *Rapistrum rugosum* (L.) (Aragón & Flores 2006; Montero *et al.* 2007); more recently, it has been found in sunflower (*Helianthus annuus* L.), and exotic plants as *Diplotaxis tenuifolia* (L.) DC. and *Solstitialis centaurea* L. all Asteracea. (Carmona *et al.* 2015).

The *Nysius irroratus* and *N. puberulus* are distributed in the provinces of Tierra del Fuego (Berg 1895, 1896; Breddin 1897; Pennington 1921; Slater 1964). No records of damage caused by these last two species in Argentina.

The purpose of this contribution is to clarify the characteristics of species of genus *Nysius* present in Argentina, redescribe the species *N. simulans* and *N. irroratus*, give an updated record of its geographical distribution in the southern Cone and provide a key to species of genus. For *N. puberulus*, since no specimens were available for examination, its characters given in the key have been taken from the original description by Berg (1895).

Materials and methods

The material was collected by sweep-net, garden vacuum model 56/86 Stihl (G-Vac), and light trap in the provinces of Chubut (42° to 46°S; 63.5° to 72° W), La Pampa (35° to 39° south; 63° to 68° West), Neuquén (36° to 41° S; 68° to 71°W) and Río Negro (37° to 42°S; 62° to 71°W), in Patagonia of Argentina, during the years 2010–2015. Details of the method of dissection of male and female genitalia, and the terminology were extracted from Malipatil (1978); the measurements are expressed in mm.

The images were taken by a digital camera (Kodak EasyShare 4X WIDE), the drawings were made by COREL X5. The material was deposited in the entomological collection of the Museum of La Plata (MLP) and National University of La Pampa, Argentina. For the construction of geographic distribution map we used the program QUANTUM-GIS 2.8.2 (<http://www.qgis.org>) (Map 1). The Phytogeographical regions used in the maps, were used according to Cabrera & Willink (1980).

Abbreviations: American Museum of Natural History, New York (**AMNH**); British Museum Natural History, London, (**BMNH**); Museo Argentino de Ciencias Naturales, Buenos Aires (**MACN**); Museo de La Plata, Argentina, La Plata (**MLP**); Swedish Museum of Natural History, Stockholm (**NRM**).

Results

Genus *Nysius* Dallas

The genus is characterized by having costal margin of hemelytron straight only to level with apex of scutellum;

fore femur never spined; connexivum not exposed. Hemelytron without a complete row of punctures on either side of claval suture; buccula impunctate (Henry *et al.* 2015).

Nysius simulans Stål

(Figs. 1–9, 19)

Nysius simulans Stål, 1859: 244

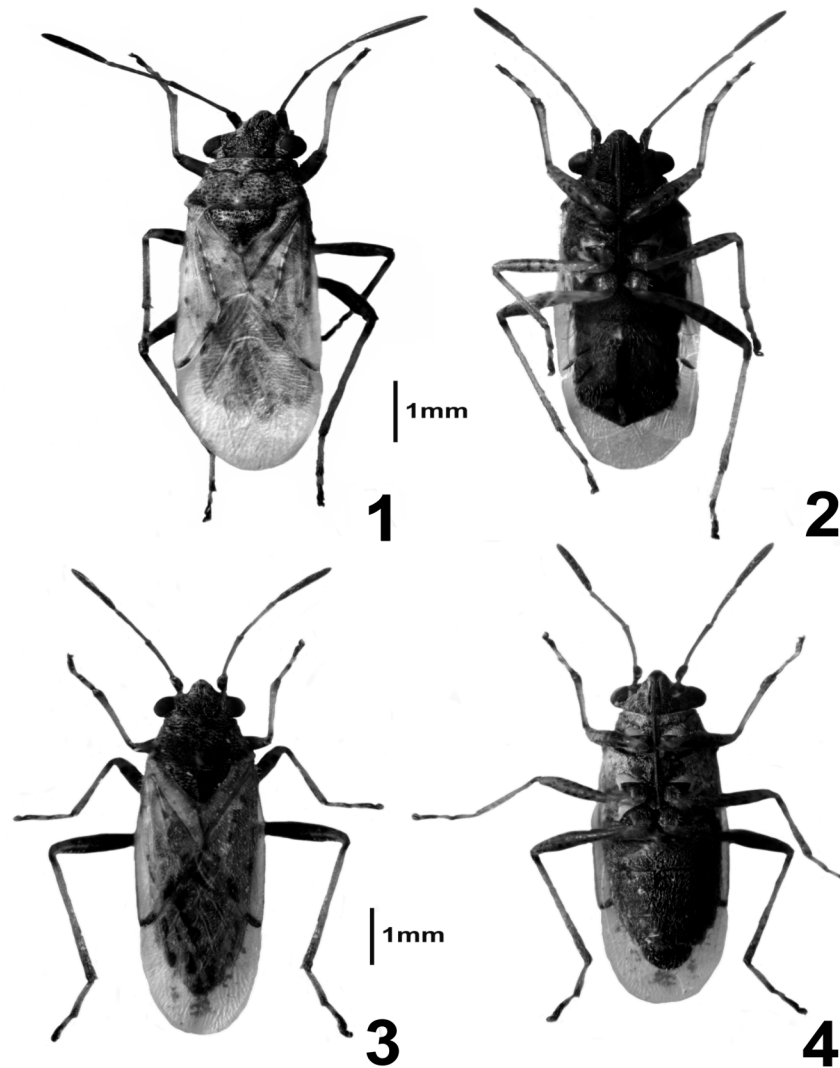
Nysius simulans: Walker 1872: 68. Stål 1874: 121. Berg 1878: 224. Lethierry and Severin 1894:155. Montandon 1895: 7. Pennington 1921: 18. Bosq 1937: 118. Bosq 1940: 404. Torres 1950: 16. Slater 1964: 295. Quintanilla *et al.* 1968: 32. Quintanilla *et al.* 1976: 121. Quintanilla *et al.* 1981: 151. Di Iorio 2004: 251. Melo *et al.* 2004: 65. Marrero *et al.* 2008: 31. Carpintero 2009: 301. Nanni *et al.* 2011: 35. Carpintero and De Biase 2011: 40. Melo *et al.* 2011: 15. Cava *et al.* 2012: 1217. Dellapé and Carpintero 2012: 132.

Redescription. Male. (Figs. 1, 2) n = 10. Total length: 3.3–4.5 (mean: 3.9); head length: 0.36–0.46 (mean: 0.41); head width: 0.66–0.96 (mean: 0.81); eye width: 0.16–0.2 (mean: 0.18); interocular space: 0.33–0.46 (mean: 0.39); rostrum: I 0.35–0.41, II 0.41–0.46, III 0.16–0.4, IV 0.13–0.2; antennal segments: I 0.2–0.25, II 0.55–0.65, III 0.5–0.52, IV 0.4–0.65; pronotum length: 0.5–1 (mean: 0.75); pronotum width: 0.5–1.16 (mean: 0.83); scutellum length: 0.46–0.56 (mean: 0.51); scutellum width: 0.5–0.66 (mean: 0.58); abdomen with hemelytra length: 2.33–3 (mean: 2.66); abdomen without hemelytra length: 2.2–2.66 (mean: 2.43); abdominal width: 0.8–1.13 (mean: 0.96).

