

RESEARCH PAPER

Two new species of the subgenus *Arqueozodes* of *Lasionota* from Aysén Patagonian steppe Region in Chile (Coleoptera: Buprestidae)

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Accepted:
29th November 2020

Published online:
10th December 2020

Abstract. Two new species of *Lasionota* Mannerheim, 1837 (Coleoptera: Buprestidae) are described from the Patagonian steppes in the Aysén Region, Chile: *L. (Arqueozodes) cidburmeisteri* sp. nov. and *L. (A.) aonikenk* sp. nov. The subgenus *Arqueozodes* Moore, 1997 therefore contains tree species and a key to them is proposed.

Resumen. Se describen dos nuevas especies de *Lasionota* Mannerheim, 1837 (Coleoptera: Buprestidae) de la estepa patagónica de la Región de Aysén, Chile: *L. (Arqueozodes) cidburmeisteri* sp. nov. y *L. (A.) aonikenk* sp. nov., quedando el subgénero *Arqueozodes* Moore, 1997 compuesto de tres especies. Se proporciona una clave para diferenciarlas de *L. (A.) sulcata* (Moore, 1997).

Key words. Coleoptera Buprestidae, Buprestinae, Stigmoderini, Entomology, taxonomy, new species, Patagonia, Chile, Southern America

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Introduction

The genus *Lasionota* Mannerheim, 1837 currently comprises four subgenera: *Lasionota* Mannerheim, 1837, *Nelsonozodes* Bellamy & Moore, 2006, *Arqueozodes* Moore, 1997 and *Neodactylozodes* Cobos, 1958 (the last only present in Brazil) (MOORE 2019). The subgenera are classified based on antennal structure, i.e. the number of triangular antennomeres, which have sensory pits on their ventral side (MOORE & DIÉGUEZ 2017, MOORE 2018).

In Chile, 16 species and six subspecies are present, belonging to the subgenera *Lasionota* (4 species) and *Nelsonozodes* (12 species). They occur continuously from Arica and Parinacota to the Araucanía Region, with the exception of the Antofagasta Region, from which no species has been recorded so far (MOORE & VIDAL 2015, CID-ARCOS 2018, MOORE 2019).

To date, only the following four species have been reported from Patagonia: *Lasionota. (Arqueozodes) sulcata*

(Moore, 1997), *L. (s. str.) brullei* (Laporte & Gory, 1835), *L. (s. str.) rojaslanusi* Moore & Diéguez, 2017, and *L. (Neodactylozodes) minima* Moore & Diéguez, 2017; all restricted to Argentina (MOORE 1997, MOORE & DIÉGUEZ 2017). In this contribution we describe two new species of *Lasionota* from the Chilean Patagonia.

Materials and methods

To identify the specimens to subgeneric level, the key was provided by MOORE (2018). MOORE (1997) was consulted for comparisons with previously described species.

For the study of morphological features, specimens were cleaned and dry-mounted. Genitalia were extracted, cleaned and cleared in a 40% KOH solution, and later stored in glycerin inside a microvial pinned under the respective specimen. Photographs were taken with a digital camera adapted on a stereoscopic microscope.

The studied material is deposited in the following collections:



MCTC	Mauricio Cid private collection, Talca, Chile;
MEUC	Museo Entomológico, Facultad de Ciencias Agronómicas, Universidad de Chile;
MNNC	Museo Nacional de Historia Natural de Santiago, Chile;
NMPC	National Museum, Prague, Czech Republic;
VMDC	Victor Manuel Diéguez collection, Santiago, Chile.

Taxonomy

Lasionota (Arqueozodes) cidburmeisteri sp. nov.

(Figs 1–6, 17, 20–21)

Type locality. Chile, Aysén del General Carlos Ibáñez del Campo Region, General Carrera Province, Chile Chico.

Type material. HOLOTYPE: ♂, 'Chile, Región de Aysén, Provincia General Carrera, Chile Chico, 12.XII.2018, Mauricio Cid Burmeister leg.' (MNNC). PARATYPES: 2 ♂♂ 1 ♀, same data as holotype (MNNC), 5 ♂♂ 2 ♀♀, same data as holotype (MCTC); 3 ♀♀, 'Chile, Región de Aysén, Provincia General Carrera, Chile Chico, 3.II.2018, Mauricio Cid Arcos leg.' (MCTC); 1 ♀, 'Chile, Región de Aysén, Provincia General Carrera, Chile Chico, 8.XII.2019, Mauricio Cid Arcos leg.' (NMPC).

