

# Three new species of Corixidae from Colombia (Heteroptera)

NICO NIESER & DORA N. PADILLA GIL

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*Abstract:* *Neosigara aristera* nov. spec., *N. sterea* nov. spec. and *Orocorixa* nov. gen. *makrocheira* nov. spec. from Cundinamarca province in Colombia are described and a key to males of the four species of the genus *Neosigara* is presented.

N. Nieser, Hertog Eduardstr. 16, 4001 RG Tiel.  
D. N. Padilla Gil, Carrera 34 B N. 1A 77, Bogotá, Colombia.

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## Introduction

Working on a survey of waterbugs in the Bogotá region of Colombia, the junior author collected, apart from two species known to occur in the area, the new species of Corixidae described below. Two of the new species are to be placed in the genus *Neosigara* Lundblad. The third species cannot be satisfactorily placed in any known genus, so a new genus *Orocorixa* is proposed for it.

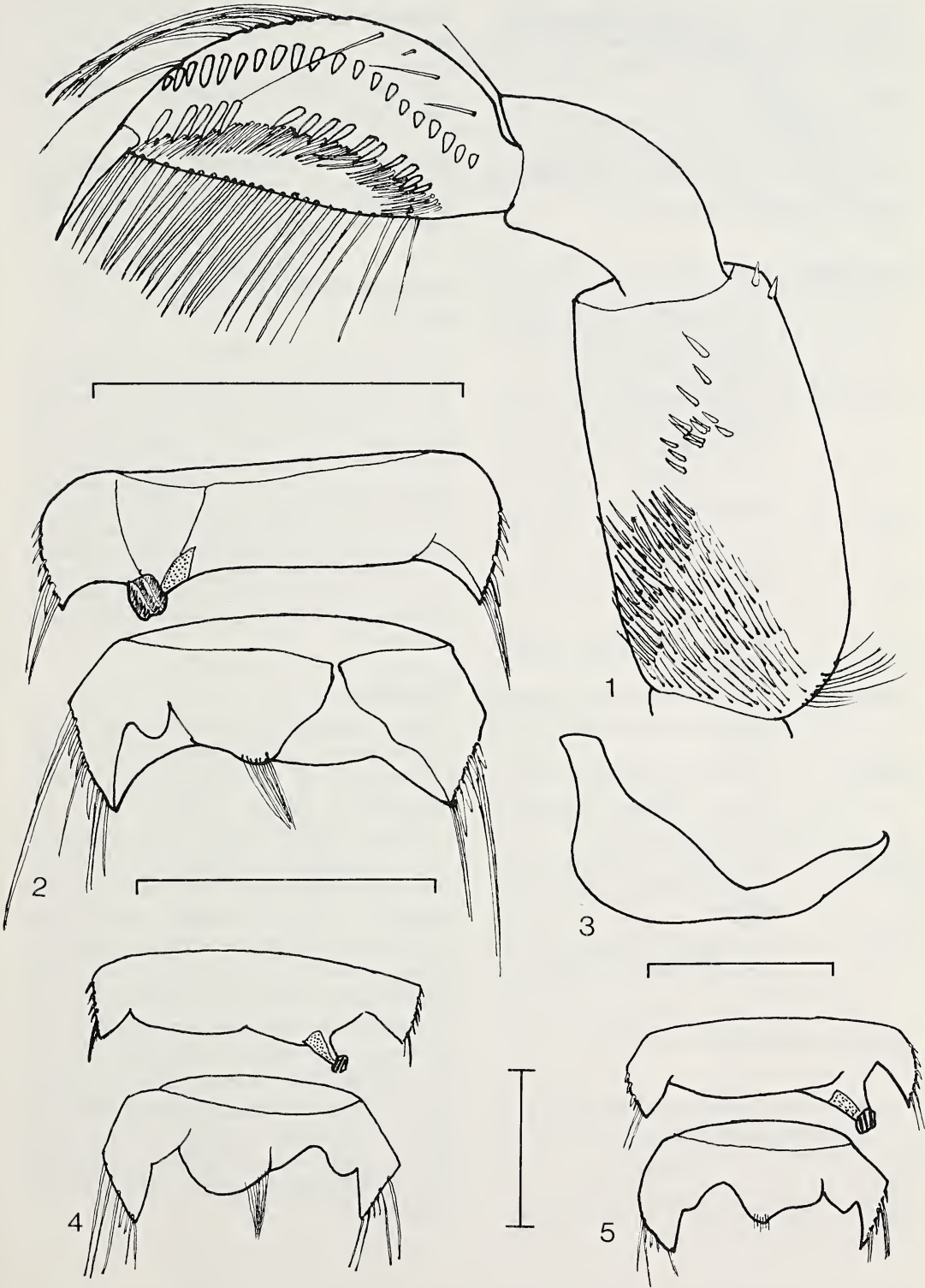
Lundblad (1928) erected the genus *Neosigara* to accommodate his *N. columbiensis*. Hungerford (1948) described another species, *N. murilloi* also from Colombia, and considered *Sigara griffini* (Kirkaldy) from Perú and Ecuador also to belong to this genus. Species of *Neosigara* are quite rare in collections, which in this case may reflect principally poor collecting in the areas where the species occur. The genus can be diagnosed as: rather small (5½-7 mm long), quite broad and compact moderately rastrate but shining Corixini. Pruinose area on corial side of claval suture long. Interocular space broader than an eye. Lateral lobe of prothorax elongate, obliquely truncate with anterior distal angle distinct. Metaxiphus at least as long as broad, bluntly rounded at