Dorsal coloration: Head dark brown to black, hairy, with a light colored midline extending from base of head to apex of clypeus; compound eyes dark-reddish; ocelli reddish with dark base; antennal segment I shorter than other ones, dark colored with clear scores; segments II and III of similar size light brown with dark ends; segment IV smaller than II and III, clear, all segments hairy. Pronotum: dark to black, hairy, with dark spots: light spots heterogeneously distributed from middle region to apical end; apical end lighter color, as rear edge; black shaped bracket figure in distal region just behind head and near edge. Scutellum dark, with black spots, hairiness diminishing towards central region. Corium and clavus light with dark brown spots. Hemelytra clear, dark and light in the veins and the apical end spots. Connexival segments dark brown with reduced hairiness. Ventral coloration: dark color; dark head hairy, dark, with two clear lines on each side running from base of antenna toward the base of the head. First segment of prosternum light brown, hairy; abdomen dark brown to black; legs, coxa and trochanter light-colored, femora with dark spots evenly distributed, in some cases entirely covering the femur. Structure: ocelli located on two small lobes; antennae of moderate length, first segment exceeding head by 1/3 to 1/2 its length, slightly outcurved, distinctly thicker than second and third which are slender, fourth club-like about as thick as first; pronotum rectangular, with slightly elevated apical ends, straight trailing edge; scutellum triangular, as long as the pronotum and carrying a central elevation and a depression in proximal region just next to boundary with pronotum. Smooth legs, femurs thicker than other limbs. Hemelytra reaching apical end of abdomen. Aedeagus (Fig. 5) with phallosome moderately pigmented with a cross wideband tubular, membranous, conjunctiva gradually narrowing toward upper end, vesica sclerotized, vesical basal lobes indistinct, ejaculatory duct inside vesica with 2–4 turns. Paramere (Fig. 6) slightly curved with dorsal flange more prominent than ventral lobe, the latter with hairiness at base.

Female. (Figs. 3, 4) n = 10. Total length: 3.25–4.5 (mean: 3.87); head length: 0.4–0.66 (mean: 0.53); head width: 0.83–0.96 (mean: 0.89); eye width: from 0.2–0.23 (mean: 0.21); interocular space: 0.4–0.5 (mean: 0.45); rostrum: I 0.5–0.66 (mean: 0.58), II 0.41–0.68 (mean: 0.54), III 0.26–0.41 (mean: 0.33), IV 0.25–0.28 (mean: 0.26); Antennal segments: I 0.2–0.25 v, II 0.37–0.62 (mean: 0.49), III 0.5–0.52, IV 0.45–0.65 (mean: 0.55); pronotum length: 0.6–1.3 (mean: 0.95); pronotum width: 0.76–1.2 (mean: 0.9); scutellum length: 0.43–0.56 (mean: 0.49); scutellum width: 0.6–0.8 (mean: 0.7); abdomen with hemelytra length: 2.8–3.33 (mean: 3.06); abdomen without hemelytra length: 2.36–2.76 (mean: 2.56); abdominal width: 0.76–1.13 (mean: 0.94).

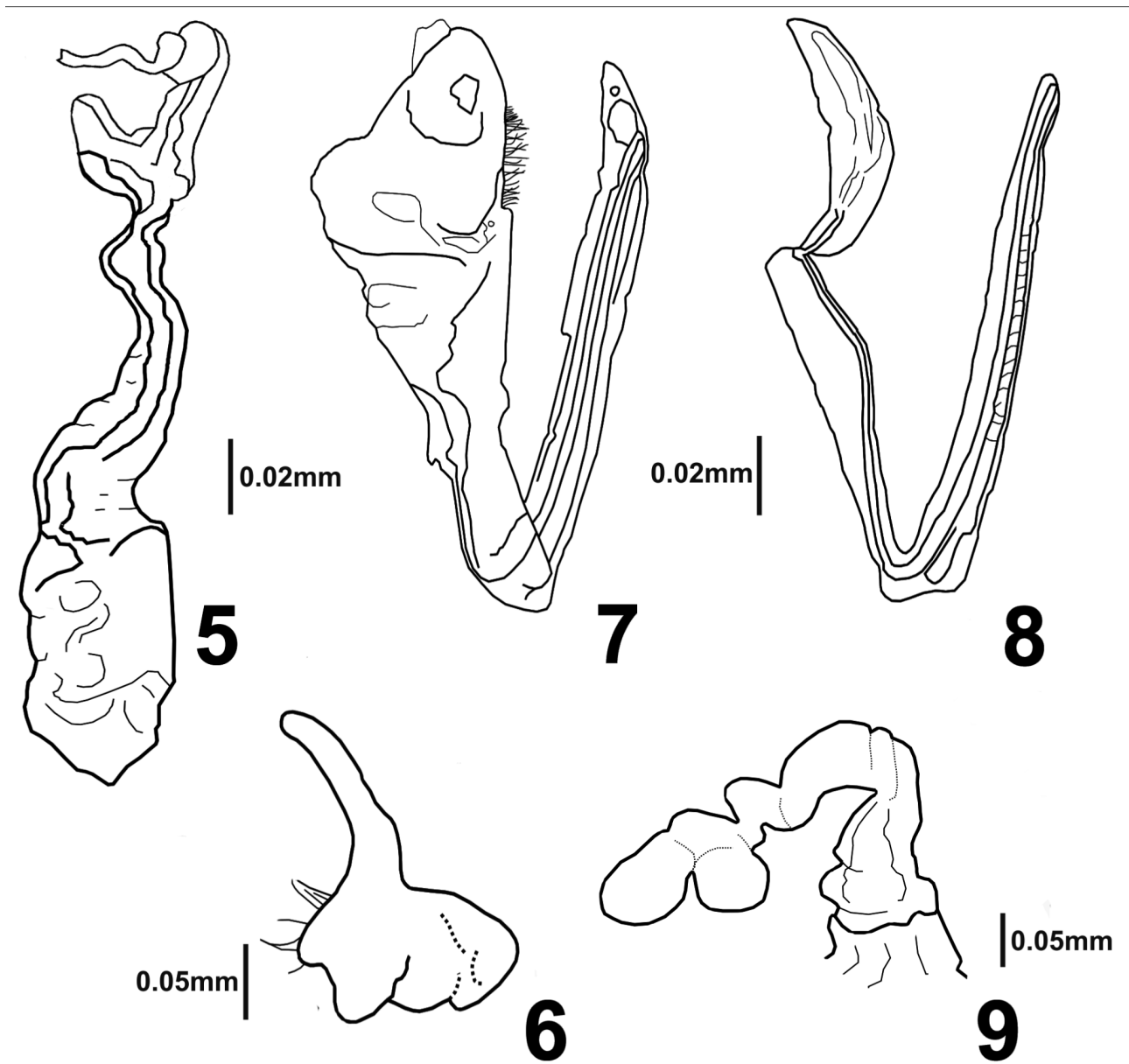
Dorsal coloration: Same color as male, except head and pronotum which generally show a greater number of light brown spots; scutellum dark brown with two clear lines on each side and at apex. Ventral coloration: similar to male, except in abdomen, which shows a clear color with dark lateral edges from third abdominal segment. Legs light brown, clear femora with dark spots, fewer than in males. Structure: same as males. Ovipositor with first ramus spanning almost entire length of first gonapophysis (Fig. 7); second gonapophysis as in Fig 8. Spermatheca (Fig. 9) saccoid, spherical bulb, duct with 3–4 turns, basal part wide.



