

A NEW SPECIES OF *AUSTRELMIS* BROWN FROM ARGENTINA (INSECTA: COLEOPTERA: ELMIDAE)

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Abstract.— A new species of *Austrelmis*, *A. uaik* sp. nov., from Patagonia, is described from adults of both sexes. Mature larvae of this species are also described and illustrated in detail. Adults of *A. uaik* are compared with those of *A. patagonica*, the only other species known from Patagonia and with other described Argentine *Austrelmis* species. Larvae of *A. uaik* are compared to other previously described larvae from Argentina. A key to the known species of *Austrelmis* known from Argentina is included.



Key words.— Riffle beetles, Elminae, Neotropics, Patagonia, larvae

INTRODUCTION

Riffle beetles, Elmidae, are common inhabitants of running waters, especially those that are well oxygenated and clean, therefore they are important indicators of water quality (Compín and Céréghino 2003, Segura *et al.* 2012). *Austrelmis* Brown is endemic to the Neotropical region, and is distributed particularly along the Andes mountains and related foothills of western South America (Brown 1984, Manzo and Archangelsky 2015). It includes 26 described species (Manzo and Archangelsky, 2015, Jäch *et al.* 2016), six of which are known from Argentina: *A. argentinensis* Manzo et Archangelsky 2015, *A. catamarcensis* Manzo et Archangelsky 2015, *A. patagonica* Manzo et Archangelsky 2012, *A. robustus* Manzo et Archangelsky 2015, *A. tafi* Manzo et Archangelsky 2015 and *A. talampayensis* Manzo et Archangelsky 2015. Most of these species are from northwestern Argentina. *Austrelmis patagonica*, the only species previously known from southern Argentina (Neuquén province) is characterized by its strongly widened metatibiae.

During the last few years we have collected many specimens of an *Austrelmis* species in different creeks and rivers of western Chubut and Santa Cruz provinces, all with widened metatibiae. But examination of the male genitalia showed them to be very different from that of *A. patagonica* which places these specimens in a new, yet undescribed species. Adults of this new *Austrelmis* species were collected in association with larvae. Since knowledge of larval riffle beetles is rather poor, we also describe the mature larva of this species, and compare it to those of other two Argentine species: *Austrelmis catamarcensis* and *A. talampayensis* (Archangelsky *et al.* 2016). Notes on the distribution and habitats where this new species is found are included. Finally, we also present a key to the *Austrelmis* species known from Argentina.

MATERIAL AND METHODS

Adults and larvae were killed and preserved in 75% ethyl alcohol. Larvae identified as *Austrelmis* were

collected always co-occurring only with *Austrelmis uaik* so we conclude that the larva-adult association was accurate. For habitus pictures five larvae and five adults were cleaned with an ultrasonic cleaning machine for thirty minutes set at 30 watts power (methodology adapted from Harrison (2012)). Ten additional adults were cleared in potassium hydroxide for 48 hours and mouth parts were dissected and mounted on glass slides with Polyvinyl-lactoglycerol (PVLG) medium. Ten larval specimens were cleared in warm lactic acid dissected and mounted on glass slides with PVLG medium. Observations (up to 400X) were made with a Leica MZ6 and Leica S6D dissecting microscopes and Leica DMLB and Leica DM 500 compound microscopes, the last three with a photographic camera attached. Photographs were assembled using the freeware program CombineZP (Hadley 2010). Habitus pictures were taken from dry specimens; therefore, the color is darker than that of wet specimens. For morphometric information, five to ten larvae and adults were measured. We follow the adult morphology nomenclature of Kodada *et al.* (2016), Lindroth and Palmén (1970) (for genitalia) and Kukalová-Peck and Lawrence (1993) (for hind wing venation). For larval morphology we follow the nomenclature of Lawrence (1991) and Kodada *et al.* (2016). All available geographic records of the new species were mapped with DIVA-GIS (Hijmans *et al.* 2012) and windrose vector used on the distributional map was designed by Freepik.

The type material and part of the larval specimens are deposited at the Instituto de Biodiversidad Neotropical (IBN), Tucuman, Argentina; additional larval material is held at the collection of the second author.

RESULTS

Austrelmis uaik sp. nov.

Diagnosis. This new species may be distinguished from all other known *Austrelmis* species by the following combination of characters: 1) disc of pronotum with punctures larger than facets of eyes, punctures separated by 1.0–1.5 \times of their diameter; 2) metatibiae moderately widened in the middle; 3) ventrite I with short basal sublateral carinae; and, 4) aedeagus with penis elongate, with apex slightly acute, lanceolate.

Description. Holotype male (Fig. 1A–B): Body robust, subovate, moderately convex. Length: 3.53 mm; greatest width 1.43 mm (at midlength of elytra).

Color (Fig. 1A–B): cuticle piceous; mouthparts, antennae, elytra, trochanter and tarsi mostly reddish brown.

Plastron (Fig. 1A–B): tomentum formed by golden setae; covering genae, sides of prosternum, meso- and metaventrite, small area of hypomera adjacent to coxae; inner side of coxae, all femora, inner margin of all tibiae; epipleura and sides of all ventrites.

Head: slightly wider than long, partially retractable, surface densely punctate, with sparse golden setae; punctures larger than facets of eyes, separated by 1–2 times their diameters or more, surface between punctures microreticulate; fronto-clypeal suture straight and deep. Clypeus with anterior margin feebly convex, broad, 3 \times wider than long, wider than labrum, surface with punctures like those on head, anterior and lateral edges with setae. Eyes moderately prominent. Gula trapezoidal; gular sutures straight. Antennae filiform, with 11 antennomeres, shorter than pronotum, last antennomere rounded, scape 1.17 \times as long as pedicel, curved anteriorly, pedicel 1.4 \times as long as wide, antennomeres 3–10 slightly expanded distally with widths increasing distally to antennomere 10.

Labrum (Fig. 2D): wider than long, anterolateral corners rounded and hyaline, dorsal surface with dense concentration of moderately long pale setae, anterior margin (slightly arcuate, emarginate or subtruncate) lined with a dense patch of short setae; ventral surface with long pale setae on anterior margin and dense pubescence oriented mediad and posteriorly.

Mandible (Fig. 2C): darkly pigmented in posterior half, tridentate; prosthema hyaline, with apical and subapical spines and asperities elsewhere; mola well developed.

Maxilla (Fig. 2B): with cardo large, stipes undivided, with large palpifer; galea with two sections, long and narrow, dorsoventrally flattened and blade-shaped, external edge slightly curved with long pale setae, apex bearing long, curved pale setae, internal edge slightly concave; lacinia about 3 \times as long as wide, wider than galea, internal and anterior margins with long setae grouped more densely apically; palpi with four palpomeres, nearly equal to the length of lacinia; second palpomere 1.53 \times as long as wide, palpomere 3 subequal in length to 2nd, palpomere 4, the longest, 2.63 \times longer than wide, apex truncate.