tip. Male pala with two rows of pegs of which the lower one, which consist of quite elongate pegs, is near the upper margin of the palm and distinctly interrupted about midway. The original description by Lundblad (1928) states that in males a strigil is present and abdominal asymmetry is dextral. These characters, however, do not hold for all species attributed to *Neosigara* at present.

Specimens have been collected in the Cundinamarca province of Colombia. The locality Sumapaz refers to the Parque Nacional Natural de Sumapaz, at an altitude of 3450-3750 m. This essentially is a pleistocene region, with an acid soil. Climate is characterized by high fluctuations in daily temperature and a unimodal seasonal precipitation with heavy rainfall in October and November. Temperatures fluctuate from a maximum of 19° C at an altitude of 1500 m to a minimum of 2° C at 4300 m. There are many small and shallow lakes (laguna) in the area. The cold water is soft, acid and oligotrophic. The lakes are usually bordered by an abundant floating vegetation of *Callitriche* sp. and *Ranunculus* sp. The lakes lie in a "páramo"-vegetation, characterized by

Figs. 1-3. Male paratype of *Neosigara aristera* nov. spec. 1, foreleg (scale 0.5 mm); 2, abdominal segments VI and VII in dorsal view (scale 1 mm); 3, right paramere (scale 0.25 mm).

Figs. 4-5. Abdominal segments six and seven of male *Neosigara*, dorsal view. 4, *N. columbiensis*; 5, *N. murilloi* (scale 1 mm).



*Espeletia* spp., *Calamagrostis effusa* Steud., *Sphagnum* spp., *Puya goudotiana* Mez., *Swal-lenchloa tessellata* Mc Clure (Anonymus, 1986).

Measurements are given in mm and represent the range or the (arithmetic) average of 5 randomly chosen specimens. The width of head is measured across the eyes.

### Depositories

ICN	Instituto de Ciencias Naturales, Universidad Nacional, Bogotá, Colombia.
INDERENA	Unidad Investigativa Federico Medem del INDERENA (Instituto Nacional de los Recursos Naturales renovables y del Ambiente).
JTPC	J.T. Polhemus collections, Englewood Co., U.S.A.
NC	Nieser collections, Tiel, The Netherlands.
PC	Padilla collections, Bogotá, Colombia.
RMNH	National Museum of Natural History, Leiden, The Netherlands.
SNOW	Snow Entomological Collections, Kansas University, Lawrence, U.S.A.
ZMA	Institute of Taxonomic Zoology, Amsterdam, The Netherlands.
ZMH	Zoological Museum, University of Helsinki, Finland.