FIGURES 1–4. *Nysius simulans* Stål: 1–2: female: 1 dorsal view, 2 ventral view; 3–4 male: 3 dorsal view, 4 ventral view.

Type specimen examined: Lectotype male, segments 3th and 4th segment of right and left antenna, second right leg and third left leg missing. “*Nysius simulans* sp. n. C. Stål 1859”, Col. Hjalmar Kinberg. Buenos Aires, 169 79, one dissected, designated here, in Riksmuseum Stockholm, NHRS-GULI 000007174.

Other specimens examined: **Argentina: Buenos Aires:** Carmen de Patagones (40°48'05.65"S 62°58'57.02"W) (1♀) III-1931, col.?, det.? (MLP), Costanera Sur (34°36'29.66"S 58°21'02.59"W) (98♂ 83♀) 2014, Carpintero col., Carpintero det. (MACN), General Madariaga (37°07'29.47"S 57°11'19.55"W) (11♂) 5-XII-1938, Birabén -Scott col. (MLP), José C. Paz (34°38'40.86"S 58°24'27.13"W) (2♂ 1♀) 1940, Rosas Castro leg. (MLP), La Plata (34°55'10.90"S 57°57'07.00"W) (1♂ 3♀) 20-VII-17, col.? det.? (MLP), (1♀) X-1938 Birabén -Scott col. (MLP), (23♂ 23♀) Bezzi col. (MLP), Mar del Plata (37°58'54.35"S 57°34'48.93"W) (9♂ 12♀) 5-XII-1938, Birabén -Scott col. (MLP), Mercedes (34°39'29.18"S 59°26'04.96"W) (1♀) 1939, Birabén -Scott col. (MLP), Miramar (38°16'03.60"S 57°50'49.34"W) (1♂) 5-XII-1938, Birabén -Scott col. (MLP), Pedro Luro (39°30'13.02"S 62°41'04.78"W) (7♂ 23♀) 8-II-1941, Birabén col. (MLP), Pehuajo (35°48'47.26"S 61°53'56.00"W) (1♂) 1928, Birabén -Scott leg. Col. (MLP), Pilar (34°27'41.25"S 58°55'46.41"W) (1♂) 16-I-1939, Birabén -Scott col. (MLP), Sierra Chica (36°49'57.09"S 60°13'13.60"W) (1♂) 3-II-1941, Birabén col. (MLP), Tandil (37°19'04.62"S 59°09'32.05"W) (3♂) 15-01-01, light trap, Dellapé col., Dellapé det. (MLP), (1♂) 2001, Dellapé col., Dellapé det. (MLP), (42♂ 30♀) febrero 2007, light trap, Dellapé col., Dellapé det. (MLP), Vicente Lopez (34°31'31.08"S 58°28'19.00"W) (1♂ 1♀) 7-V-11, Carpintero col., Carpintero det. (MACN), (1♂) 4-III-11, Carpintero col., Carpintero det. (MACN), (1♀) 18-VI-11, Carpintero col., Carpintero det. (MACN), (1♀)



FIGURES 5–9. *Nysius simulans* Stål. 5–6: male genitalia: 5 aedeagus, lateral view, 6 left paramere; 7–9: female genitalia: 7–8: ovipositor: 7 first gonapophysis, 8 second gonapophysis, 9 spermatheca.

28-V-11, Carpintero col., Carpintero det. (**MACN**), (3♂ 3♀) 15-I-11, Carpintero col., Carpintero det. (**MACN**), (57♂ 42♀) 29-XII-10, Carpintero col., Carpintero det. (**MACN**), (29♂ 31♀) 1-I-11, Carpintero col., Carpintero det. (**MACN**), (9♂ 5♀) 8-XI-11, Carpintero col., Carpintero det. (**MACN**), (4♂ 18♀) 30-XII-11, Carpintero col., Carpintero det. (**MACN**), (121♂ 83♀) 3-XII-10, Carpintero col., Carpintero det. (**MACN**), (1♂ 1♀) 19-XI-10, Carpintero col., Carpintero det. (**MACN**); **Catamarca:** Amadores (28°17'15.17"S 65°39'02.79"W) (1♀) 23-III-1938, Birabén -Scott col. (**MLP**), Belen (27°39'00.41"S 67°01'59.71"W) (2♂ 1♀) 2-III-1939, Birabén -Scott col. (**MLP**), Cuesta del Pozuelo (28°28'08.09"S 65°46'49.24"W) (1♂) 5-III-62, Torres-Ferreira col. (**MLP**), Miraflores (28°36'S 65°55'W) (2♂ 1♀) 5-III-62, Torres-Ferreira col. (**MLP**); **Chaco:** Zapallos (1♂ 1♀) 10-XI-1941, Birabén col. (**MLP**); **Chubut:** Los altares (43°53,083'S 68°24,460'W) (16♂ 16♀), 21/02/2013, g-vac, (26♂ 25♀), Sweep-net, (7♂ 9♀), 21/02/2013, light trap, M.C. Coscarón, E. Quirán, F. Diez & J.L. Pall Col., José Luis Pall det. (**MLP**), (4♂ 5♀), 01/01/2014, Sweep-net, M.C. Coscarón, F. Diez & M. Ruiz-Espindola Col., José Luis Pall det. (**MLP**), Puerto Pirámides: (42°25,858'S 64°32,813'W) (7♂ 12♀), 21/02/2013, Sweep-net, (2♂), 21/02/2013, g-vac, M.C. Coscarón, E. Quirán, F. Diez & J.L. Pall Col., José Luis Pall det. (**MLP**), Las Chapas: (43°36,495'S 66°33,089'W) (30♂ 37♀), 12/01/2014, Sweep-net, (2♂ 9♀), 12/01/2014, g-vac, M.C. Coscarón, F.

