

New species and records for the genus *Dercylus* Castelnau, 1832 from Peru (Coleoptera: Carabidae: Dercylini)

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Abstract. Two new species of *Dercylus* (*Licinodercylus*) Kuntzen, 1912 are described and illustrated on the basis of specimens collected in northern Peruvian Andes: *Dercylus* (*Licinodercylus*) *erebus* sp. nov. and *Dercylus* (*Licinodercylus*) *nicetae* sp. nov. New records for *Dercylus* (*Dercylus*) *buckleyi* (Chaudoir, 1882) and *Dercylus* (*Dercylus*) *heynei* (Kuntzen, 1912) are also provided.

INTRODUCTION

The genus *Dercylus* Castelnau, 1832 includes more than 30 species recorded from Mexico, Colombia, Venezuela, French Guiana, Surinam, Ecuador, Peru, Brazil, Bolivia and Paraguay (Reichardt 1977, Martínez 2005). This genus has been arranged into four subgenera, firstly proposed by Kuntzen (1912) and more recently updated by Moret & Bousquet (1995), the following ones being currently recognized: *Dercylus* s. str., *Eurydercylus* Moret & Bousquet, 1995, *Asporina* Castelnau, 1835 and *Licinodercylus* Kuntzen, 1912.

The subgenus *Dercylus* s. str. includes 12 species widely distributed in Central and South American countries, namely Mexico, Colombia, Venezuela, French Guiana, Surinam, Ecuador, Peru, Brazil, Bolivia and Paraguay (Chaudoir 1883, Kuntzen 1912, Moret & Bousquet 1995). The two species of *Dercylus* s. str. currently known from Peruvian territory are: *Dercylus* (*Dercylus*) *buckleyi* (Chaudoir, 1882) and *Dercylus* (*Dercylus*) *heynei* (Kuntzen, 1912) (Erwin et al. 2015).

The subgenus *Licinodercylus* includes 16 species distributed in Andean areas of Colombia, Ecuador and Peru (Kuntzen 1912, Moret & Bousquet 1995, Moret 1998, Giraldo-Mendoza 2021). The three species of *Licinodercylus* currently known from Peruvian territory are: *Dercylus* (*Licinodercylus*) *catenatus* Kuntzen, 1912, *Dercylus* (*Licinodercylus*) *mathani* Moret, 1995 and *Dercylus* (*Licinodercylus*) *catequili* Giraldo, 2021 (Erwin et al. 2015, Giraldo-Mendoza 2021).

In the present study, two new species assigned to the subgenus *Licinodercylus* are described based on specimens recently collected in northern Peruvian Andes. New records for two species of subgenus *Dercylus* s. str. are also provided.

MATERIAL AND METHODS

Taxonomic placement of specimens was made using available keys to tribes and genera for Neotropical Carabidae (Reichardt 1977, Martínez 2005), and to subgenera, species groups and species of *Dercylus* (Chaudoir 1883, Kuntzen 1912, Moret & Bousquet 1995). Morphological terms of descriptions follow most recent revision concerning the subgenus *Licinodercylus* (Moret & Bousquet 1995). Comparisons with other species were performed with original descriptions and images presented in those works, as well as specimens housed in Peruvian entomological collections.

The holotypes are indicated by red, printed labels bearing the status of the specimens, sex,

names of species, name of the author, and year and month of the designation. Type and non-type specimens are housed at entomological collection of Museo de Historia Natural Javier Prado, Universidad Nacional Mayor de San Marcos, Lima, Peru (MUSM).

Specimens were photographed with a Canon© EOS Rebel T5i DSLR, equipped with macro lens. Photos were edited using Combine ZP (Hadley 2006) and Adobe Photoshop software. Parameres were extracted, treated for 10 minutes in 20% KOH, washed with distilled water and adhered to a small piece of cardboard. Drawings were done by the prints of photographs, observations with stereomicroscope and digital improving with Inkscape software. Distribution maps were elaborated using Simple Mappr (Shorthouse 2010) and Google Earth Pro.