Labium (Fig. 2A): with short prementum and longer postmentum; surface densely covered with long pale setae; submentum short, transverse, 3 \times wider than long; mentum flat, transverse, slightly narrower than submentum and 0.7 \times as wide as ligula, sides arcuate, anterior and posterior angles rounded; palpus with three palpomeres, palpomeres 1 and 2 short, palpomere 3 wider and longer than palpomeres 1 and 2; ligula transverse, approximately 2.6 \times as wide as long, more sclerotized mesally than anterolaterally, with apex slightly convex, lateral and anterior margins with cone-like sensilla.

Thorax: pronotum (Fig. 1C) broader than long (1.03 mm and 0.83 mm respectively), moderately convex, lateral margins subparallel, with acute and long anterolateral angles, posterolateral angles acute and short. Sublateral carinae present only on apical third and arcuate outwardly; weakly oblique lateral impressions on basal third. Base trisinuate. Disc without impressions; surface shiny, densely punctate, punctures larger than facets of eyes, separated by $1.0\text{--}1.5 \times$ their

diameter, surface between punctures smooth and shiny with dispersed golden setae. Surface of lateral area, between carinae and lateral margin microreticulate. Disc of prosternum without lateral carinae, as wide as procoxa; surface with disperse short setae and small punctures separated by $3\text{--}4 \times$ of their diameter; prosternal process almost as wide as long, subquadrate, rounded apically. Hypomeron with surface rugose, microreticulate. Mesoventrite with groove for

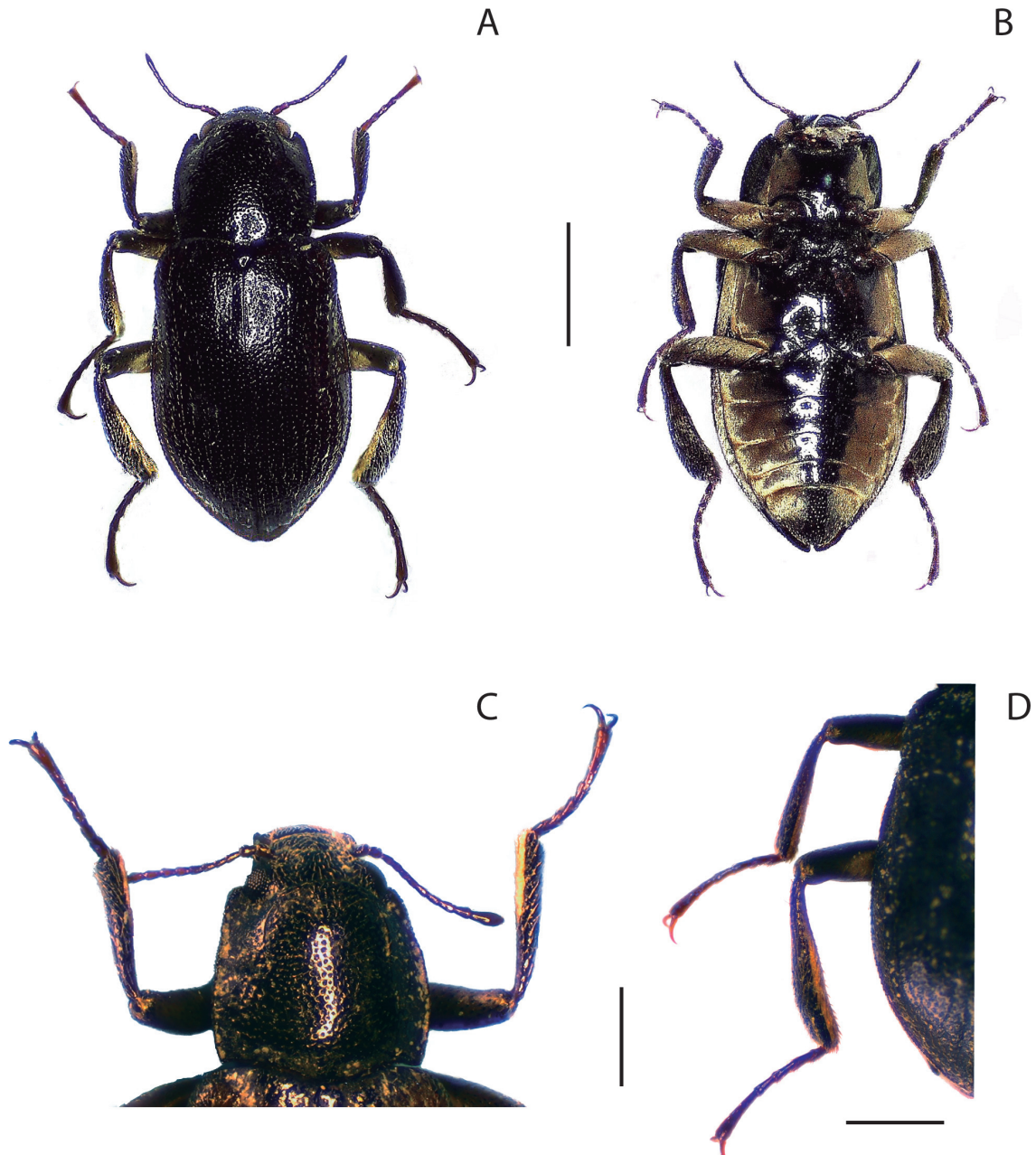


Figure 1. *Austrelmis uaik* sp. nov. adult. (A) dorsal habitus; (B) ventral habitus; (C) detail of pronotum; (D) detail of meso- and metaleg. Scale bars: A, B: 1 mm; C, D: 0.5 mm.

reception of prosternal process. Metaventrite surface with dispersed short setae and small punctures separated by 4–5 \times of their diameter, surface between punctures smooth and shiny; disc convex, without sublateral carinae; with complete median longitudinal line extending to anterior margin. Scutellum subpentagonal, surface as punctuate as elytra.

Legs (Fig. 1D; Fig. 2E–G): elongate, those of prothorax shortest. Pro- and mesocoxa globular; metacoxa transverse and subtriangular; trochanter, subtriangular; femora shorter than tibiae, surface with subovate granules widely dispersed. All tibiae densely setose, with short golden setae; protibia slender; mesotibia slightly widened in the middle; pro- and mesotibiae