Diez & M. Ruiz-Espindola Col., José Luis Pall det. (MLP), Los Alerces: (42°51,684'S 71°37,478'W) (2♀), 22/02/2013, Sweep-net, (1♂ 2♀), 22/02/2013, g-vac, M.C. Coscarón, E. Quirán, F. Diez & J.L. Pall Col., José Luis Pall det. (MLP), Esquel: (42°57,539'S 71°23,409'W) (2♂ 3♀), 18/01/2014, Sweep-net, (2♀), 18/01/2014, g-vac, M.C. Coscarón, F. Diez & M. Ruiz-Espindola Col., José Luis Pall det. (MLP), Next to Pampa de Agnia: (43°34,961'S 70°18,930'W) (2♂ 7♀), 21/02/2013, g-vac, (12♂ 12♀), 21/02/2013, Sweep-net, (1♂), 21/02/2013, g-vac, M.C. Coscarón, E. Quirán, F. Diez & J.L. Pall Col., José Luis Pall det. (MLP), 50 Km. de Pampa de Agnia: (43°34,961'S 70°18,930'W) (2♂), 09/01/2014, g-vac, M.C. Coscarón, F. Diez & M. Ruiz-Espindola Col., José Luis Pall det. (MLP); **Córdoba:** Cabaña (31°13'02.56''S 64°21'59.84''W) (9♂ 24♀) 10-II-1941, Birabén col. (MLP), Copina (31°27'04.65''S 64°09'57.84''W) (4♂ 2♀) 14-II-1940, Birabén col. (MLP), La Granja (31°01'S 64°15'W) (23♂ 20♀) 1938, Bruch leg. Col. (MLP), La Puerta (31°10'57.92''S 64°04'59.80''W) (3♂ 1♀) 23-I-1940, Birabén col. (MLP), Mar Chiquita (30°29'24.02''S 62°43'44.02''W) (3♂ 2♀) 22-I-1940, Birabén col. (MLP), Marrul (30°59'34.47''S 62°49'33.17''W) (3♂ 10♀) 22-I-40, Birabén col. (MLP), Nono (31°45'S 64°59'W) (1♂ 1♀) 15-V-1940, Birabén col. (MLP), San Antonio de Arrendado (31°28'51.88''S 64°31'17.82''W) (3♂ 6♀) 14-II-1940, Birabén col. (MLP), San Bernardo (1♂) 14-II-1940, Birabén col. (MLP), San Fransisco (31°24'48.31''S 62°05'02.63''W) (1♂ 1♀) 21-I-1940, Birabén col. (MLP), Villa Dolores (31°56'38.08''S 65°11'28.12''W) (1♀) 16-II-1940, Birabén col. (MLP); **Entre Ríos:** Arroyo Urquiza (32°22'52.50''S 58°13'54.99''W) (6♂ 7♀) 2-XII-1941, Birabén -Bezzi col. (MLP), Colón (32°13'34.93''S 58°08'35.81''W) (3♂ 3♀) 8-XII-1941, Birabén -Bezzi col. (MLP), Concordia (31°23'39.69''S 58°02'27.91''W) (2♂ 6♀) 19-XII-1941, Birabén -Bezzi col. (MLP), El Palmar (31°51'57.38''S 58°19'28.96''W) (2♀) 2-XII-1941, Birabén -Bezzi col. (MLP), Gualaguaychú (33°00'40.02''S 58°31'10.02''W) (37♂ 35♀) 20-XI-1941, Birabén -Bezzi col. (MLP); **La Pampa:** Alta Italia (35°19'55.01''S 64°07'11.77''W) (1♂ 1♀) 26-I-1957, Torres-Ronderos col. (MLP), Casa de Piedra (38°09'27.77''S 67°03'56.14''W) (12♀) 28-11-2010, Coscarón & Pall, J.L. col., Pall J.L. det., (3♂) (30-11-2010) Coscarón & Pall, J.L. col., Pall J.L. det. (MLP), General Campos (37°27'43.01''S 63°35'18.52''W) (1♂ 4♀) 05-11-2014, Pall, J.L. col., Pall J.L. det. (MLP), Guatrache (37°40'21.51''S 63°32'05.17''W) (4♀) 04-11-2014, Pall, J.L. col., Pall J.L. det. (MLP), Lihue Calel (37°58'50.54''S 65°35'32.85''W) (6♂ 7♀) 10-05-2010, Coscarón & Pall, J.L. col., Pall J.L. det. (MLP), (1♂ 3♀) 15-04-2010, Coscarón & Pall, J.L. col., Pall J.L. det. (MLP), (1♀) 16-04-2010, Coscarón & Pall, J.L. col., Pall J.L. det. (MLP), (5♂ 4♀) 28-11-2010, Coscarón & Pall, J.L. col., Pall J.L. det. (MLP), (5♂ 7♀) 29-11-2010, Pall, J.L. & Coscarón col., Pall J.L. det. (MLP), Metileo (S35°46'36.13'' W63°56'22.41'') (2♂ 3♀) 02-12-2010, Pall, J.L. & Coscarón col., Pall J.L. det. (MLP), Parque Luro (36°54'21.28''S 64°15'10.52''W) (1♂ 2♀) 01-12-2010, Pall, J.L. & Coscarón col., Pall J.L. det. (MLP), (1♂ 2♀) 02-12-2010, Coscarón & Pall, J.L. col., Pall J.L. det. (MLP), (2♀) 04-12-2010, Coscarón & Pall, J.L. col., Pall J.L. det. (MLP), (1♀) 10-05-2009, Coscarón & Pall, J.L. col., Pall J.L. det. (MLP), Potrillo Oscuro (36°49'04.12''S 64°01'44.71''W) (1♂) 22-I-1957, Torres-Ronderos col. (MLP), Santa Isabel (S36°13'55.22'' W66°56'15.19'') (4♂ 3♀) 01-12-2010, Coscarón & Pall, J.L. col., Pall J.L. det. (MLP), Santa Rosa (S36°37'23.31'' W64°17'24.74'') (4♂ 5♀) 28-04-2010, Pall, J.L. col., Pall J.L. det. (MLP), 25 de Mayo (S37° 47' 27.95'' W67° 42' 11.52'') (1♂ 2♀) 21-04-2014, Coscarón & Pall, J.L. col., Pall J.L. det. (MLP); **La Rioja:** Azul Pampa (28°43'03.48''S 67°59'51.78''W) (1♀) 21-I-1959, Torres-Dadone col. (MLP), Las Placetas (29°28'43.98''S 69°00'38.15''W) (1♂) 27-II-1959, Torres-Gardella col. (MLP), Nonogasta (29°18'33.80''S 67°30'28.70''W) (32♂ 38♀) 21-II-1959, Torres-Gardella col. (MLP); **Misiones:** Camino gendarmería (27° 10'9.5''S 53° 59'44.2''W) (1♂ 2♀) 2-IV-2012, 354m, Dellapé col., Dellapé det. (MLP), Iguazú (25°36'01.11''S 54°34'20.85''W) (1♂) XI-1944, Birabén col. (MLP), Parque Nacional Mocona (27°08' S/ 27°11' S 53°53' W/ 053°56' W) (1♂ 2♀) 20-III-2011, 342m, Montemayor col. (MLP), San Ignacio (27°15'33.61''S 55°31'37.49''W) (1♂) 5-II-1908, col.? (MLP), (1♂ 1♀) 8-XII-1941, Birabén -Bezzi col. (MLP); **Neuquén:** Las coloradas (39°33'37.24''S 70°36'14.19''W) (1♀) 24-III-1942, Birabén col. (MLP), Sierra chalchil (2♂) 23-II-1942, Birabén col. (MLP), Next to Plottier: (39°01,539'S 68°28,304'W) (8♂ 4♀), 07/01/2014, Sweep-net, (4♂ 5♀), 07/01/2014, g-vac, M.C. Coscarón, F. Diez & M. Ruiz-Espindola Col., José Luis Pall det. (MLP), San Martín de Los Andes: (40°09,616'S 71°20,89'W) (1♂ 1♀), 09/01/2014, g-vac, M.C. Coscarón, F. Diez & M. Ruiz-Espindola Col., José Luis Pall det. (MLP), Next to Villa la Angostura: (40°36,377'S 71°42,484'W) (15♂ 16♀), 09/01/2014, Sweep-net, M.C. Coscarón, F. Diez & M. Ruiz-Espindola Col., José Luis Pall det. (MLP); **Río Negro:** Corral Chico (40°28'48.80''S 67°13'19.19''W) (2♂ 1♀) 6-II-1915, col.? (MLP), Nahuel Huapi (41°06'00.58''S 71°18'55.90''W); (1♂ 1♀) II-III-1938, Birabén -Scott col. (MLP), Río Colorado (38°59'37.29''S 64°05'40.97''W) (1♂) 6-II-1938, Birabén -Scott col. (MLP), Next to San Antonio Oeste: (40°41,266'S