TAXONOMY

Tribe Dercylini Sloane, 1923 Genus *Dercylus* Castelnau, 1832 Subgenus *Licinodercylus* Kuntzen, 1912

Dercylus (Licinodercylus) erebus sp. nov. (Figs. 1-3, 11, 13)

Type locality. Peru, Cajamarca dep., Santa Cruz prov., La Zanja.

Type material. Holotype (♂): PERU, Cajamarca, Santa Cruz, Santa Cruz de Succhabamba, Pulan, caserio La Zanja, 06°49'30"S, 78°54'12.8"W, 3311 m, 07-IX-2012, I. Medina coll. (MUSM). Paratype (1 ♀), same data as for holotype (MUSM).

Description. 14.5-15.0 mm. Habitus (Fig. 1). Body shiny black, with reddish brown antennae and mouth parts. Pronotal and elytral surface with noticeable isodiametric microsculpture.

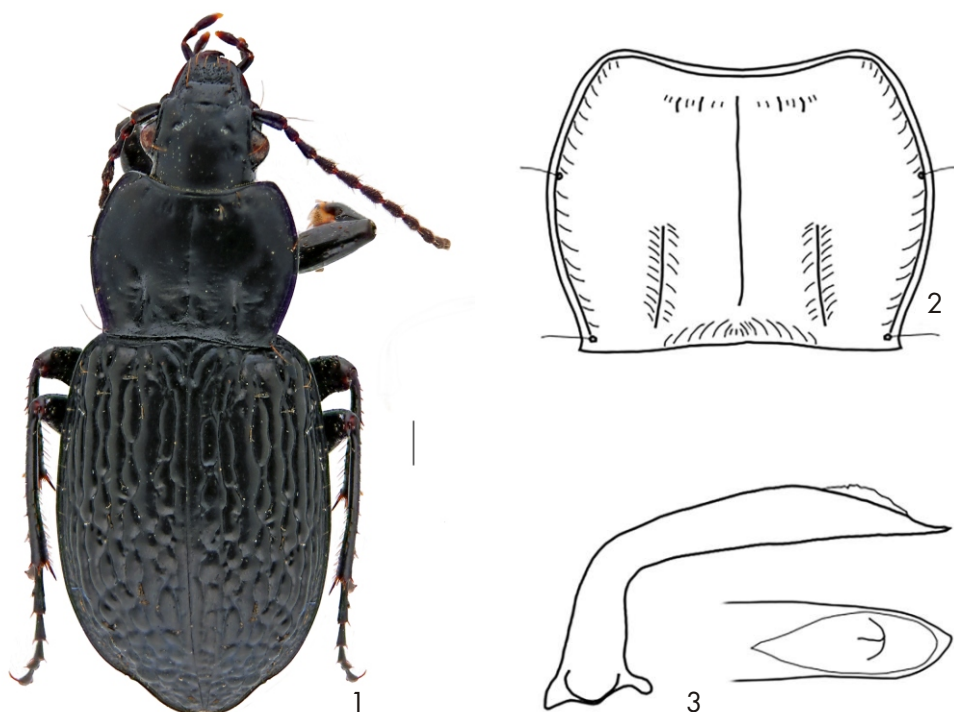
Head. Moderate sized, with collar constriction barely insinuated. Upper surface of mandibles smooth on apical half, striate-rugulose on basal half. Labrum with six setae on anterior margin. Antennae surpassing pronotal base, antennomere 10 attaining and antennomere 11 surpassing pronotal posterior angles.

Pronotum. Transverse, with base as wide as apex, its greatest width at anterior half (ratio width: length = 1.42) (Fig. 2). Lateral margins evenly curved on anterior three fourths and becoming straight on basal fourth, wholly beaded; posterior angles acute and pointed. Frontal margin with only traces of indentation, wholly beaded, concave with anterior angles obtuse, protruding and directed forward. Basal margin with shallow indentation, not beaded. Two pairs of lateral setae located at anterior half and posterior angles. Midline well marked across disc length, crossed by a row of rugosities in anterior fifth. Basal foveae deep, long, almost rectilinear. Prosternal process obtuse in lateral view.