Differential diagnosis. Antennae (Fig. 17) serrate from antennomere IV; antennomeres V–X as long as wide (*L. (A.) aonikenk* sp. nov. with antennomeres V–X wider than long). Pronotum (Figs 1, 4) with pair of deep depressions before lateral margins; basal angles acutely produced (*L. (A.) sulcata* and *L. (A.) aonikenk* sp. nov. with depressions before lateral margins shallow, basal angles blunt). Prosternum (Figs 2, 5) red (*L. (A.) sulcata* and *L. (A.) aonikenk* sp. nov. with prosternum metallic coloured). Scutellum (Figs 1, 4) as an inverted regular pentagon (*L. (A.) sulcata* and *L. (A.) aonikenk* sp. nov. with scutellum cordiform). Elytra (Figs 1, 4) with apex without periapical teeth (*L. (A.) sulcata* and *L. (A.) aonikenk* sp. nov. with apex of elytra with periapical teeth). Aedeagus (Figs 20–21) with median lobe cuneiform (*L. (A.) aonikenk* sp. nov. with median lobe wide).

Description. Holotype male, 13.6 mm length; 4.8 mm width.

Head (Fig. 17) with shallow and inconspicuous depression in interocular zone; punctuation dense and regular; pilosity long, fine, decumbent and pale white. Eyes not produced, with interior margins subparallel. Antennae (Fig. 17) reach anterior quarter of pronotum; serrated and with sensory pits starting from antennomere IV; with moderately long sub-erect setae; antennomeres V–X nearly as long as wide.

Thorax. Pronotum (Figs 1, 4) distinctly wider than long; punctuation dense and irregular, coarser than on head, being stronger in anterior half; pilosity pale white, long, dense, fine and decumbent; basal half of disc with moderate to distinct depression medially and with pair of deep depressions on sides before lateral margins; lateral margin with red colour not reaching basal margin; basal margin bisinuate, with produced basal angles. Hypomerae (Figs 2–3, 5–6) bright red, excluding metallic blue basal margin; punctuation dense and regular; pilosity moderately long, fine and decumbent. Prosternum (Figs 2, 5) bright red, with dense and fine setigerous punctuation; pilosity moderately long, dense, fine and decumbent; basal margin with metallic blue fringe. Scutellum (Figs 1, 4) smooth, metallic blue and regularly pentagonal.

Elytra (Figs 1, 4) with sparse inconspicuous and long setae. Background colour bluish black. Four wide orange yellow bands reaching lateral margin of elytra; basal band reaching elytral suture after projecting slightly towards apex; second (sub-basal) band not reaching elytral suture, narrowed at middle, widened at lateral margin of elytra and connected to first band; third (sub-distal) band not reaching elytral suture, slightly curved; distal band semi-circular, not reaching elytral suture nor apex. Elytral suture slightly elevated. Costae complete, almost straight, with coarse series of double punctures between each other; first costa two times wider than others in basal half and with inconspicuous fine punctuation. Humeral callus as wide as first costa. Apex without periapical teeth.

Abdomen (Figs 2, 5) metallic blue; densely and regularly punctate; and covered with long, decumbent pale white setae; first ventrite with oval red spot along middle, not reaching distal margin.

Aedeagus (Figs 20–21) tubular, with sides of parameres subparallel, strong longitudinal depression in two distal thirds; median lobe cuneiform, margins converging in apical portion; basal lobe narrowed by sides.

Sexual dimorphism. Apical margin of last ventrite (Figs 2, 5) notched in males and semicircular in females.

Intraspecific variation. Apex of elytra with tooth pointed or blunt.

Measurements of paratypes. Males (n = 4): 13.3–14.5 mm length; 5.0–5.5 mm width. Females (n = 4) 14.0–15.3 mm length; 5.0–5.7 mm width.