64°57,103'W) (3♂ 5♀), 12/01/2014, g-vac, (26♂ 25♀), Sweep-net, (3♂ 1♀), 12/01/2014, g-vac, M.C. Coscarón, F. Diez & M. Ruiz-Espindola Col., José Luis Pall det. (MLP), Next to Sierra Grande: (41°20,592'S 65°22,035' W) (34♂ 19♀), 11/01/2014, Sweep-net, g-vac, (2♂), M.C. Coscarón, F. Diez & M. Ruiz-Espindola Col., José Luis Pall det. (MLP), Next to General Conesa: (40°04,681'S 64°28,706'W) (3♂), 18/02/2013, Sweep-net, M.C. Coscarón, E. Quirán, F. Diez & J.L. Pall Col., José Luis Pall det. (MLP), Río Colorado: (38°50'S 64°16,57'W) (3♂ 4♀), 13/01/2014, Sweep-net, (1♂), 13/01/2014, g-vac, M.C. Coscarón, F. Diez & M. Ruiz-Espindola Col., José Luis Pall det. (MLP), Next to Bolsón: (41°36,853'S 71°28,032'W) (2♂ 2♀), 09/01/2014, Sweep-net, M.C. Coscarón, F. Diez & M. Ruiz-Espindola Col., José Luis Pall det. (MLP), next to Bariloche: (41°02,140'S 71°16,219'W) (7♀), 09/01/2014, g-vac M.C. Coscarón, F. Diez & M. Ruiz-Espindola Col., José Luis Pall det. (MLP); **Salta:** Cafayate (26°04'07.11''S 65°57'31.56''W) II 1952, L.E. Peña Col. S. Amer. (AMNH); Juramento (25°08'04.61''S 64°59'52.34''W) (1♂) 14-III-1939, Birabén -Scott col. (MLP), Tomolon (1♂ 1♀) 7-III-1939, Birabén -Scott col. (MLP); **San Juan:** Villa Aberastian (31°39'05.92''S 68°34'40.65''W) (1♀) 22-I-1964, Torres-Ferreiras col. (MLP); **San Luis:** Nogali (39°17'36.65''S 66°18'18.93''W) (33♂ 11♀) 21-II-1940, Birabén col. (MLP), San Francisco (31°25'39.61''S 62°05'17.43''W) (2♂) 20-II-1940, Birabén col. (MLP); **Santa Fe:** Reconquista (29°13'07.26''S 59°55'59.11''W) (2♂ 4♀) 26-XI-1939, Birabén -Bezzi col. (MLP); **Santiago del Estero:** Giradet (27°37'00.21''S 62°09'54.92''W) (11♂ 3♀) 9-XII-1939, Birabén-Bezzi col. (MLP), Quimillín (27°38'43.62''S 62°24'53.24''W) (6♂ 13♀) 9-XII-1939, Birabén -Bezzi col. (MLP); **Tucumán:** Tañi Viejo (26°43'54.54''S 65°15'48.76''W) (1♀) 16-III-1939, Birabén -Bezzi col. (MLP). (Map 1).

Material examined by photographs only: Argentina: Buenos Aires: Buenos Aires (1♂ 6♀) (1820-1908), Hjalmar Kinberg col. (NRM), Buenos Aires (3♂ 2♀) 1911-383, Distant col. (BMNH).

Distribution in Argentina: Buenos Aires; Catamarca; Chaco; Chubut; Córdoba; Corrientes; Entre Ríos; La Pampa; La Rioja; Mendoza; Misiones; Neuquén; Río Negro; Salta; San Juan; San Luis; Santa Fe; Santiago del Estero; Tucumán.

New records in Argentina: Chubut: Esquel, Las Chapas, Los alerces, Los altares, next to Pampa de Agnia, Puerto Pirámides; **La Pampa:** Casa de Piedra, General Campos, Guatrache, Lihue Calel, Metileo, Santa Isabel, Santa Rosa and 25 de Mayo; **Neuquén:** Next to Plottier, Next to Villa la Angostura, San Martín de Los Andes; **Río Negro:** next to Bariloche, Next to Bolsón, Next to General Conesa, Next to San Antonio Oeste, Next to Sierra Grande, Río Colorado.

Nysius irroratus (Spinola)

(Figs. 10–18, 20)

Heterogaster irroratus Spinola, 1852: 154–155.

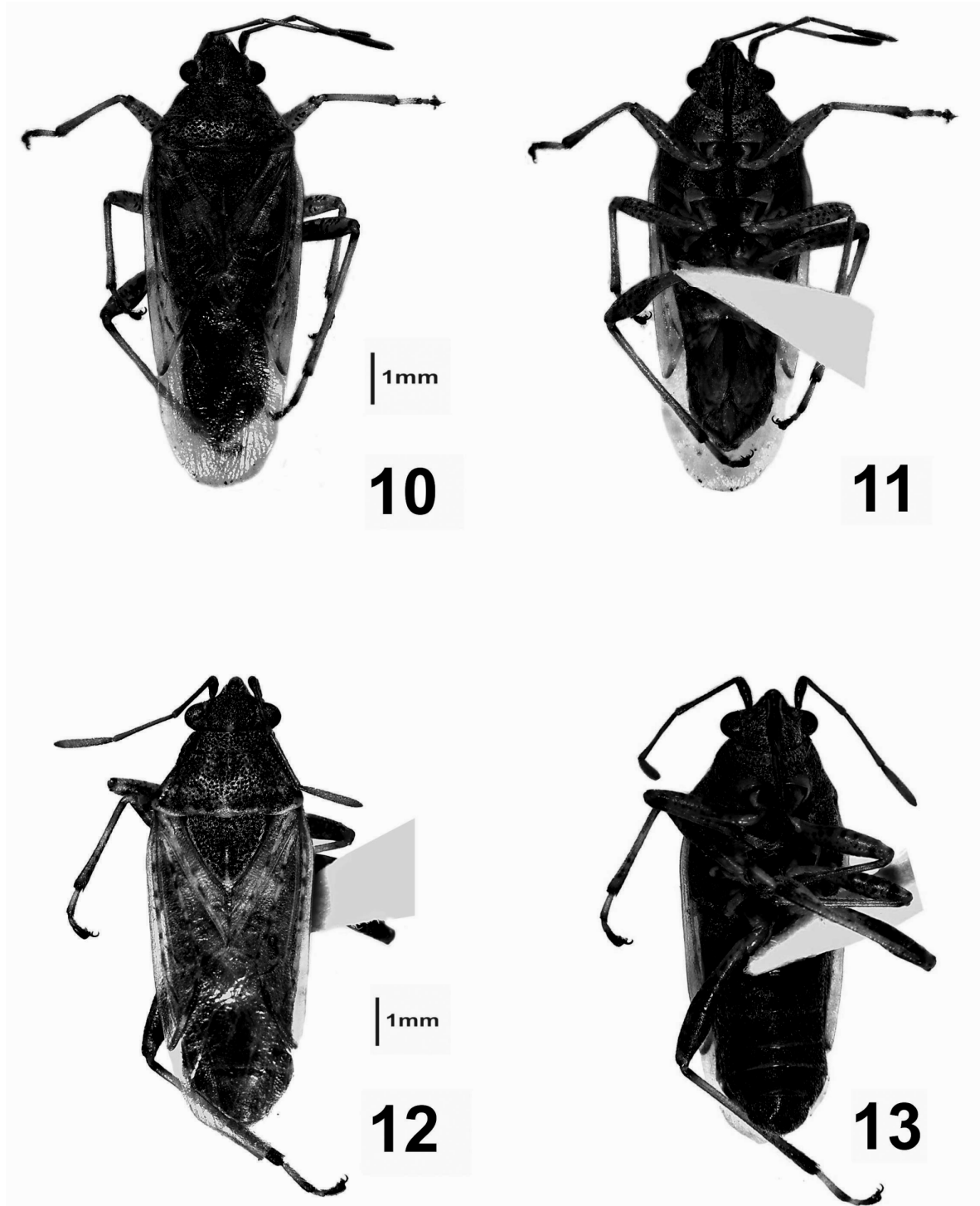
Nysius irroratus: Berg 1895: 198. Pennington 1921: 18. Slater 1964: 284. Berg 1896: 132.