Elytra. Ovoid, convex, with rounded humeri. Second to sixth interstriae convex, smooth and mostly catenulated in basal half of elytra, only third interstria remains entire. Interstriae catenulated in apical half of elytra, these tend to be carinated, to break into chains of nodules and to merge in apical third. Eighth interstria carinated before elytral apex. Yuxtascutellar pore absent.

Legs. Dorsal surface of metatibia smooth and convex. Onychium glabrous.

Male genitalia (Fig. 3). Aedeagus with median lobe bent at a pronounced angle of almost 90 °; apical blade fusiform, basally constricted and apically enlarged. In lateral view, tip of apical blade is conspicuously pointed and curved upward.



Figs. 1-3. *Dercylus (Licinodercylus) erebus* sp. nov.: 1-habitus; 2- pronotum; 3- median lobe of aedeagus, left lateral view and dorsal view of apex. Scale bar = 1 mm.

Sexual dimorphism and variability. Male with first to third protarsomeres widened and ventrally covered with adhesive setae. Female with elytra more convex and rounded. Elytra with catenulation of interstriae evident to varying degrees in the two specimens examined.

Differential diagnosis. According to classification proposed by Moret & Bousquet (1995), *D. (L.) erebus* should be placed in the *gaujoni* species group because of following combination of characters: mandibles lacking striation on apical half of upper surface, lateral bead of pronotum reaching posterior angles, prosternal process obtuse, catenulated striae on elytral disc, eighth interstria widened and apically carinated, metatibia with dorsal surface smooth, onychium glabrous and aedeagus clearly bent.

The new species is morphologically closer to *D. (L.) catequili*, but it is clearly distinguishable by its antennae surpassing pronotal base, pronotum with maximum width at anterior half, almost complete catenulation of interstriae on basal half of elytra and aedeagus with tip of apical blade conspicuously pointed and curved upward in lateral view.

Etymology. The specific name refers to Erebo, the male personification of darkness, brother and mate of Nictē in Greek mythology.

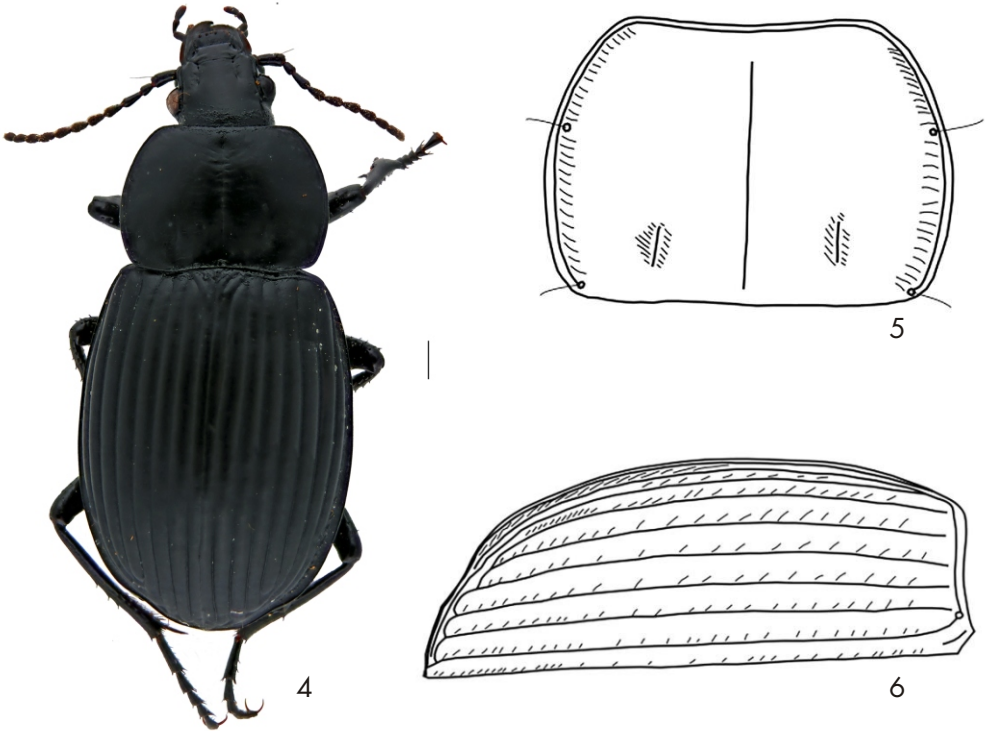
Distribution and habitat. Currently, the new species is only known from one locality at Santa

Cruz province in northern Peruvian Andes (Fig. 11). Data labels do not provide details about habitat preference for this species. Type locality of *D. (L.) erebus* is an interandean valley around 3000 m in elevation, suggesting an ecological segregation with respect to *D. (L.) catequili*, also recorded from Cajamarca but eastward at higher altitudes (Fig. 13).