### *Neosigara columbiensis* Lundblad (fig. 4)

*Neosigara columbiensis* Lundblad, 1928: 222-228, figs. 5-8; Hungerford, 1948: 432-433, pl. 6 fig. 34, pl. 69 fig. 2.

*Material examined.* – COLOMBIA: Cundinamarca, la Florida, 12.v.1990, leg N. Padilla, 1 ♂ (NC), 1 ♂ (PC).

### *Neosigara murilloi* Hungerford (fig. 5)

*Neosigara murilloi* Hungerford, 1948: 433-434, pl. 69 fig. 1.

*Material examined.* – COLOMBIA: Cundinamarca, La Calera, parque, 30.ix.1989, leg N. Padilla, 2 ♂ 6 ♀ (NC), 1 ♂ 1 ♀ (PC); Laguna de Suesca, 10.iii.1990, leg N. Padilla, 2 ♂ (NC), 2 ♂ 2 ♀ (PC).

### *Neosigara aristera* nov. spec. (figs. 1-3)

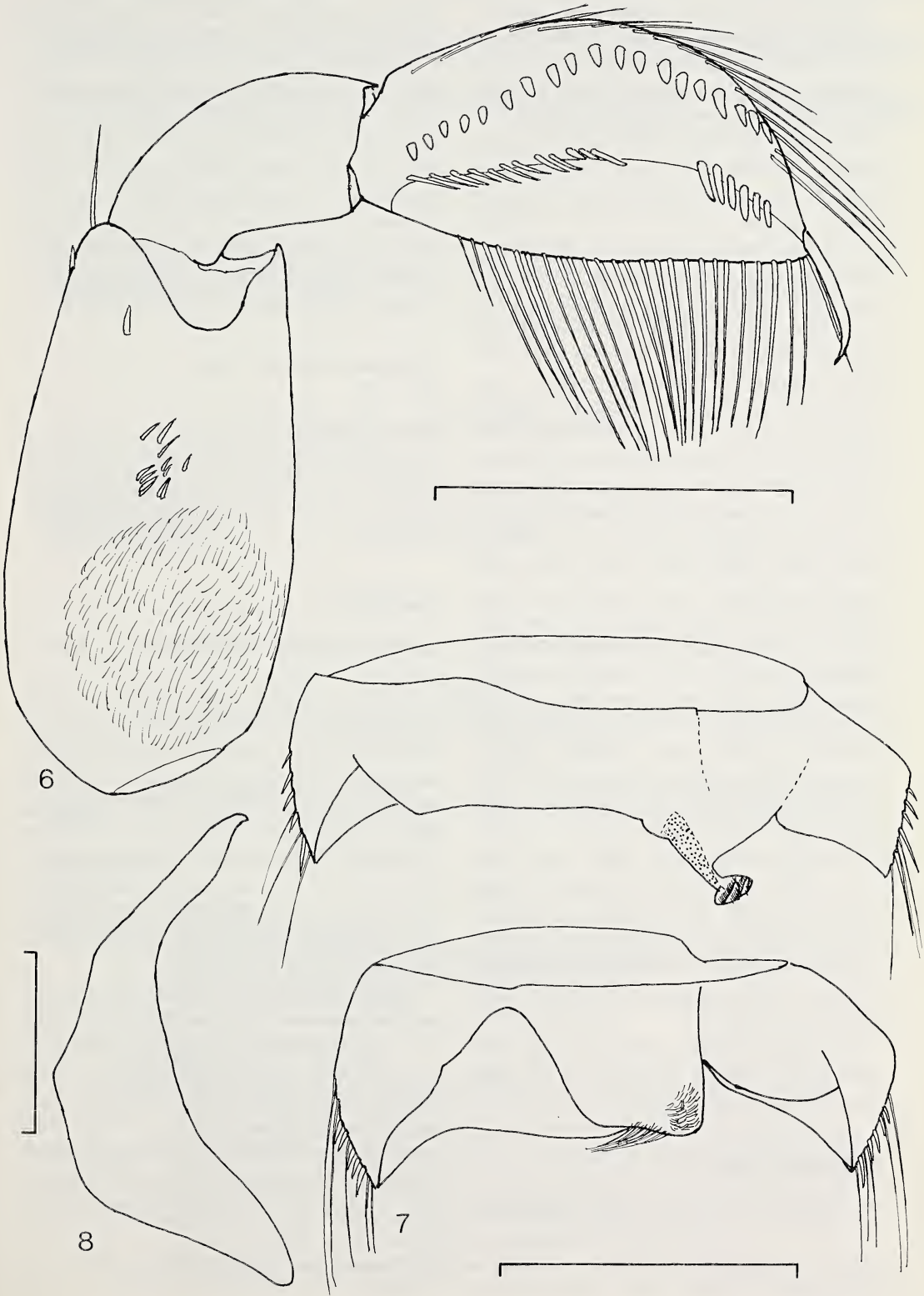
*Material examined.* – COLOMBIA: Cundinamarca, Sumapaz, Laguna Larga, 22.vii.1990, leg D. Padilla, holotype ♂, allotype ♀ ZMA, 19 ♂ 48 ♀ paratypes, all brachypterous; Sumapaz, Laguna Larga, 1.iv.1990, leg D. Padilla, 20 ♂, brach.; 2 ♂ 1 ♀ (NC), 1 ♂ (PC), macropterous; Laguna Negra, 1.iv.1990, leg D. Padilla, 30 ♂ 10 ♀ brach.; Sumapaz, Laguna Páramo de Chisacá, 28.x.1989, leg D. Padilla 9 ♂ brach.; Sumapaz, Laguna Páramo de Chisacá, 22.vii.1990, leg D. Padilla, 10 ♂ brach.; Cundinamarca, Parque Nacional Chinquaza, Laguna seca, 10.x.1990; leg D. Padilla, 15 ♂ brach. Paratypes have been divided between NC, INDERENA, ICN and PC, while small series have been presented to remaining institutions mentioned in introduction.