Nysius irroratus var. *melancholicus* Breddin, 1897: 5.

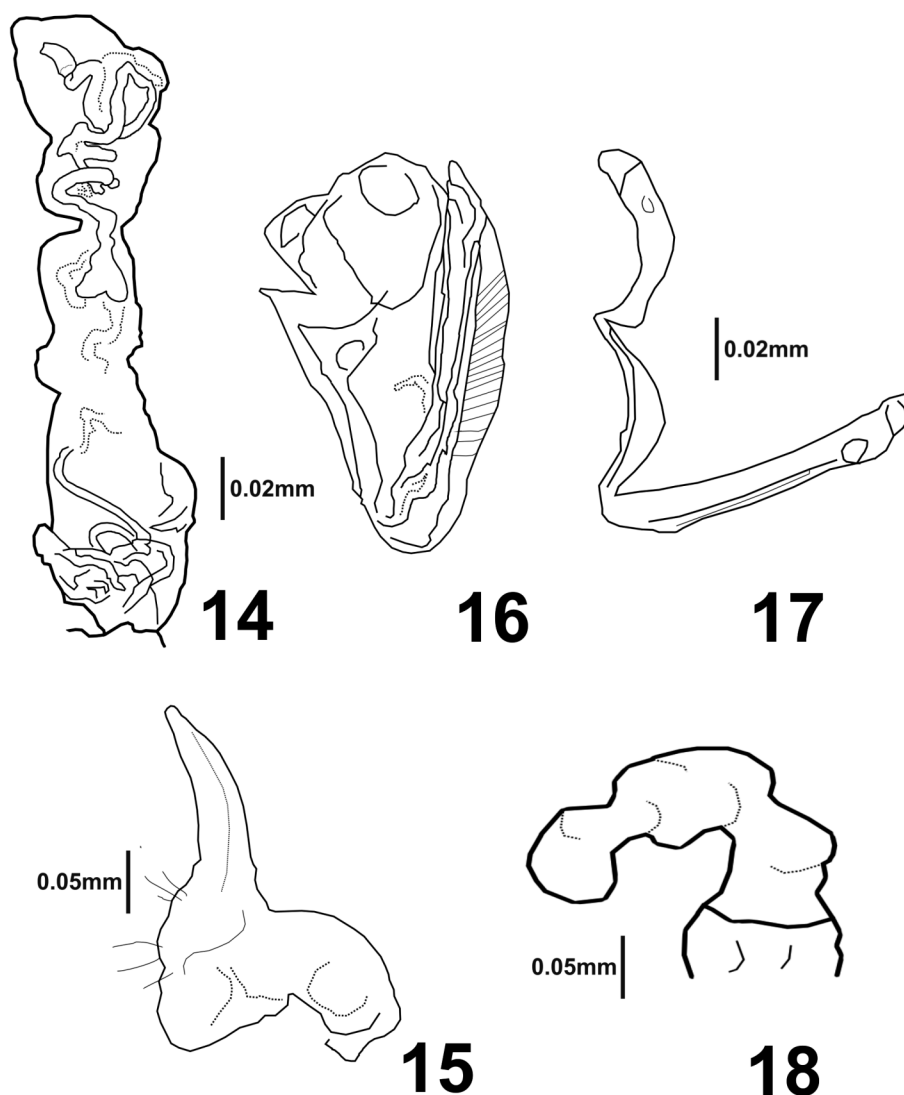
Redescription. Male. (Figs. 10, 11) n = 10. Total length: 4.1–4.7 (mean: 4.4); head length: 0.4–0.6 (mean: 0.5); head width: 1; eye width: 0.2–0.25 (mean: 0.22); interocular space: 0.5–0.6 (mean: 0.8); rostrum: I 0.25–0.62 (mean: 0.43), II 0.52–0.57 (mean: 0.54), III 0.52, IV --; antennal segments: I 0.25–0.32 (mean: 0.28), II 0.5–0.62 (mean: 0.56), III 0.3–0.42 (mean: 0.36), IV 0.5–0.62 (mean: 0.56); pronotum length: 0.65–0.75 (mean: 0.7); pronotum width: 1.25–1.32 (mean: 1.28); scutellum length: 0.55–0.65 (mean: 0.6); scutellum width: 0.67–0.82 (mean: 0.74); abdomen with hemelytra length: 2.25–3 (mean: 2.62); abdomen without hemelytra length: 1.95–2.75 (mean: 2.35); abdominal width: 0.95–1.25 (mean: 1.1).

Dorsal coloration: Head dark brown to black, hairy, with abundant dark score, with a light colored midline extending from base of head to apex of clypeus; compound eyes dark-reddish; ocelli reddish with dark base; antennal segment I shorter than other ones, dark colored with clear scores; antennal segment I shorter than other, dark with clear internal apical region, segment III shorter segments II and IV, II and IV segments of similar size, all segments of dark color. Pronotum dark brown to black, hairy, with dark spots; the apical ends have dark color, like the trailing edge which has dark spots in middle region and external apices; it has two dark lines in distal region, just behind head near edge. Scutellum dark, with black scores and hairiness, has two small light spots at both ends, in the middle region. Corium and clavus light with dark brown spots. Hemelytra clear, dark and light in the veins and the apical end spots. Connexival segments dark brown with hairiness. Ventral coloration: dark color; dark head

hairy. First segment of prosternum light brown, hairy; abdomen dark; legs, coxa and trochanter light-colored, femora light with dark spots uniformly distributed, in some cases entirely covering the femur. Structure: ocelli located on two small lobes; antennae of moderate length, first segment exceeding head by 1/3 to 1/2 its length, slightly outcurved, distinctly thicker than second and third which are slender, fourth club-like about as thick as first; pronotum rectangular, with slightly elevated apical ends, straight trailing edge; scutellum triangular. Smooth legs, femurs thicker than other limbs. Hemelytra reaching apical end of the abdomen; Aedeagus (Fig. 14) with phallosome moderately pigmented wide, tubular, membranous, conjunctiva no constrictions, vesical sclerotized, vesical basal lobes indistinctly inside bladder ejaculatory duct with 3–5 turns. Paramere (Fig. 15) slightly curved, short and wide, with dorsal flange and ventral lobe little prominent, latter with villous at base.



FIGURES 10–13. *Nysius irroratus* (Spinola): 10–11: female: 10 dorsal view, 11 ventral view; 12–13 male: 12 dorsal view, 13 ventral view.



FIGURES 14–18. 14–15: *Nysius irroratus* (Spinola): male genitalia: 14 aedeagus, lateral view, 15 left paramere; 16–18: female genitalia: 16–17: ovipositor: 16 first gonapophysis, 17 second gonapophysis, 18 spermatheca.