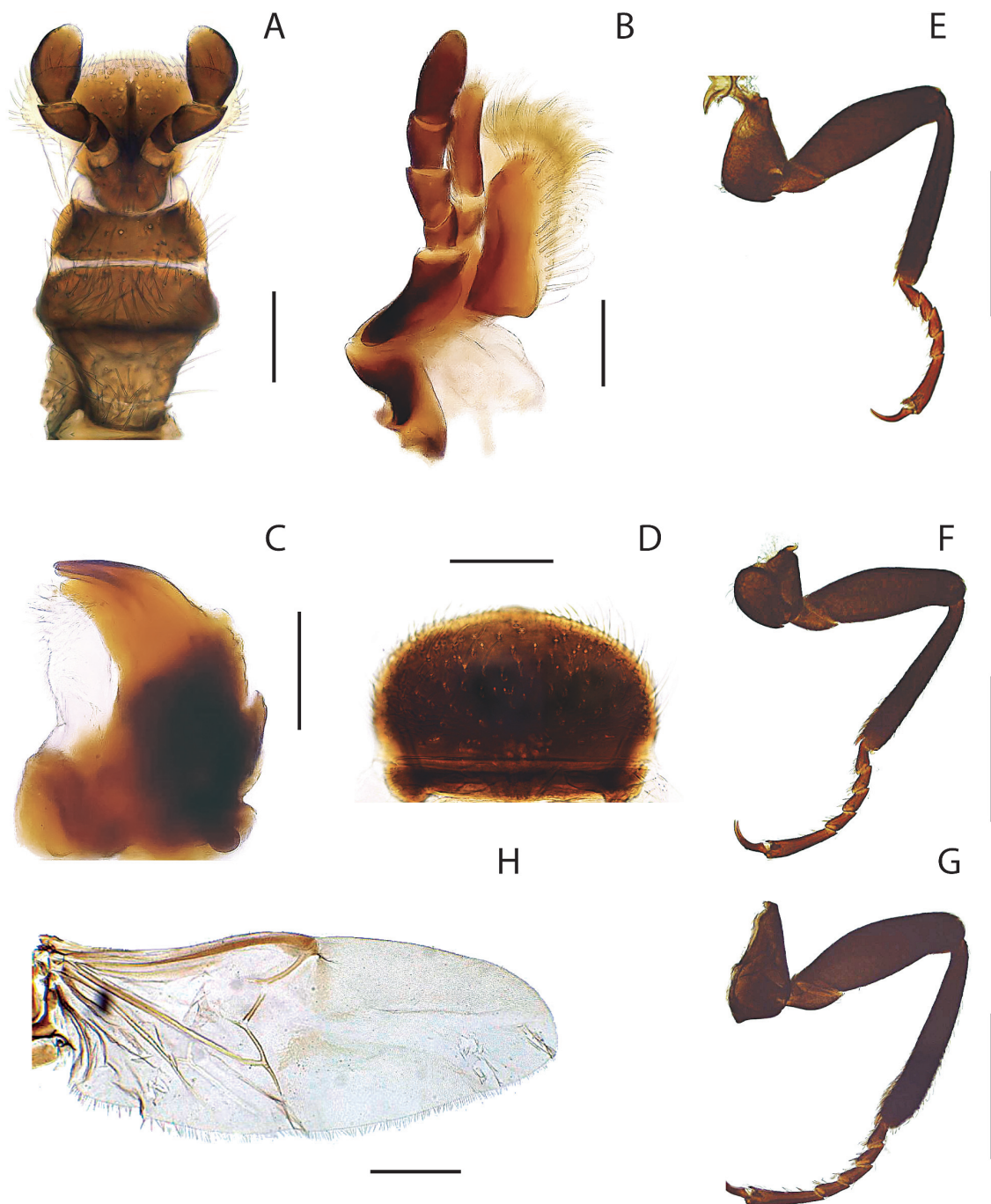


Figure 2. *Austrelmis uaik* sp. nov. adult. (A) labium, ventral view; (B) maxilla, ventral view; (C) mandible, ventral view; (D) labrum, dorsal view; (E) proleg; (F) mesoleg; (G) metaleg; (H) hind wing, dorsal view. Scale bars: A–D: 0.1 mm; E–H: 0.5 mm.

with large apicolateral and small lateroventral cleaning fringes (occupying apical $\frac{2}{3}$ and $\frac{1}{3}$ respectively); metatibia moderately widened in the middle, with a single large apicolateral cleaning fringe. All tarsi with five tarsomeres with rigid golden setae, tarsomere 5 longest; tarsal claws long, not modified.

Elytra: more than twice as long as pronotum (2.20 mm), apices moderately protruded; surface punctuate, punctures very small, separated by 3–4 \times of their diameters; eight punctuate striae formed by punctures separated by their diameters; intervals flat; eighth interval carinate, with a longitudinal row of oval granules extending from the base to almost the elytral apex.

Hind wing (Fig. 2H): large, radial cell incomplete, medial spur long, reaching wing margin.

Abdomen: ventrites convex; surface with small punctures like those on metaventrite; disc of ventrite I with short incomplete lateral carinae; ventrite V with lateral margin produced as prominent tooth; apex rounded.

Male genitalia (Figs 3A–C): slightly asymmetrical, long and moderately broad. Penis elongate lateral, with apex slightly acute, lanceolate, basolateral apophyses long; fibula absent and corona membranous; ventral sac well developed. Parameres subtriangular, distinctly shorter than penis. Basal piece moderately large, longer than penis.

Female: externally similar.

Etymology. From “uaik”, the Tehuelche, Boreal-Meridional word for “spear”, describing for the characteristic lanceolate apex of the aedeagal penis. The Tehuelche people, also known as “Patagones”, inhabited southern Argentina and Chile. The Tehuelche word was taken from the Tehuelche dictionary (Casamiquela 2008).

Austrelmis uaik mature larva

Description. Body (Fig. 4A–C) elongate, sides subparallel, widest at thorax, abdominal segments narrowing towards posterior end; body subcylindrical in cross-section. Body surface densely covered with small setiferous tubercles. Color dark brown. Length: 5.7–7.8 mm; maximum width: 0.8–1.1 mm.

Head capsule (Fig. 5A, D) exposed, anterior margin of clypeus concave, serrated, with small tooth on each margin of clypeus. Surface with several setiferous tubercles, and four short slender setae on side of parietale; a group of long blunt setae surrounding stemmata, a pair of long setae at basal third of frons and a few long setae near clypeus. Coronal line very short and broad, frontal lines long, extending to inner margin of antennal sockets. Frontoclypeal suture feeble; clypeal margin slightly convex, with several ramose setae. Gula subtrapezoidal, slightly narrower than maxillo-labial complex; basal margin wider and concave, distal

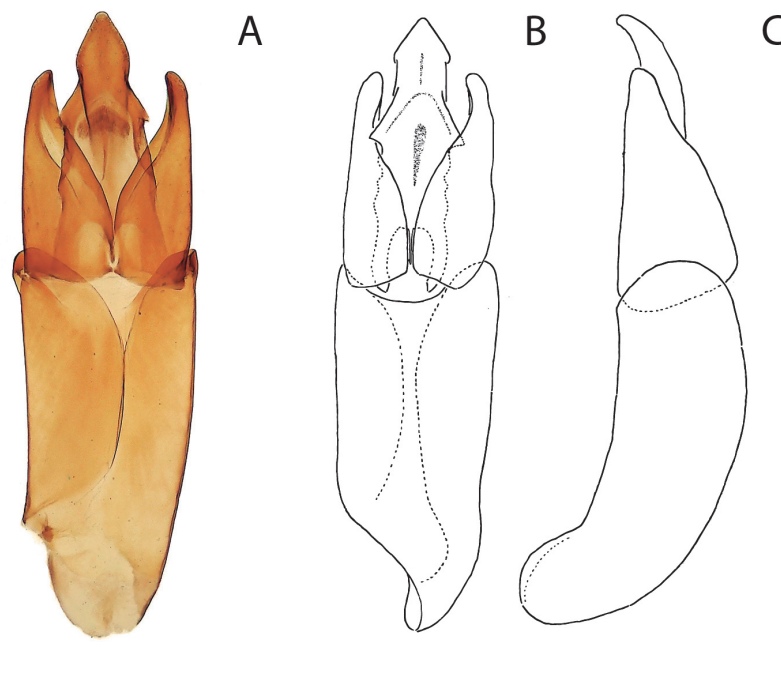


Figure 3. *Austrelmis uaik* sp. nov. male genitalia. (A) aedeagus photograph, ventral view; (B) aedeagus drawing, ventral view; (C) aedeagus drawing, lateral view. Scale bars: A–C: 0.25 mm.

margin narrower and convex; gular sutures poorly defined. Five stemmata on each side of head behind base of antenna.