Etymology. Named after Mauricio Cid Burmeister, who collected most specimens of this new species.

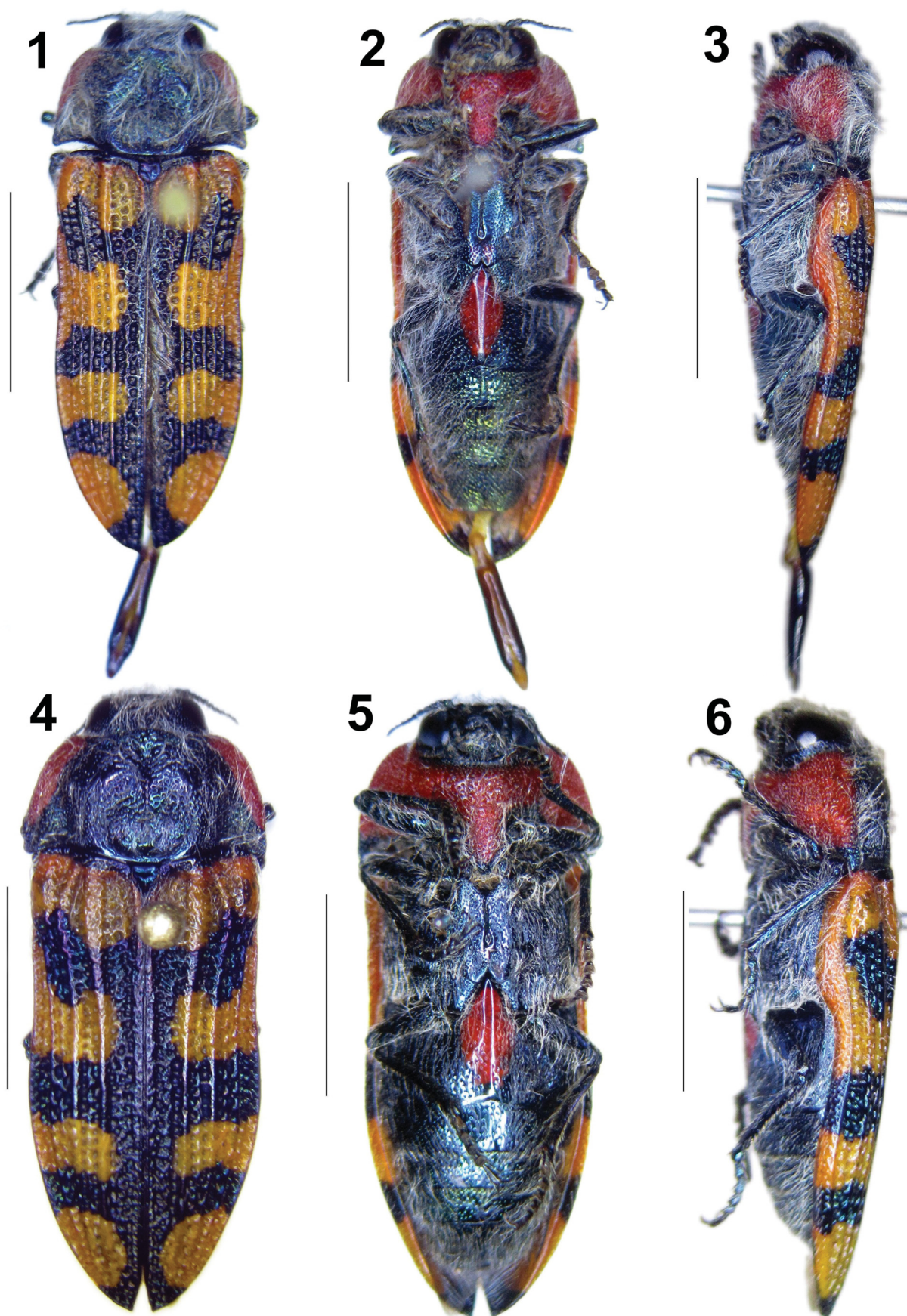
Lasionota (Arqueozodes) aonikenk sp. nov.