### Description

Length: brachypterous ♂ 4.5-4.8, ♀ 4.8-5.0; macropterous ♂ 5.3-5.4, ♀ 6.0. Width of head: brachypterous ♂ 1.55-1.60, ♀ 1.65-1.75; macropterous ♂ 1.78-1.85, ♀ 1.98.

Colour. Variable, dark brown (macropterous) to light brown (brachypterous). Pronotum with about eight thin transverse dark bands, of which the posterior ones may be fragmented. Hemelytra with dark transverse bands, somewhat narrower than alternating lighter bands, quite regular at base of clavus, vermiculate in remainder. In macropterous specimens this pattern is indistinct due to general dark colour. Border of membrane and corium with a pale transverse band. Head and legs pale, abdomen light in brachypterous, dark in macropterous specimens, abdominal venter in brachypterous males darker than in females.





Structural characters. Head three times as wide as its median length. Synthlipsis subequal to wider than the posterior width of an eye and about two thirds the width of head. Anterior interocular width about half the width of head. Vertex evenly rounded. Male fovea small and shallow, reaching lower part of eyes, with sparse pubescence. Pronotum about 1.5 times as wide as long, laterally truncate in macropterous and broadly rounded in brachypterous specimens. Median carina absent, caudal apex obtusely rounded. Pronotum, clavus and base of corium rugulose, remainder of hemielytra smooth. Pruinose area along claval suture subequal in length to postnodal pruinose area. Lateral lobe of pronotum truncate. Anterior angle more distinct than posterior angle. Metaxiphus about as long as broad, apex obtuse. Femur of fore leg of male (fig. 1), with a basal patch of hairs and a row of small spines from hair patch to apicodorsal angle. Tibia without dorsal carina. Pala evenly curved with 12-14 long setae dorsally, lower palmar row with about 25 bristles. Upper peg row of male pala slightly dorsally of middle width about 20 pegs. Lower peg row with about 16 pegs, situated at upper edge of palm with interruption in middle. Distal margin of ventroproximal pubescent area of hind femur reaching halfway, smoothly curved, glabrous portion with 15-25 spinules. Relative length of leg segments: middle leg femur : tibia : tarsus : claw = 1 : 0.49 : 0.37 : 0.40; hind leg femur : tibia : tars 1 : tars 2 = 1 : 0.96 : 1.14 : 0.57. Asymmetry of male abdomen sinistral, median lobe of seventh abdominal tergite with a broad caudal flap (fig. 2). Strigil small with 3 combs, placed at the end of a short stalk pointing to the left. Right paramere as in fig. 3.

Etymology: *aristeros* (Gr: left, at left side) refers to the sinistral symmetry of the male abdomen.

### Comparative notes

Very similar to *N. murilloi*, apart from having

sinistral asymmetry. Males of *N. murilloi* differ in having the strigil attached to a longer flap-like extension of the 6th tergite, the median lobe of the 7th tergite more bilobate and its apical tuft of hairs much less obvious (fig. 5). *N. murilloi* in both sexes only has a few spinules on the ventral glabrous portion of the hind femur. *N. columbiensis* which is also dextral has the median lobe of the 7th male tergite more rounded (fig. 4). *N. griffini* which is usually sinistral, lacks a strigil and has a broader apical part of the right paramere.

### *Neosigara sterea* nov. spec.

(figs. 6-8)