Labrum (Fig. 5E, F) subrectangular, wider at mid-length; anterior and posterior margins slightly convex, anterolateral margins rounded, each with a row of four strong dorsal ramose setae; dorsal surface with a transverse row of ramose setae on anterior third. Ventral surface with anterior row of ramose setae, rest of ventral surface covered by short pubescence oriented mediad and posteriorly.

Antenna (Fig. 5I) short, located on anterolateral corner of head capsule, with three antennomeres. Basal antennomere (A1) short, conical, wider than long, apically with a crown of ramose setae; antennomere 2 (A2) the longest, cylindrical, with a few short distal setae, bearing a short sensorium; antennomere 3 (A3) the shortest, subequal in length to sensorium of antennomere 2, bearing a short apical seta.

Mandibles (Fig. 5G, H) symmetrical, subtriangular, $1.39 \times$ longer than wide. Apex with three blunt teeth.

Dorsal surface with inner margin almost straight and sharp. Ventral surface with inner margin slightly concave, bearing a comb of long stout submarginal setae. Inner margin of mandible with long plumose prostheca; outer margin with two ramose setae close to midlength.

Maxilla (Fig. 5B, C) with cardo narrow, transverse, irregularly subtriangular, bearing a stout seta close to outer margin, $1.36 \times$ wider than long. Stipes the largest segment, subrectangular, $1.83 \times$ as long as wide; distal third with an anterolateral group of long strong setae close to outer margin (four ramose setae forming a longitudinal row close to outer margin and one innermost slender and acute seta), one very short ramose seta on inner margin close to base of lacinia and one seta near base of galea, middle third with two setae close to outer margin and a group of ramose setae on basal third (one close to midline). Lacinia and galea well developed; lacinia subtriangular, fused to stipes, with inner margin bearing a group of stout setae; galea shorter than lacinia, elongate, with several apical stout setae. Palpus with four palpomeres, palpomere 1 shortest,



Figure 4. *Austrelmis uaik* sp. nov. mature larva, habitus. (A) dorsal view; (B) lateral view; (C) ventral view. Scale bar: 1 mm.

wider than long, palpomeres 2 and 3 slightly narrower, subequal in length, terminal palpomere, narrower; palpomere 1 bearing one outer slender seta, palpomere 3 with two short setae, one on each anterolateral corner, terminal palpomere bearing several short apical setae and sensoria.

Labium (Fig. 5B, C) large, subdivided into large postmentum and short prementum, forming together with maxillae maxillo-labial complex; postmentum sub-rectangular, $1.49 \times$ as long as wide, with several short ramose setae at each side of midline, basal corners each with large and stout ramose seta, distal corners

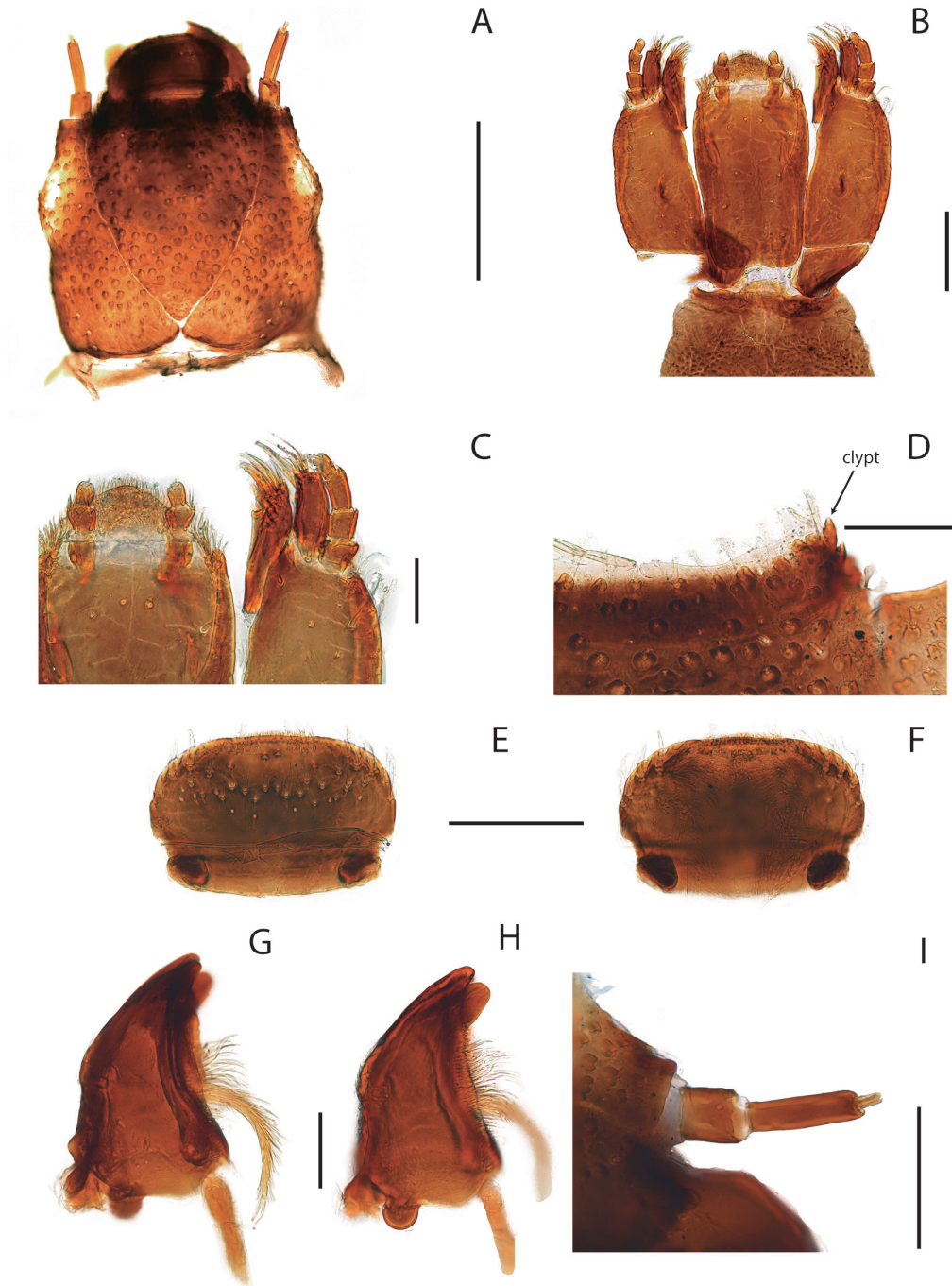


Figure 5. *Austrelmis uaik* sp. nov. mature larva. (A) head capsule, dorsal view; (B) maxillo-labial complex, ventral view; (C) maxillo-labial complex detail of distal end, ventral view; (D) head capsule, detail of clypeus, dorsal view; (E) labrum, dorsal view; (F) labrum, ventral view; (G) mandible, dorsal view; (H) mandible, ventral view; (I) antenna, dorsal view. Scale bars: A: 0.5 mm; B, E, F, I: 0.1 mm; C, D, G, H: 0.05 mm. Abbreviation: clypt- clypeal tooth.