Female. (Figs. 12, 13) $n = 10$. Total length: 4–5 (mean: 4.5); head length: 0.45–0.6 (mean: 0.75); head width: 0.9–1.05 (mean: 0.97); eye width: 0.15–0.2 (mean: 0.17); interocular space: 0.45–0.6 (mean: 0.52); rostrum: I 0.25–0.47 (mean: 0.36), II 0.45–0.58 (mean: 0.51), III 0.37–0.4 (mean: 0.38), IV 0.42; antennal segments: I 0.22, II 0.45–0.65 (mean: 0.55), III 0.32–0.4 (mean: 0.36), IV 0.47–0.62 (mean: 0.54); pronotum length: 0.67–0.87 (mean: 0.77); pronotum width: 1.27–1.47 (mean: 1.37); scutellum length: 0.55–0.65 (mean: 0.6); scutellum width: 0.75–0.92 (mean: 0.83); abdomen without hemelytra length: 1.62–3.25 (mean: 2.43); abdomen without hemelytra length: 2.25–3 (mean: 2.62); abdominal width: 1–1.15 (mean: 1.07).

Dorsal coloration: Same color as male. Ventral coloration: similar to male, except in abdomen, this shows a clear color with dark lateral edges from third abdominal segment. Legs light brown, clear femora with dark spots, fewer than in males. Structure: same as males. Ovipositor with first branch spanning almost entire length of first gonapophysis (Fig. 16); second gonapophysis as in Figure 17. spermatheca (Fig. 18) saccoid, with spherical bulb, duct with turns, basal part moderately broad.

Type specimen examined: No type specimen was available for examination.

Other specimens examined: Argentina: Chubut: Esquel: (42°57,539'S 71°23,409'W) (6♂ 12♀), 18/01/2014, Sweep-net, (2♀), M.C. Coscarón, F. Diez & M. Ruiz-Espindola Col., José Luis Pall det. (MLP); Next to Pampa de Agnia: (43°34,961'S 70°18,930'W) (2♂), 21/02/2013, Sweep-net, M.C. Coscarón, E. Quirán, F. Diez & J.L. Pall Col., José Luis Pall det. (MLP), 50 Km. de Pampa de Agnia: (43°34,961'S 70°18,930'W) (12♂), 09/01/

2014, g-vac, M.C. Coscarón, F. Diez & M. Ruiz-Espindola Col., José Luis Pall det. (MLP). **La Pampa:** riverside De La Barda River Prox. Algarrobo del Águila (1Km) (36°24'S 67°08'W) (19♂ 11♀), Sweep-net, F. Diez Col., José Luis Pall det. (MLP), Puelches (38°08'S 65°54'W) (1♀) 28-11-2010, Coscarón & Pall, J.L. col., Pall J.L. det. (MLP). **Neuquén:** San Martín de Los Andes: (40°09,616'S 71°20,89'W) (10♂ 10♀), 09/01/2014, g-vac, M.C. Coscarón, F. Diez & M. Ruiz-Espindola Col., José Luis Pall det. (MLP), Next to Villa la Angostura: (40°36,377'S 71°42,484'W) (91♂ 99♀), 09/01/2014, Sweep-net, M.C. Coscarón, F. Diez & M. Ruiz-Espindola Col., José Luis Pall det. (MLP). **Río Negro:** Next to El Bolsón: (41°36,853'S 71°28,032'W) (12♂ 16♀), 09/01/2014, Sweep-net, M.C. Coscarón, F. Diez & M. Ruiz-Espindola Col., José Luis Pall det. (MLP), next to Bariloche: (41°02,140'S 71°16,219'W) (7♀), 09/01/2014, g-vac M.C. Coscarón, F. Diez & M. Ruiz-Espindola Col., José Luis Pall det. (MLP).

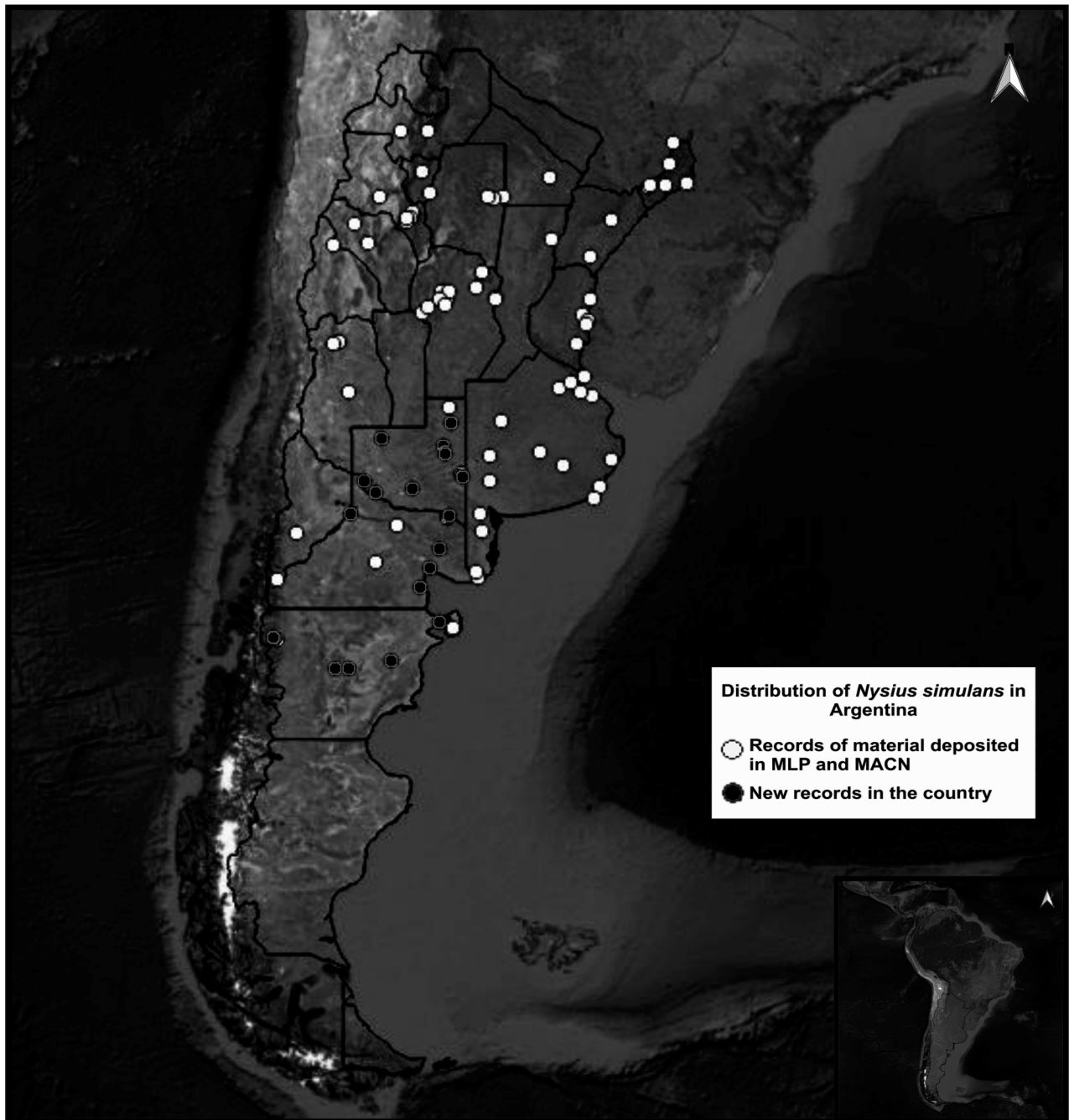


FIGURE 19. Distribution of species *Nysius simulans* Stål in Argentina: white spot: records of material examined; yellow spot: new records in the country (2015).