***Dercylus (Licinodercylus) nictae* sp. nov.**
(Figs. 4-6, 11, 13)

Type locality. Peru, Cajamarca dep., Santa Cruz prov., La Zanja.

Type material. Holotype (♀): PERU, Cajamarca, Santa Cruz, Santa Cruz de Succhabamba, Pulan, caserío La Zanja, 06°50'27"S, 78°53'11.7"W, 3633 m, 15-IX-2012, I. Medina coll. (MUSM). Paratype (1 ♀): PERU, Cajamarca, Santa Cruz, Santa Cruz de Succhabamba, Pulan, Mina La Zanja, 06°50'08.03"S, 78°52'58.41"W, 3604 m, 14-X-2014, L. Huerto coll.(MUSM).



Figs. 4-6. *Dercylus (Licinodercylus) nictae* sp. nov.: 4-habitus; 5-pronotum; 6-left elytron. Scale bar = 1 mm.

Description. 14.5-15.0 mm. Habitus (Fig. 4). Body dull black, shiny black on antennae, mouth parts, legs and venter. Pronotal and elytral surface with strong isodiametric microsculpture.

Head. Moderate sized, with collar constriction barely insinuated. Upper surface of mandibles smooth on apical half, striate-rugulose on basal half. Labrum with six setae on anterior margin. Antennae not surpassing pronotal base, antennomere 11 attaining posterior fourth of pronotum.

Pronotum. Transverse, with base as wide as apex, its greatest width at middle of its length (ratio

width: length = 1.44) (Fig. 2). Lateral margins evenly curved through its entire length, wholly beaded; posterior angles obtuse. Frontal margin with noticeable indentation, wholly beaded, concave with anterior angles obtuse, protruding and directed forward. Basal margin devoid of indentation, not beaded. Two pairs of lateral setae located at anterior half and posterior angles. Midline well marked across disc length, not crossed by any anterior row of rugosities. Basal foveae only suggested by two small notches in posterior fourth of pronotal length. Prosternal process obtuse in lateral view.

Elytra. Ovoid, convex, with rounded humeri. Second to sixth interstriae convex, smooth and entire through its length (Fig. 3). Eighth interstriae protruding towards outer margin and becoming into a longitudinal row of tubercles before elytral apex. Yuxtascutellar pore present.

Legs. Dorsal surface of metatibia smooth and convex. Onychium with two pairs of setae.

Sexual dimorphism and variability. Male unknown. Without noticeable differences in the two specimens examined.

Differential diagnosis. According to key of *Licinodercylus* species by Moret & Bousquet (1995), *D. (L.) nictae* is placed near to *mathani* and *catenatus* species groups due to their setose onychium. The new species is more similar to species in *mathani* group because of their entire interstriae on elytral disc, but is clearly distinct from these because its onychium has only two pairs of setae and bears yuxtascutellar pore. The presence of yuxtascutellar pore is a rare character in subgenus *Licinodercylus*, previously seen only in *D. (L.) davidsoni* Moret, 1995, *D. (L.) franiai* Moret, 1995 and *D. (L.) gaujoni* Moret, 1995, species with a very different general appearance from each other (Moret & Bousquet 1995). Consequently, *D. (L.) nictae* is clearly defined by its singular combination of characters and does not fit into any of currently defined species groups.

Etymology. The specific name refers to Nictē, the female personification of night, sister and mate of Erebo in Greek mythology.