each with long stout seta, dense group of setae at side of each palpus, on outer margin. Prementum short, poorly sclerotized, wider than long, distal margins densely setose; palpus 2-segmented basal palpomere slightly shorter, distal palpomere with several distal setae and sensoria.

Proventriculus (Fig. 6G) as wide as long, provided with strong teeth arranged as follows: posterior row of slender teeth forming well-developed belt followed by four irregularly arranged rows of longer than wide

teeth and anterior group of smaller and more rounded teeth.

Thorax (Fig. 6A) strongly sclerotized; notal plates with sagittal lines and densely covered with small tubercles; dorsal surface with group of dark spots on each side of sagittal lines. Notal plates with two short weak oblique depressions at each side of midline extending from anterior corners to near sagittal line. Prothorax the largest segment, $1.32 \times$ as wide as long; pronotum subtrapezoidal, anterior and posterior

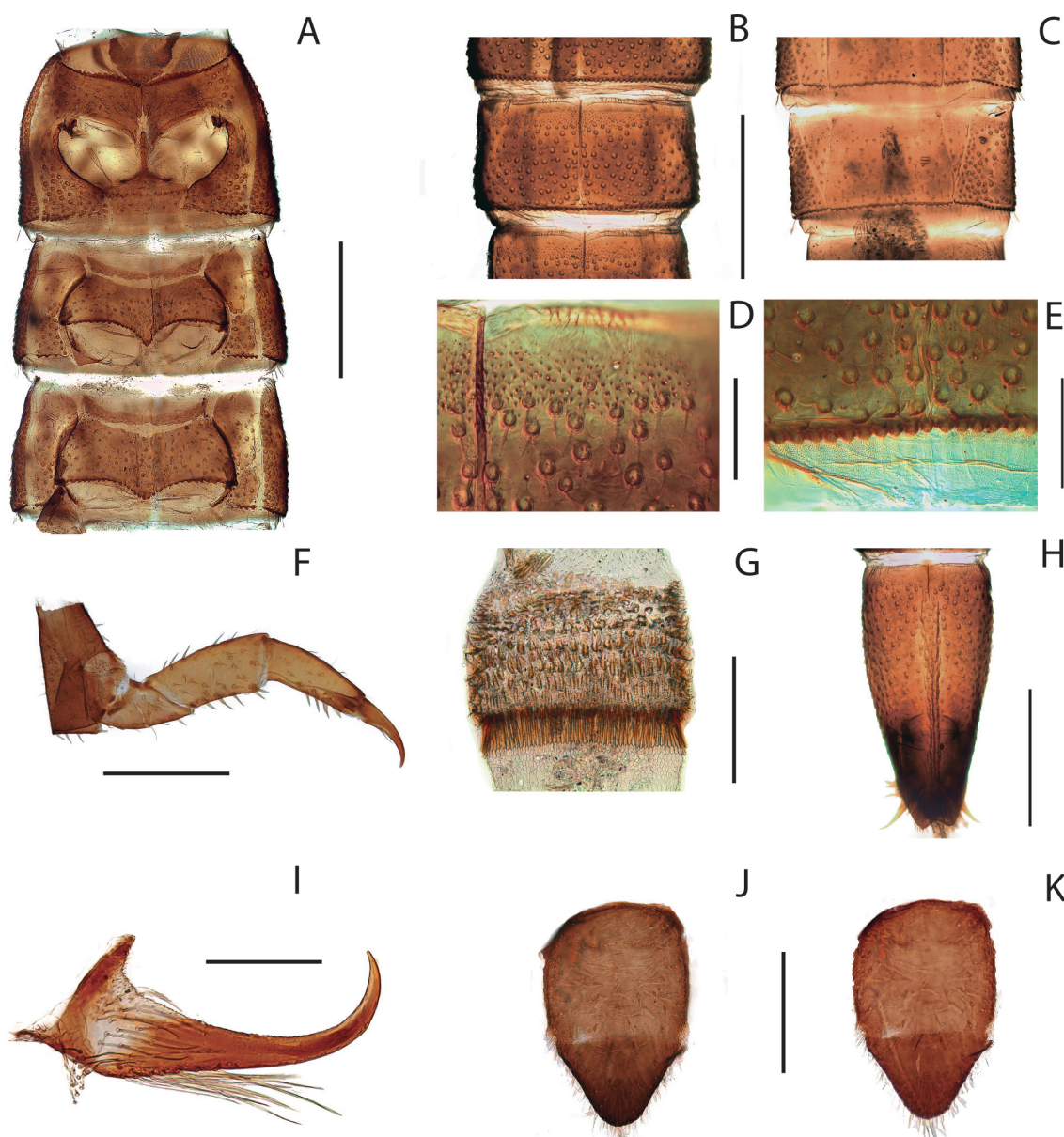


Figure 6. *Austrelmis uaik* sp. nov. mature larva. (A) thorax, ventral view; (B) abdominal segment VII, dorsal view; (C) abdominal segment VII, ventral view; (D) abdominal tergite, detail of rugulose area, dorsal view; (E) detail of posterior setiferous projections of abdominal tergites, dorsal view; (F) prothoracic leg, anterior view; (G) proventriculus; (H) abdominal segment IX, dorsal view; (I) hook of opercular chamber; (J) operculum, ventral view; (K) operculum, dorsal view. Scale bars: A–C, H: 0.5 mm; D, E, I: 0.1 mm, F: 0.25 mm; G, J, K: 0.2 mm.

corners rounded; ventral region with five sclerites: a pair of large and subrectangular sclerites anterior to procoxae (? fused episternum and basisternum), one pair of lateral triangular sclerites (? epimera) and one subpentagonal posteromedial sclerite, wider than long (? sternellum); coxal cavities closed. Meso- and metathorax shorter than prothorax, $2.4 \times$ as wide as long; each segment ventrally with five sclerites: one large anterior subpentagonal sclerite (? undivided basisternum), and two smaller subrectangular sclerites on each side (? episterna and epimera); coxal cavities open. Legs (Fig. 6F) with five sections; coxa the largest, subtriangular; trochanter smaller, subtriangular; femur and tibia elongate, femur slightly longer and wider than tibia; claw stout, shorter than tibia; surface with several short spines.