(Figs 7–12, 18, 22–24)

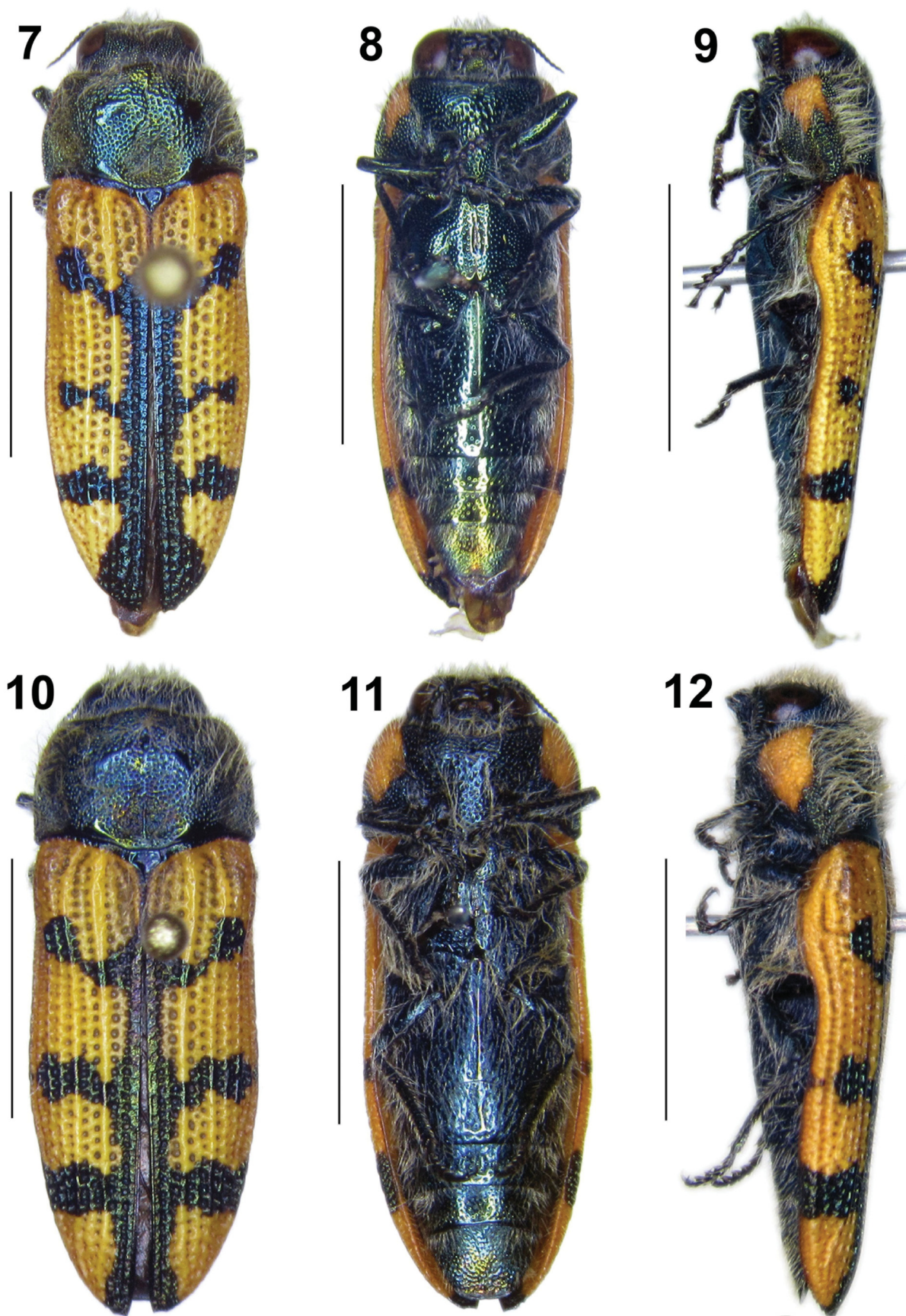
Type locality. Chile, Aysén del General Carlos Ibáñez del Campo Region, General Carrera Province, Chile Chico.