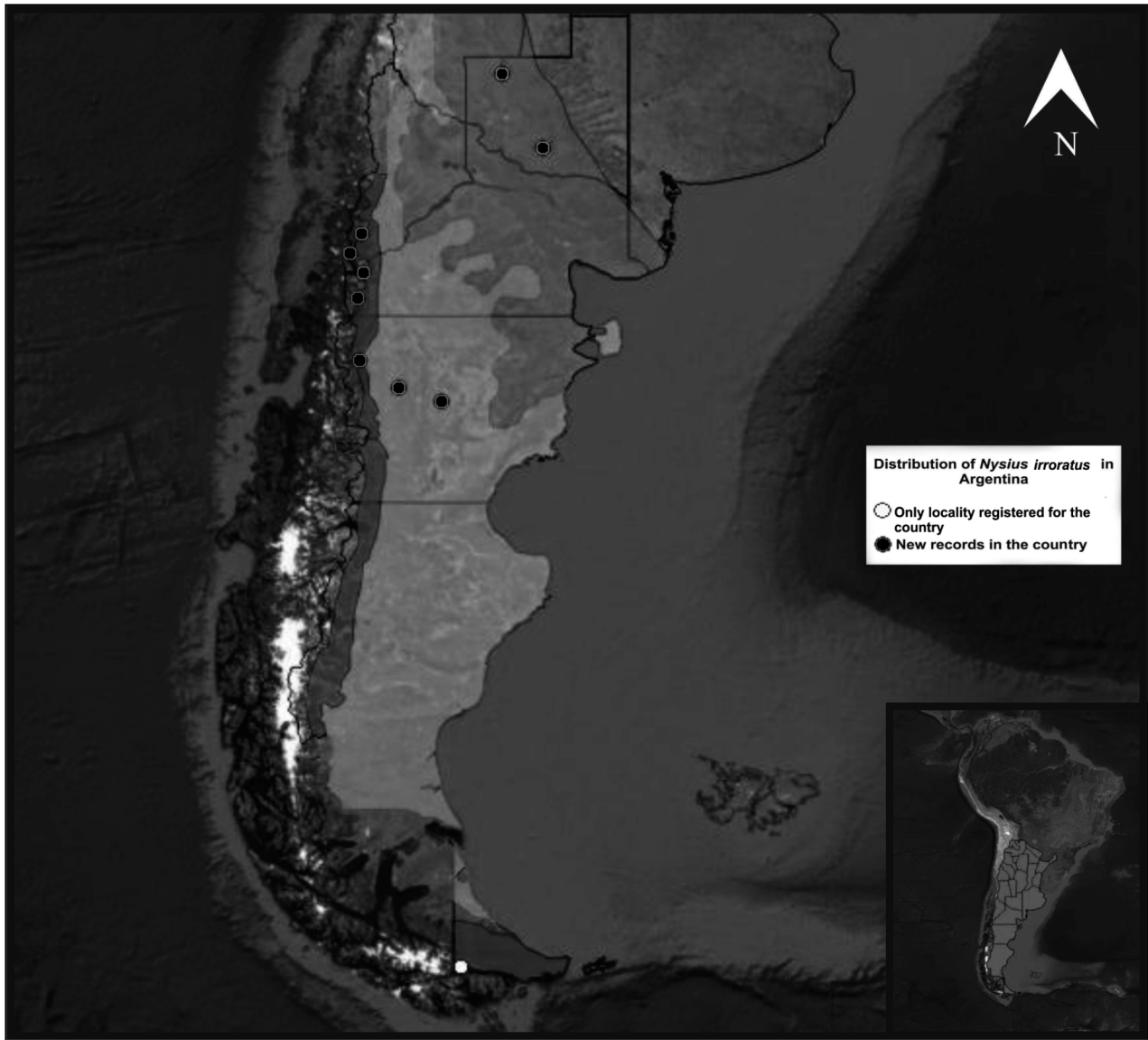


FIGURE 20. Distribution of species *Nysius irroratus* (Spinola) in Argentina: white spot: only locality registered from the country; yellow spot: new records in the country (2015).

Material examined by photographs only: Cubillo, Cord. Cnrico, Chile, (Oct. 1960). L.E. Peña. Donation from J.A. Slater Collection. *Nysius irroratus* (Spin.) J.A. Slater det. (AMNH). *Nysius irroratus* (Spin.), slättmark, NHRS-Guli 000029428 (NRM).

Distribution in Argentina: Chubut; La Pampa; Neuquén; Río Negro; Tierra del Fuego.

New records in Argentina: **Chubut:** Esquel, Next to Pampa de Agnia, 50 Km. de Pampa de Agnia; **La Pampa:** Algarrobo del Aguila, Puelches; **Neuquén:** San Martín de Los Andes, Next to Villa la Angostura; **Río Negro:** Next to El Bolsón, next to Bariloche.

Key to species of genus *Nysius* Dallas in Argentina

(Modified Dellapé, 2014)

- 1a. Hemelytron with a distinct row of punctures on either side of claval suture; buccula usually punctate *Balionysius* Ashlock & *Xyonysius* Ashlock and Lattin
- 1b. Hemelytron without a complete row of punctures on either side of claval suture; buccula impunctate *Nysius* Dallas (2)
- 2a. Length of body less than 2.5 mm; [pronotum wide, dark; gray pubescence covering almost all organs; corium with margins black] *N. puberulus* (Berg)

- 2b. Length of body greater than 2.5 mm(3)
- 3a. Length less than 4 mm; antennal segments II, III and IV of equal size; tibiae light brown, smooth; female abdomen rectangular ending V-shaped; thorax with two light spots on each posterior angle of pronotum; faint dark specks on veins, corium and clavus hyaline, with irregular dark spots; aedeagus with ejaculatory reservoir inside vesica with 2–4 turns; paramere slightly curved with dorsal flange more prominent than ventral lobe *N. simulans* (Stål) (Figs. 1–9)
- 3b. Length greater than 4 mm; antennal segment III shorter than segments II and IV; tibiae light brown, with dark specks; female abdomen round, ending in a U-shape; thorax with two dark spots on each posterior angle of pronotum; abundant dark specks on hemelytra; aedeagus with ejaculatory duct inside vesica with 3–5 turns; paramere slightly curved, short and wide, with dorsal flange less prominent than ventral lobe *N. irroratus* (Spinola) (Figs. 10–18)

Discussion

The genera *Balionysius* Ashlock & *Xyonysius* Ashlock and Lattin are distributed in Argentina, and are close to genus *Nysius*, but differ from the latter by having the hemelytron with a distinct row of punctures on either side of claval suture and buccula punctate (Dellapé 2014).

Of the three species in Argentina, only two could be examined in the present study: *Nysius simulans* and *N. irroratus*, but the species *N. puberulus* could not be examined because there are no specimens available in the museums or could not be obtained by sampling in the surveys, for that reason the key is generated with characteristics obtained from the original description by Berg (1895). Berg (1895) cites *N. irroratus* and *N. puberulus* from Argentina in his work "Hemípteros de la Tierra del Fuego".

This contribution is the first of its kind on *Nysius* in Argentina, where it is likely there exist more species of this complex genus that are undescribed or are poorly studied.

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