Abdomen (Fig. 6B–E, H–K) well sclerotized, composed of nine segments, tapering towards posterior end; segments I–VII with dorsal sagittal line, subequal in length; segment IX without sagittal line, longest, $1.68 \times$ as long as wide. Tergal plates densely covered with setiferous tubercles randomly arranged except along margins of sagittal line (when present). Tergum of segments I–VIII with two dark spots at each side, just above the spiracles; dorsal gibbosities on abdominal segments not prominent. All segments with basal ring of rugulose sculpture. Pleural sclerites present on segments I–VII; sterna of segments I–VII subrectangular, wider than long. Segment IX with dorsal keel, ventrally with several spines on distal margin; sternal area with apical gill chamber; operculum subpentagonal, outer surface with long acute setae on margins and more densely grouped on distal half; inner surface of operculum with long acute setae clustered on margins of distal fourth; distal end smoothly pointed with several strong and acute setae, covering a pair of strong distal hooks bearing an inner row of sharp setae and several long setae on outer margin. Spiracles present on segments I–VIII.

Types. Holotype, male, Argentina, Chubut Province, Piedra Parada, Chubut River, $42^{\circ}39'5''\text{S}$, $70^{\circ}25'40''\text{W}$, 450 m, 8-XII-2004, M. Archangelsky leg. Paratypes (16): 4 specimens- Argentina, Chubut Province, road to Fofocahuel, Chubut River, $42^{\circ}26'0.7''\text{S}$, $70^{\circ}30'37''\text{W}$, 525 m, 8-XII-2004, M. Archangelsky leg.; 5 specimens- Seco Creek, $42^{\circ}55'45.19''\text{S}$, $71^{\circ}21'8.03''\text{W}$, 563 m, 15-X-2015, N. Martínez Román leg.; 4 ♂♂ and 3 ♀♀. Santa Cruz Province, intersection with provincial road 43, Pedregoso Creek, $46^{\circ}37'12.70''\text{S}$, $71^{\circ}15'59.3''\text{W}$, 244 m, 12/II-2016, M. Archangelsky leg.

Other adult material examined. 1 adult, 3 larvae- Argentina, Chubut Province, intersection with national road 40, La Cancha Creek, $42^{\circ}46'0.00''\text{S}$, $71^{\circ}6'0.00''\text{W}$, 990 m, 6-II-2002, M. Archangelsky leg.; 1 adult, 4 larvae- intersection with provincial road 12, Los Corrales

Creek, $42^{\circ}49'12.50''\text{S}$, $71^{\circ}3'58.00''\text{W}$, 791 m, 23-X-2002; 1 adult- intersection with national road 40, Esquel Viejo Creek, $42^{\circ}51'0.00''\text{S}$, $71^{\circ}3'58''$, 850 m, 13-III-2003, M. Archangelsky leg.; 1 adult, 1 larva- Percy River, Alto Río Percy township, $42^{\circ}51'12.5''\text{S}$, $71^{\circ}25'51.8''\text{W}$, 720 m, 10-XI-2015, N. Martínez Román leg.; 1 adult, 2 larvae - Percy River, North of Trevelin city, $43^{\circ}3'54.00''\text{S}$, $71^{\circ}28'30''\text{W}$, 382 m, 28-II-2004, M. Archangelsky leg.; 19 adults, 9 larvae Santa Cruz Province, intersection with national road 40, Ecker River, $47^{\circ}7'27.2''\text{S}$, $71^{\circ}33'0.00''\text{W}$, 792 m, 17-II-2016, M. Archangelsky leg.; 12 adults, 3 larvae- 15 km south from Perito Moreno city, national road 40, nameless creek, $46^{\circ}44'1.98''\text{S}$, $70^{\circ}50'29.04''\text{W}$, 560 m, 11-II-2017, N. Martínez Román leg.; 1 adult, 3 larvae- 60 km south from Tres Lagos city, national road 40, nameless creek, $49^{\circ}13'51.24''\text{S}$, $71^{\circ}20'47.64''$, 562 m, 11-II-2017, N. Martínez Román leg.; 19 adults, 48 larvae- intersection with national road 40, Pelke River, $50^{\circ}46'32.76''\text{S}$, $71^{\circ}25'48.12''$, 447 m, 19-II-2017W, N. Martínez Román leg.

Larval material examined. 7 specimens, Argentina, Chubut Province, Piedra Parada, Chubut River, $42^{\circ}39'5''\text{S}$, $70^{\circ}25'40''\text{W}$, 450 m, 8-XII-2004, M. Archangelsky leg. 9 specimens- Seco Creek, $42^{\circ}55'45.19''\text{S}$, $71^{\circ}21'8.03''\text{W}$, 563 m, 6-IX-2015, 15-X-2015, 19-XI-2015, N. Martínez Román leg.

Habitat. *Austrelmis uaik* is distributed in the sub-andean, occidental and central districts of the Patagonian phytogeographical province and biozones such as deciduous forests, grass steppes, ecotone forest-steppes and grass-shrub steppes (León *et al.* 1998, Paruelo *et al.* 1998) (Fig. 8). These landscapes include gramineous steppes that constitute the contact of semi-arid Patagonia and the Subantarctic phytogeographical province and enters the oriental area of deciduous forests of *Nothofagus* spp. (León *et al.* 1998) and also close to open shrub steppes. Adults and larvae of *Austrelmis uaik* are generalists regarding habitat selection. Specimens were collected in a variety of habitats that include 1) rivers and creeks of medium to high water flow, with scarce organic matter and vegetation, with a substrate consisting of coarse to fine gravel, cobbles and pebbles; 2) in still-water bodies, in many cases similar to ponds, with low to high amounts of organic matter, abundant macrophytes and algae and sandy to gravel bottoms; 3) a creek that is temporary and wet mainly in the spring. At microhabitat scale *A. uaik* is also generalist. Adults and larvae were collected in the bottom gravel of rivers and creeks, near the riparian vegetation and in pools where the water still running but at lower speed. Other elmids collected co-occurring with *A. uaik* include *Austrolimnius nycteliodes* Germain 1892, *Hydora annectens* Spangler et Brown 1981, *Luchoelmis cekalovici* Spangler et Staines 2002, *Stethelmis kaszabi* Hinton 1970.