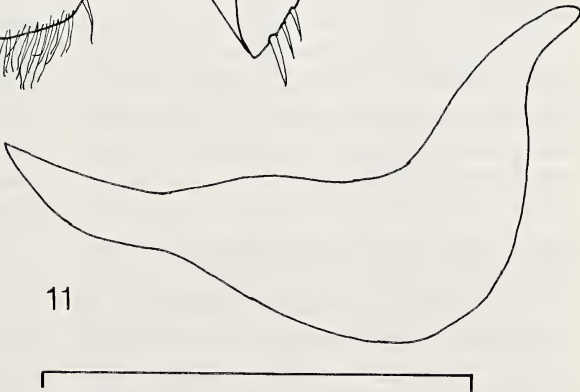
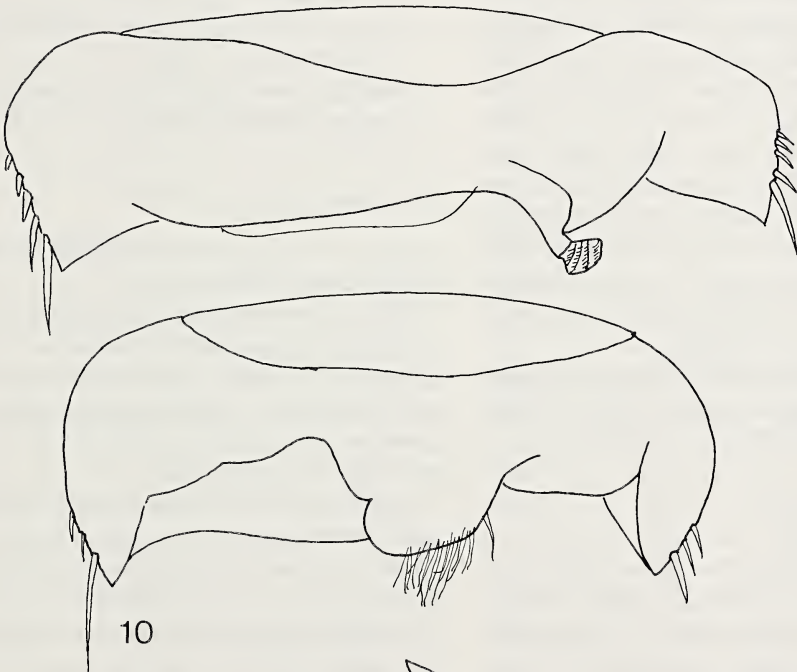
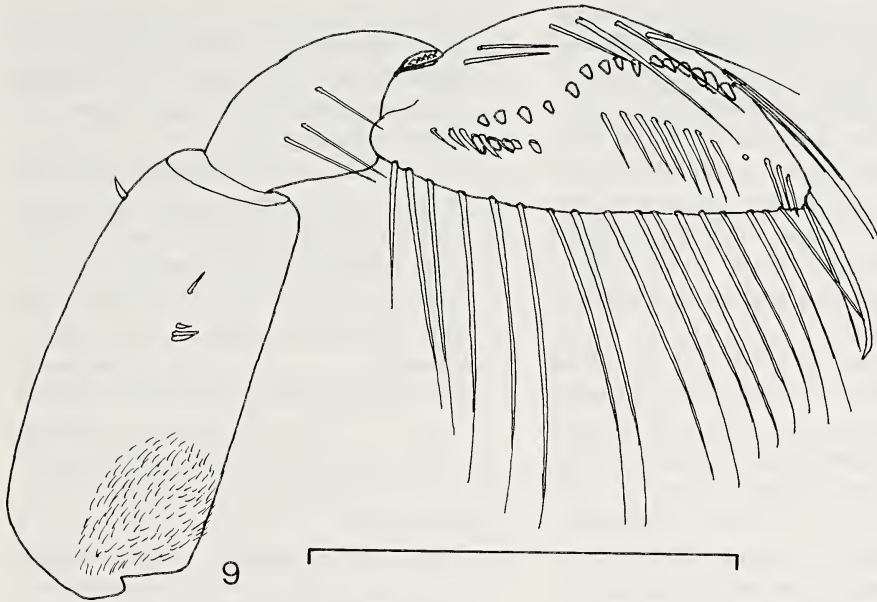
*Material examined.* – COLOMBIA: Cundinamarca, Parque Nacional Natural Sumapaz, Laguna del Páramo de Chisacá, 11.xi.1990, leg D.N. Padilla, holotype ♂, allotype ♀ ZMA, 9 ♂ 8 ♀ paratypes, all macropterous. Paratypes have been divided between NC, INDERENA, ICN and PC.

### Description

Length ♂ 6.1-6.4, ♀ 6.5-6.9; width of head ♂ 2.0-2.2, ♀ 2.3-2.4.

Colour. Variable, dark brown to light brown. Pronotum with ten to twelve thin transverse dark bands, somewhat irregular and anastomosing. Hemielytra with dark transverse bands, distinctly narrower than alternating lighter bands, quite regular at base of clavus, vermiculate in remainder. Centre of membrane often with a dark spot. Border of membrane and corium with a pale transverse band. Head (except dark eyes) and legs pale, abdomen dark brown to blackish.

Structural characters. Head three times as wide as its median length, synthlipsis distinctly (1.1-1.3) wider than the posterior width of an eye and about two fifths the width of head. Anterior interocular width only slightly (1.1) wider than synthlipsis. Vertex in dorsal view evenly rounded. Male fovea small and shallow, with sparse pubescence, reaching lower part of eyes. Pronotum 1.6-1.8 times as wide as long,