Distribution and habitat. Currently, the new species is only known from two localities at Santa Cruz province in northern Peruvian Andes (Fig. 11). Data labels do not provide details about habitat preference for this species. *D. (L.) nictae* and *D. (L.) erebus* are neighbouring species, both inhabiting westward at lower altitudes than *D. (L.) catequili* (Fig. 13). It should be noted that Marañón river valley is an important orographic barrier for *Licinodercylus* species from northern Peru, the three species described from Cajamarca westward and *D. (L.) mathani* Moret, 1995 eastward from this valley.

Subgenus *Dercylus* Castelnau, 1832

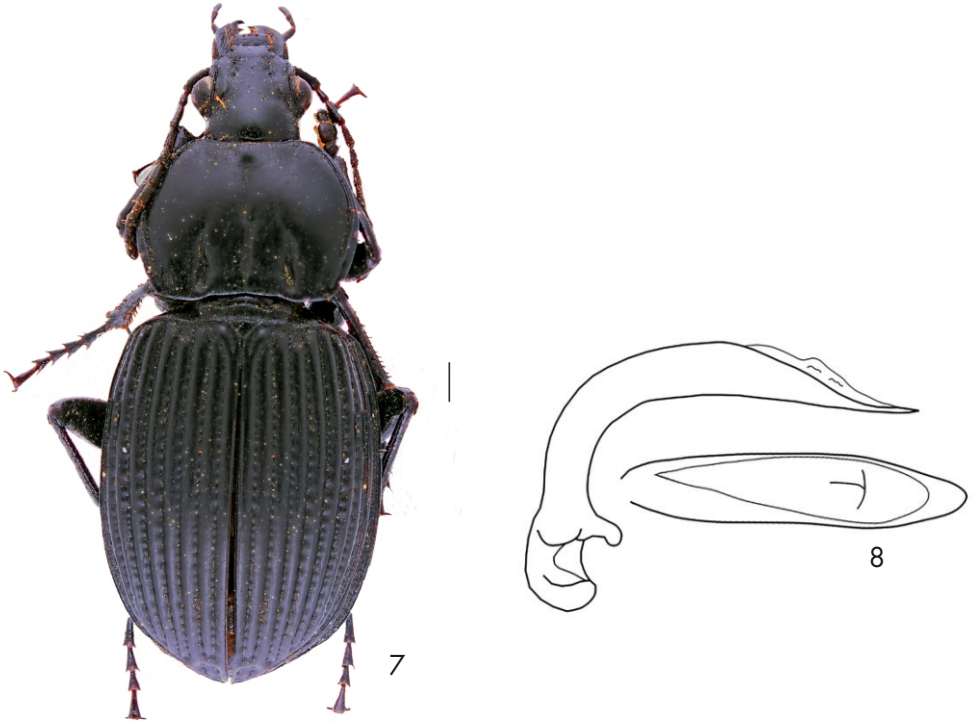
Dercylus (Dercylus) buckleyi (Chaudoir, 1882)

(Figs. 7, 8, 12)

Material examined: (1 ♀): PERU, Cusco, La Convencion, Echarate, Otsanampiato, 12°40'14.04"S, 73°10'20.78"W, 1725 m, 18-20-X-2009, C. Carranza & C. Rossi coll. (MUSM); (3 ♀): PERU, Cusco, La Convencion, Pagoreni, 11°41'05"S, 72°57'34"W, 371 m, 02-03-XII-2011, P. Sanchez coll. (MUSM); (1 ♂): PERU, Loreto, Maynas, fundo Tamshiyacu, 03°57'30.35"S, 73°01'49.45"W, 112 m, 17-22-II-2018, C. Ampudia coll. (MUSM); (1 ♀): PERU, Madre de Dios, Manu, Parque Nacional Manu, Cocha Cashu, 25-XI-1987, I. Bohorquez coll. (MUSM); (1 ♀): PERU, Madre de Dios, Manu, Rio Manu, 350 m, 12-XII-1987, I. Bohorquez coll. (MUSM); (1 ♀): PERU, Madre de Dios, Manu, trocha cocha totora, 23-XI-1987, I. Bohorquez coll. (MUSM); (1 ♀): PERU, Madre de Dios, Manu, Reserva Comunal Amarakaeri, 12°56'32.48"S, 70°48'23.30"W, 333 m, 24-26-X-2010, J. Costa & M. Vilchez coll. (MUSM); (2 ♂, 2 ♀): PERU, Madre de Dios, Tambopata,