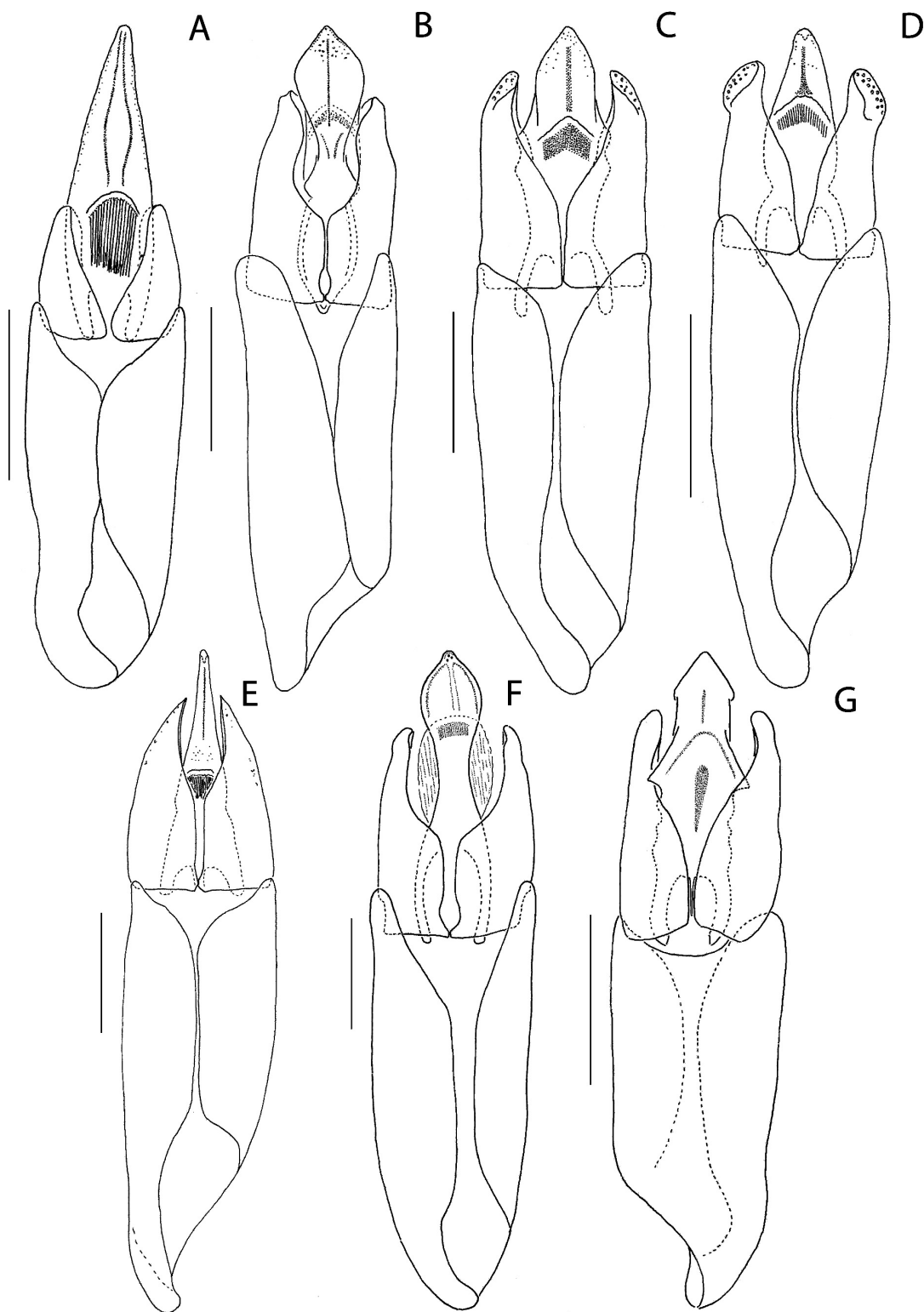


Figure 7. Male genitalia, dorsal view: (A) *Austrelmis argentinensis* Manzo et Archangelsky, (B) *A. catamarcensis* Manzo et Archangelsky, (C) *A. tafi* Manzo et Archangelsky, (D) *A. talampayensis* Manzo et Archangelsky, (E) *A. robustus* Manzo et Archangelsky, (F) *A. patagonica* Manzo et Archangelsky and (G) *A. uaik* sp. nov. Scale bars 0.2 mm.

Key to males of the genus *Austrelmis* from Argentina

1. Hind legs as long as or longer than length of body (legs measured from the coxa to the claw). Pronotum with sublateral carinae complete, deeply and completely divided at basal $\frac{2}{3}$ by oblique impression. Aedeagus with the parameres subtriangular, distinctly shorter than penis (Fig. 7A) *A. argentinensis* Manzo et Archangelsky, 2015
- . Hind legs never as long as the body. Pronotum with sublateral carinae on apical area, (if it is complete, hardly perceptible at base). Aedeagus with the parameres $\frac{2}{3}$ the length of the penis **2**
2. Metatibia strongly or moderately widened in the middle **3**
- . Metatibia not widened in the middle **4**
3. Metatibia strongly widened at middle; disc of pronotum with punctures separated by their diameter or less; disc of ventrite I with complete lateral carinae. Aedeagus with penis elongate, constricted medially and with apex rounded (Fig. 7F) *A. patagonica* Manzo et Archangelsky (2012)
- . Metatibia moderately widened at middle (Fig. 3G); disc of pronotum with punctures separated by 1.0–1.5 their diameter; disc of ventrite I with short lateral carinae. (Fig. 2B,). Aedeagus with penis elongate, with apex slightly acute, lanceolate (Figs 3A–C and 7G) *A. uaik* sp. nov.
4. Elytra without sublateral carinae; disc of ventrite I without lateral carinae. Aedeagus with penis constricted at basal third (Fig. 7B) *A. catamarcensis* Manzo et Archangelsky 2015
- . Elytra with intervals 8 and/or 6 carinate; disc of ventrite I with short or complete carinae. Aedeagus with penis not as above **5**
5. Sixth elytral interval with basal row of granules (or complete carinae). Aedeagus with penis wide; apex of parameres rounded (Figs 7C–D) **6**
- . Sixth elytral interval without basal row of granules or carinae; eighth interval with complete lateral carinae. Aedeagus with penis subtriangular tapering towards apex; apex folded forward; parameres with apex acute (Fig. 7E) *A. robustus* Manzo et Archangelsky 2015
6. Pronotum with sublateral carinae complete, divided at basal $\frac{2}{3}$ by oblique impression; carinae more prominent on apical half, hardly perceptible at base; disc of metaventrite without lateral carinae. Aedeagus as Fig. 7C *A. tafi* Manzo et Archangelsky, 2015
- . Pronotum with sublateral carinae only on apical half, carinae curved outwards and very evident; disc of metaventrite with lateral carinae complete. Aedeagus as Fig. 7D *A. talampayensis* Manzo et Archangelsky, 2015