laterally broadly rounded, median carina absent, caudal apex obtusely rounded. Pronotum, clavus and base of corium rugulose, remainder of hemielytra smooth. Pruinosity area along claval suture subequal to longer than postnodal pruinose area. Lateral lobe of pronotum truncate with anterior angle more distinct than posterior angle. Metaxiphus about as long as broad, apex obtuse. Femur of fore leg with a basal patch of hairs and an irregular row of small spines from hair patch to apico-dorsal angle; tibia without dorsal carina. Pala evenly curved with 12-14 long setae dorsally, lower palmar row with about 25 bristles. Upper peg row of pala of male (fig. 6), slightly dorsally of middle with about 18 pegs. Lower peg row at upper edge of palm interrupted in middle with about 11 + 7 pegs (which in basal part look like modified palmar bristles). Distal margin of ventroproximal pubescent area of hind femur reaching halfway, smoothly curved, glabrous portion with about 14-17 spinules. Relative length of leg segments: middle leg femur : tibia : tarsus : claw = 1 : 0.50 : 0.35 : 0.41; hind leg femur : tibia : tarsus : tarsus 2 = 1 : 0.96 : 1.22 : 0.55. Asymmetry of male abdomen dextral, median lobe of seventh abdominal tergite with a sinuate caudal margin (fig. 7). Strigil small with 3-4 combs, placed at the end of short stalk pointing to the right. Right paramere as in fig. 8.

Etymology: *stereos* (Gr: solid, strong) refers to the rather large size and the robust habitus compared to other species in the genus.

### Comparative notes

*N. stereos* is larger than the other species in the genus. Similar to *N. murilloi*, males having a less distinct point on the left side of the median lobe of seventh abdominal tergite (fig. 5) and a shallower frontal fovea.

### Key to males of *Neosigara* Lundblad

1. Asymmetry of abdomen sinistral or, if dextral, strigil strongly reduced or absent ..... 2
- Asymmetry dextral, strigil well developed

2. Strigil absent, right paramere with broad apical part ..... *N. griffini*
- Strigil well developed, right paramere with narrow apical part ..... *N. aristera* nov. spec.
3. Frontal fovea rather deep and broad, reaching midway between eyes, and with dense pilosity. Median lobe of seventh abdominal segment with an incision to the right, left part broad and evenly rounded caudally ..... *N. columbiensis*
- Frontal fovea shallow, reaching to base of eyes only, with rather sparse pilosity. Median lobe of seventh abdominal segment without sharp incision and a sinuate caudal margin ..... 4
4. Larger species, length 6.1-6.9 mm. Ventral glabrous portion of hind femur with approximately 17 spinules ..... *N. stereos* nov. spec.
- Smaller species, length 5.9-6.3 mm. Ventral glabrous portion of hind femur with approximately 5 spinules .... *N. murilloi*

### *Orocorixa* genus nov.

Medium sized Corixinae, length 7-8 mm, width of head 2.2-2.6 mm.

Eyes not protuberant. Frons hairy in both sexes, not depressed in females. Vertex rounded. Interocular space broader than posterior width of an eye. Intraocular portion on genae well developed anteriorly, inner posterior angle of eye rounded.

Pronotum without carina, shiny, lightly rugose, with about 12 transverse yellowish bands. Pronotal lobe elongate, only slightly convergent and truncate distally. Scentgland opening subapically on mesoepimeral projection which is narrower than the pronotal lobe. Metasternal xiphus obtuse, its median length subequal to or longer than basal width.

Yellow pattern of hemielytra vermiculate and strongly interrupted, its extension subequal to dark parts. Clavus slightly rugose, remainder of hemielytron smooth, with few, scattered, long white hairs. Pruinosity area on claval suture short, about one quarter the

length of suture. Lateral edge of clavus in dorsal view slightly covering basal part of sutural pruinose area. Lateral margin of embolium shallowly concave halfway between base and nodal furrow. Pruinose area of embolium caudally of nodal furrow well developed, about one third as long as anterior part. Membrane delimited by a depression and a yellowish transverse band. Actual membranous suture indistinct.

Pala in both sexes twice as long as fore tibia. Ventral surface of hind femur pubescent for its basal two fifths. Tarsi not distinctly infusate apically.

Fore tibia of male with a small dorsoapical extension which is somewhat fleshy ventrally. Pala of usual shape with a central peg row of rather long pegs in the apical half (fig. 9) and a small lower peg row. Strigil rather small, asymmetry dextral.