Type material. HOLOTYPE ♂, 'Chile, Región de Aysén, Provincia General Carrera, Chile Chico, 12.XII.2018, Mauricio Cid Burmeister leg.' (MNNC). PARATYPES: 1 ♂ 2 ♀♀, same data as holotype (MNNC), 1 ♂ 1 ♀ same data as holotype (MEUC), 9 ♂♂ 6 ♀♀ same data as holotype (MCTC); 2 ♀♀, 'Chile, Región de Aysén, Provincia General Carrera, Chile Chico, 3.II.2018, Mauricio Cid Arcos leg.' (MCTC); 2 ♂♂ 2 ♀♀, 'Chile, Región de Aysén, Provincia General Carrera, Chile Chico, 8.XII.2019, Mauricio Cid Arcos leg.' (NMPC); 3 ♂♂ 6 ♀♀, 'Chile, Región de Aysén, Provincia General Carrera, Chile Chico, 8.XII.2019, Mauricio Cid Arcos leg.' (MCTC).

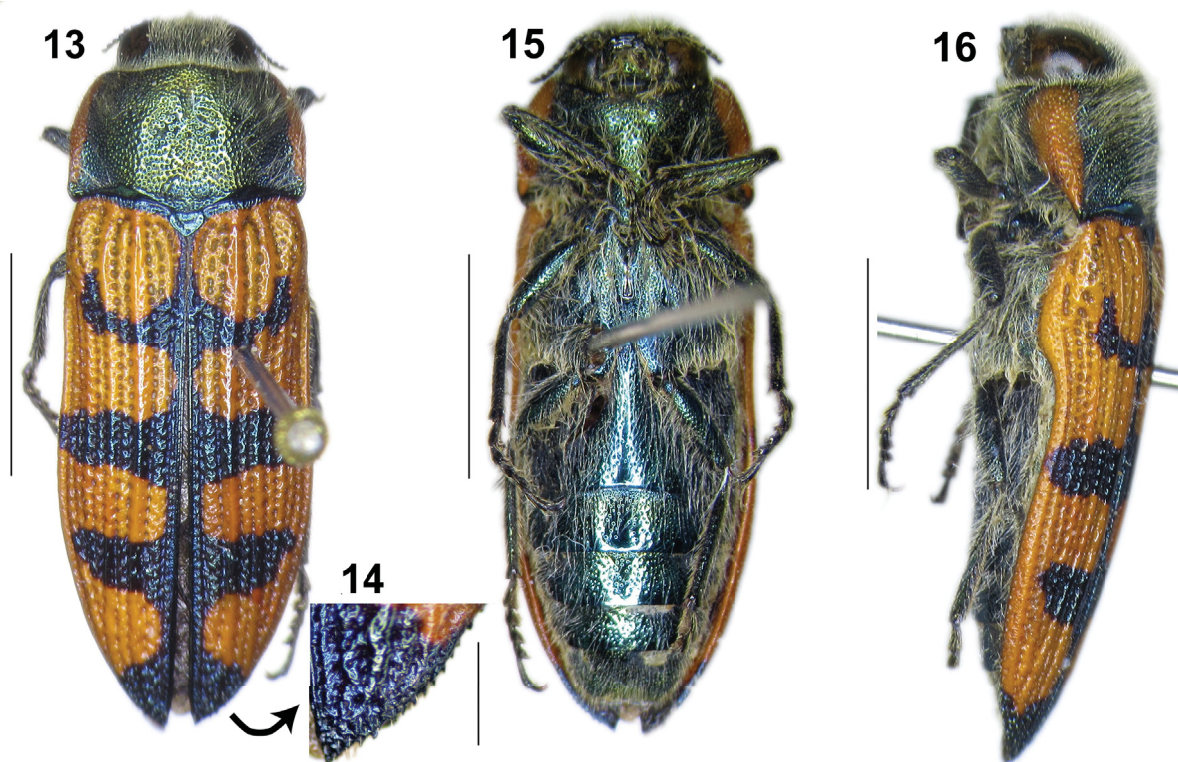
Differential diagnosis. Antennae (Fig. 18) serrate from antennomere IV; antennomeres V–X wider than long (*L. (A.) sulcata* and *L. (A.) cidburmeisteri* sp. nov. with antennomeres V–X as long as wide). Pronotum (Figs 7, 10) with pair of shallow depressions before lateral margins; lateral margins of pronotum and hypomerae (Figs 9, 12) yellow except metallic blue posterior third (*L. (A.) cidburmeisteri* sp. nov. with pair of depressions before lateral margin deep; *L. (A.) sulcata* with lateral margin of pronotum and hypomere with orangish yellow mark reaching posterior margin). Prosternum (Figs 8, 11) metallic blue (*L. (A.) cidburmeisteri* sp. nov. with prosternum red). Elytra (Figs 7, 10) with apex not pointed and with few (1–5) periapical teeth (*L. (A.) sulcata* with apex of elytra pointed and with