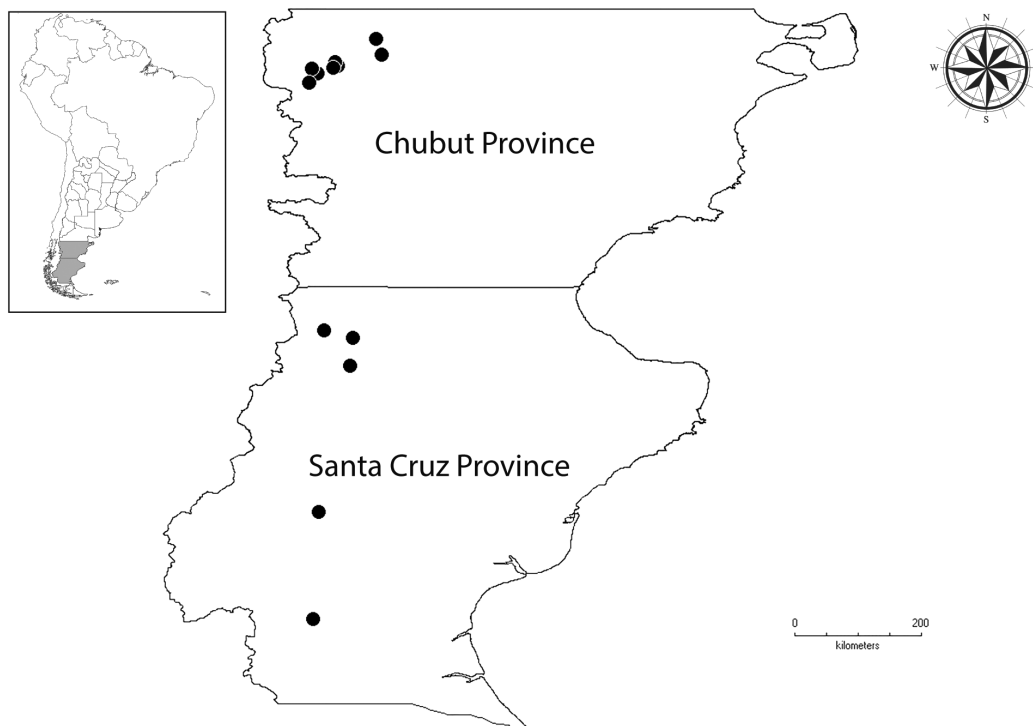


Figure 8. Map of the distribution of *Austrelmis uaik* sp. nov.

DISCUSSION

Austrelmis species are morphologically very similar (Manzo and Archangelsky 2015) and the most reliable differences involve the male genitalia. Nevertheless other characters can be useful to identify *Austrelmis* species, such as the punctuation and granules of the pronotum, presence and shape of carinae on pronotum, prosternum, metasternum and ventrite I, and the width of the metatibiae.

When the new species is compared with the other argentine species. *A. uaik* appears to be closely related to *A. patagonica*, with which it shares a western patagonian distribution. However the distribution of the latter is more restricted, comprising only Neuquén province whereas *A. uaik* includes Chubut and Santa Cruz provinces (Fig. 8). Both species are similar in size (*A. patagonica* length 3.50 mm vs *A. uaik* average length: 3.53 mm), have in common the enlarged metatibiae (a character present only in patagonian species; more strongly widened in *A. patagonica*), and the pronotal sublateral carinae on apical third with weakly oblique lateral impressions. These two species differ in separation of the pronotal punctuation (in *A. uaik* separated by 1.0–1.5 times) vs. less than their diameter (in *A. patagonica*) and in the length of the lateral carinae in the metaventrite (in *A. uaik* the carinae are shorter while in *A. patagonica* they are complete). Further comparative notes among *Austrelmis* species characters are summarized in Table 1.

Knowledge of immature stages is very poor. Larvae of only three species have been described. Hinton (1940) provided the first description of an *Austrelmis* larva (*A. lata* Hinton, as *Macrelmis*) and more recently, Archangelsky *et al.* (2016) described the larvae of *A. talampayensis* and *A. catamarcensis*.

Austrelmis larvae closely resemble each other (Archangelsky *et al.* 2016). The most conspicuous differences are related to morphometric characters and the larval habitus. *A. uaik* larvae are similar in size (length: 5.70–7.80 mm) to those of *A. catamarcensis* (length: 6.20–7.80 mm) and are larger than larvae of *A. talampayensis* (length: 5.2–6.1 mm). Larvae of *A. uaik* (length/maximum width ratio: 5.37–7.70) are proportionally slightly wider than those of *A. catamarcensis* (6.9–8.4) and narrower than those of *A. talampayensis* (6.3–6.7). The antennae of *A. uaik* larvae are similar to those of *A. talampayensis* (width A1/length A1 ratio (0.88–1.07 vs. 0.90–1.00) but differ in length A2/length A1 ratio (2.00–2.36 vs 1.7–2.00); the opposite happens with *A. catamarcensis* (width A1/length A1= 1.20–1.30, length A2 /length A1= 2.30–2.40). The mandibles of *A. uaik* have an intermediate basal width (length/width = 1.44–1.51) between *A. talampayensis* (1.30–1.40) and *A. catamarcensis* (1.50–1.60). In addition, the larva of the new species is

Table 1. Comparative table summarizing the most important characters that distinguish the species of *Austrelmis* from Argentina.

Character	<i>A. argentinensis</i>	<i>A. catamarcensis</i>	<i>A. patagonica</i>	<i>A. robustus</i>	<i>A. tafi</i>	<i>A. talampayensis</i>	<i>A. uaik</i>
Metatibiae enlarged	no	no	yes	no	no	no	yes
Size	2.10 mm	3.40 mm	3.50 mm	2.60 mm	3.40 mm	3.15 mm	3.53
Legs	as long/longer than body	shorter	shorter	shorter	shorter	shorter	shorter
Pronotal carinae	complete divided on basal 2/3	present on apical 1/3	present on apical 1/3	present, hardly perceptible basally	present, hardly perceptible basally	present on apical 2/5	present on apical 1/3
8th elytral interval	carinated	not carinated	carinated	carinated	carinated	carinated	carinated
Carinae on metaventrite	absent	absent	absent	present, complete	absent	present, complete	absent
Carinae on ventrite I	present, complete	absent	present, complete	present, complete	present, complete	present, complete	present, incomplete

similar to *A. catamarcensis* in terms of the mandibular inner margin since in *A. uaik* it is straight, while in *A. talampayensis* the mandibles have a concave inner margin. The most remarkable differences between larval maxillae are in the length of the lacinia (Archangel-sky *et al.* 2016); in both *A. uaik* and *A. talampayensis* the lacinia reaches as far as the apex of the palpomere 3 whereas in *A. catamarcensis* reaches the base of the palpomere 3. Dorsal gibbositities of abdominal segments of *A. uaik* larvae are similar to those of *A. catamarcensis* and not so prominent as those of *A. talampayensis*, especially on the last abdominal segments.

With this contribution the number of *Austrelmis* species increases to 27 continent-wide and seven in Argentina. Likewise, the knowledge of *Austrelmis* immature stages continues to improve.

One remarkable feature of this new species is the enlarged metatibia, a character shared only with *A. patagonica* and with no other known *Austrelmis* species. This, plus having a similar Patagonian distribution, suggests that these species are closely related and may constitute a monophyletic group.

ACKNOWLEDGEMENTS

We are very grateful to Néstor Cazzaniga who kindly advised us on zoological nomenclature when naming the new species. We deeply thank Dr. Pablo Pessacq and Dr. Danielle Anjos Dos Santos for inviting the first author to a collecting trip to southern Patagonia. We are also grateful to Dr. William Shepard and anonymous reviewer whose constructive criticisms improved considerably this manuscript. N. Martínez Román thanks the National Council of Scientific Research (CONICET, Argentina) for an internal fellowship. This is Scientific Contribution number 129 from LIESA.

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Received: April 30, 2017

Accepted: July 19, 2017