Generotype. – *Orocorixa makrocheira* nov. spec.

Etymology: *Orocorixa* is a combination of "oros" (Gr: mountain over 1000 m high) and "Corixa" and refers to the mountainous type locality of its generotype.

### Comparative notes

At first sight similar to a small species of the Old World genus *Corixa* but these are relatively broader and differ in many details e.g. different pattern of small spines on hind femur, large strigil, different shape of male pala and parameres. Within the American fauna *Orocorixa* seems to be most closely related to *Corisella* Lundblad and with the key of Hungerford (1948) it runs to this genus. *Corisella* differs in having the apical part of the pruinose area of the embolar groove relatively long, about half or more of the length of the basal part. The gena at the level of the hypocular suture is broader in *Orocorixa*. The male pala in *Corisella* is triangular, about as long as the anterior tibia.

***Orocorixa makrocheira* nov. spec.**  
(figs. 9-11)

*Material examined.* – COLOMBIA: Cundinamarca, Su-

mapaz, Laguna Páramo de Chisacá, 11.xi.1990, holotype ♂, allotype ♀ ZMA, 14 ♂ 6 ♀ normal morph, 10 ♂ 18 ♀ flightless morph paratypes; Buitrago, Chingaza, 16.x.1990, 17 ♂ 8 ♀, flightless morph, paratypes; all macropterous. Paratypes have been divided between NC, INDERENA, ICN and PC, while small series have been presented to remaining institutions mentioned in the introduction.

Length ♂ 6.8-7.2, ♀ 7.8-8.0; width of head ♂ 2.2-2.3, ♀ 2.4-2.6.

Colour. Dark brown, mesonotum black in normal, medium brown in flightless morph. Pronotum with about 12 transverse bands, of which the anterior five to six are irregular and fragmented. Hemelytral pattern of about equally broad light and dark markings vermiculate to reticulate. Head, except for dark eyes, and legs pale, abdominal venter medium to dark brown.

Structural characters. Head three times as wide as its median length, synthlipsis slightly (1.1-1.2) broader than the posterior width of an eye and about two fifths the width of head. Anterior interocular width slightly over two fifths (0.41-0.45) the width of head. Vertex in dorsal view obtusely truncate, slightly protruding. Male fovea broadly rounded and shallow, reaching halfway the eyes. Indirect flight muscles developed (normal morph) or undeveloped (flightless morph). Pronotum slightly narrower (0.95 in normal, 0.90 in flightless morph) than head. Median length of pronotum 1.5 times or slightly less than the median length of head. Width of pronotum slightly over 1.5 times its median length. Hemelytra except for clavus, smooth. Pruinose area along claval suture and postnodal pruinose area of embolium of subequal length. Median length of metaxiphus subequal to basal width, apex obtuse. Fore femur with a basal patch of hairs and a few small central spines. Fore tibia with three long hairs. Pala dorsally evenly curved with 10-11 long setae. Upper palmar row of bristles interrupted in the middle, lower palmar row with 15-16 bristles. Upper peg row of male pala (fig. 9) consisting of 15-16 pegs. Lower row with 5 pegs at base of upper palmar edge. Margin of ventroproximal pubescent area of hind femur reaching one third from base, caudally projecting halfway along caudal margin. length of suture. Lateral edge of clavus in dor-



sal view slightly covering basal part of sutural pruinose area. Lateral margin of embolium shallowly concave halfway between base and leg femur : tibia : tarsus : claw = 1 : 0.5 : 0.4 : 0.4; hind leg femur : tibia : tars 1 : tars 2 = 1 : 0.9 : 1.25 : 0.55. Asymmetry of male abdomen dextral. Median lobe of seventh abdominal tergite with rather regular hind margin (fig. 10). Strigil small with 4 combs, placed at the end of a short stalk pointing to the right. Right paramere as in fig. 11.

Etymology: *makrocheira* (Gr: "with large hand") refers to the large pala in this species.

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