Figs 1–6. *Lasionota (Arqueozodes) cidburmeisteri* sp. nov. 1–3 – male: 1 – dorsal view; 2 – ventral view; 3 – lateral view; 4–6 – female: 4 – dorsal view; 5 – ventral view; 6 – lateral view. Scale bars = 5 mm.



Figs 7–12. *Lasionota* (*Arqueozodes*) *aonikenk* sp. nov. 7–9 – male: 7 – dorsal view; 8 – ventral view; 9 – lateral view. 10–12 – female: 10 – dorsal view; 11 – ventral view; 12 – lateral view. Scale bars = 5 mm.



Figs 13–16. *Lasionota (Arqueozodes) sulcata* (Moore, 1997), male. 13 – dorsal view, 14 – detail of apex of elytron, 15 – ventral view, 16 – lateral view. Scale bars 13, 15–16 = 5 mm, 14 = 1 mm.

series of serrated preapical teeth; *L. (A.) cidburmeisteri* sp. nov. with apex of elytra without periapical teeth). Aedeagus (Figs 22–23) with median lobe wide (*L. (A.) sulcata* with median lobe cuneiform).

Description. Holotype male, 8.9 mm length; 4.0 mm width.

Head (Fig. 18) with shallow depression in interocular zone; setigerous punctuation dense and regular; pilosity dense, long, erect and golden pale. Eyes not produced, with interior margins anteriorly convergent. Antennae (Fig. 18) barely surpassing anterior margin of pronotum; serrated and with sensory pits starting from antennomere IV; with moderately long sub-erect setae; antennomeres V–X wider than long.

Thorax. Pronotum (Figs 7, 10) wider than long; punctuation dense and irregular, discally coarser; pilosity golden pale, dense and sub-erect; basal half of disc with slight depression medially and with pair of shallow depressions on sides before lateral margins; lateral margins (Figs 9, 12) with yellow mark in anterior two thirds reaching hypomerae; basal margin bisinuated, with produced blunt basal angles. Hypomerae (Figs 8–9, 11–12) with punctuation dense and coarse; moderately covered with fine and erect pale white pilosity. Prosternum (Figs 8, 11) metallic blue, with fine setigerous punctuation with exception of prosternal process which bears coarse punctuation and dense and decumbent pale white pilosity. Scutellum (Figs 7, 10) cordiform and metallic blue.

Elytra (Figs 7, 10) with sparse inconspicuous setae. Background colour bluish black. Colour predominated by four wide yellow bands reaching lateral margin of elytra; basal band reaching elytral suture after projecting towards

apex; second (sub-basal) band slightly directed towards apex, not reaching elytral suture, connected to first and third bands at lateral margin of elytra; third (sub-distal) band not reaching elytral suture, slightly curved; distal band triangular, not reaching elytral suture nor apex. Elytral suture not elevated. Costae slightly developed, with coarse series of double punctures between each other. Humeral callus slightly developed. Apex with tooth not pointed and preceded by periapical teeth.

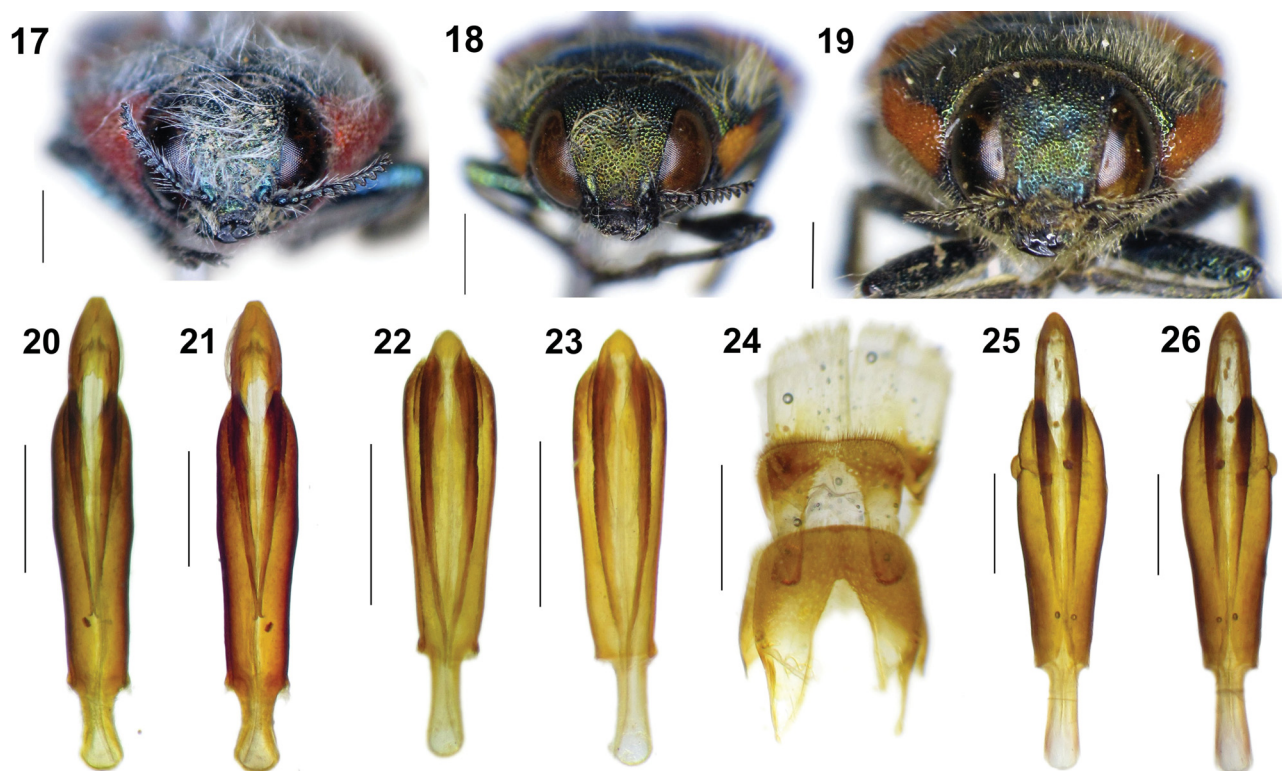
Abdomen (Figs 8, 11) metallic blue, moderately punctuate; and moderately covered with decumbent pale white setae.

Aedeagus (Figs 22–23) tubular, with parameres pre-apically widened, strong longitudinal depression from base; median lobe wide; basal lobe barely narrowed by sides.

Female. Tergite VIII (i.e. last visible, Fig. 24) with regular conspicuous punctuation and moderately covered by simple setae; distal margin sub-straight. Tergite IX (Fig. 24) distally widened, moderately covered by simple setae; distal margin sub-straight, barely notched and densely covered by setae. Ovipositor membranous, bag-type; superior distal margin slightly curved and densely covered by long setae.

Sexual dimorphism. Distal margin of last ventrite (Figs 8, 11) notched in males and semicircular in females.

Intraspecific variation. Basal elytral band in some specimens connected to second band before elytral suture leaving a dark spot; second and third elytral bands connected or not connected at lateral margin of elytra; third elytral band in one specimen connected to last band before elytral suture leaving a dark spot. Sometimes dark metallic



Figs 17–26. *Lasionota* (*Arqueozodes*) spp. 17–19 – head, frontal view: 17 – *L. (A.) cidburmeisteri* sp. nov., 18 – *L. (A.) aonikenk* sp. nov., 19 – *L. (A.) sulcata* (Moore, 1997). 20–21 – *L. (A.) cidburmeisteri* sp. nov., aedeagus: 20 – dorsal view; 21 – ventral view. 22–23 – *L. (A.) aonikenk* sp. nov., aedeagus: 22 – dorsal view; 23 – ventral view. 24 – *L. (A.) aonikenk* sp. nov., last tergites and ovipositor of female. 25–26 – *L. (A.) sulcata*, aedeagus: 25 – dorsal view; 26 – ventral view. Scale bars = 1 mm.

elements greenish instead of bluish. Apex of elytra with 1–3, rarely up to 5 preapical teeth.

Measures of paratypes. Males ($n = 6$): 8.0–11.9 mm length; 2.5–4.2 mm width. Females ($n = 6$): 9.1–13.7 mm length; 3.2–5.1 mm width.

Etymology. Refers to the indigenous ethnic group of the Aónikenk, who lives in Patagonia north of the Strait of Magellan; noun in apposition.

***Lasionota* (*Arqueozodes*) *sulcata* (Moore, 1997)**

(Figs 13–16, 19, 25–26)

Dactylozodes sulcatus Moore, 1997: 60 (original description).

Type locality. Argentina, Río Negro Province, Avellaneda Department, Pomona.

Material examined. 1 ♂, 'Argentina, Mendoza, Malargue, Carapacho, I.82, Topotypus, Typus comparandus, T. Moore det., *D. (Arqueozodes) sulcatus* Moore' (VMDC).

Differential diagnosis. Antennae (Fig. 19) serrate from antennomere IV; antennomeres V–X as long as wide (*L. (A.) aonikenk* sp. nov. with antennomeres V–X wider than long). Pronotum (Fig. 13) with pair of shallow depressions before lateral margins; lateral margins of pronotum and hypomerae (Fig. 16) with orangish yellow mark reaching posterior margin (*L. (A.) cidburmeisteri* sp. nov. with pair of depressions before lateral margin deep; *L. (A.) aonikenk* sp. nov. with yellow mark of lateral margin of pronotum and hypomere not reaching posterior margin). Prosternum (Fig. 15) metallic blue

(*L. (A.) cidburmeisteri* sp. nov. with prosternum red). Apex of elytra (Fig. 14) pointed and preceded by more than 8 serrated periapical teeth (*L. (A.) cidburmeisteri* sp. nov. with apex of elytra without periapical teeth; *L. (A.) aonikenk* sp. nov. with apex of elytra not pointed and with few periapical teeth). Aedeagus (Figs 25–26) with median lobe cuneiform (*L. (A.) aonikenk* sp. nov. with median lobe wide). Aedeagus (Figs 25–26) tubular, with parameres pre-apically widened to pre-apical fourth, strong longitudinal depression in distal third; median lobe cuneiform, margins slightly converging to extremes; basal lobe barely narrowed to base.

**Key to species of *Lasionota*
subgenus *Arqueozodes***

- 1 Apex of elytra with apical tooth and periapical teeth. Prosternum metallic coloured. 2
- Apex of elytra smooth and pointed. Prosternum mostly red. ***L. (A.) cidburmeisteri* sp. nov.**
- 2 Lateral margins of pronotum and hypomerae with yellow colouration reaching basal margin, antennomeres V to X as long as wide.
- ***L. (A.) sulcata* (Moore, 1997)**
- Lateral margins of pronotum and hypomerae with yellow colouration not reaching posterior margin, antennomeres V to X wider than long.
- ***L. (A.) aonikenk* sp. nov.**

Discussion

The subgenus *Arqueozodes* was established for a single species, *L. (A.) sulcata*, which is characterized by serrate antennae (and with sensory pits on their ventral side) from the antennomere IV onwards. With the description of two new species we recognize other shared features, such as the depressions or foveae on pronotum and a sexually dimorphic distal margin of the pygidium, which is bisinuated in males and semicircular in females.

The two new species are the first species of subgenus *Arqueozodes* in Chile. Furthermore, they are the first species of genus *Lasionota* in the Aysén Region. It is possible that other still undescribed species of Stigmoderini may exist in a poorly sampled area of Chilean Patagonia.

Acknowledgements

We thank Victor Manuel Diéguez for supplying part of the examined material. JFC is beneficiary to CONICYT-PFCHA Beca de Doctorado Nacional 2019-21190918.

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