Inambari, Primavera Baja, 12°54'01.3"S, 70°05'13.6"W, 234 m, human dung-baited trap, 08-IX-2009, C. Castillo coll. (MUSM); (1 ♀): PERU, Madre de Dios, Tambopata, Inambari, Primavera Baja, 12°54'49.9"S, 70°06'05.6"W, 277 m, human dung-baited trap, 28-X-2009, C. Castillo coll. (MUSM); (1 ♂): PERU, Madre de Dios, Tambopata, Tambopata, 15 km E to Puerto Maldonado, 200 m, 11-II-1990, M. Medina coll. (MUSM); (1 ♀): PERU, Pasco, Oxapampa, Palcazu, 10°03'42.45"S, 75°10'29"W, 321 m, 18-XI-2014, L. Figueroa coll. (MUSM); (1 ♀): PERU, Ucayali, Atalaya, Pisquiriver, comunidad nativa Santa Ana, 07°46'30"S, 75°00'41"W, 140 m, 16-III-2011, L. Huerto coll. (MUSM).

Note: This species was described based on a male specimen from Ecuador and another male specimen from Peru (Chanchamayo) was recorded by Kuntzen (1912). The specimens examined agree fairly well with external morphological characters (Chaudoir 1883, Kuntzen 1912) and aedeagus morphology (Moret & Bousquet 1995 fig. 18) assigned to this species. However, it would be necessary to examine specimens of *Dercylus* (*Dercylus*) *batesi* Chaudoir, 1861 (Bolivia) and *Dercylus* (*Dercylus*) *puritanus* Kuntzen, 1912 (Brazil) to clarify the limits between these three close species.

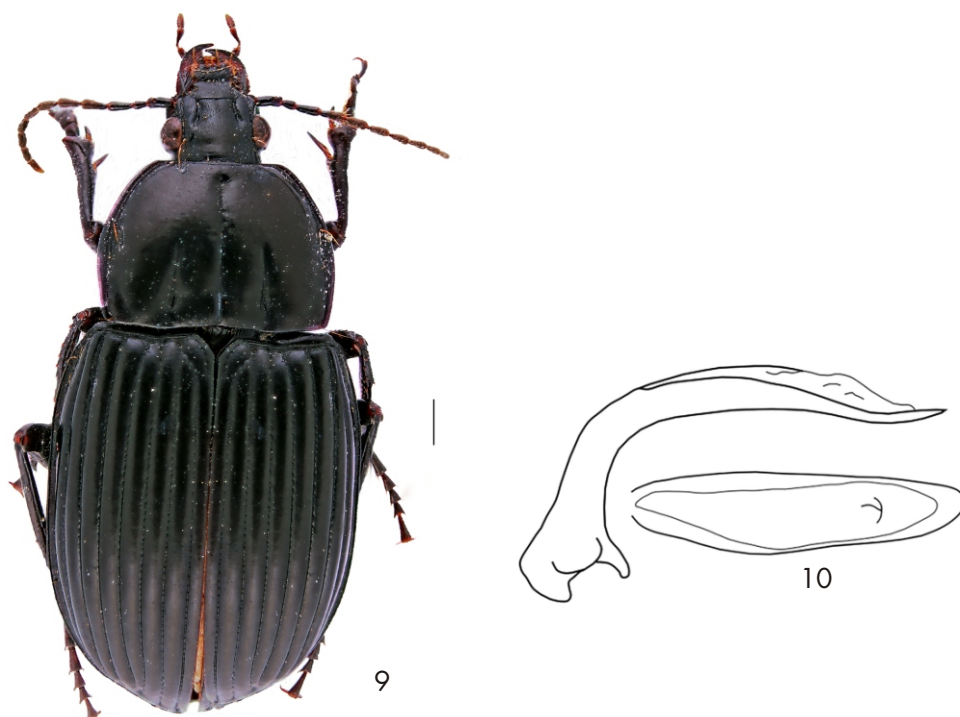


Figs. 7-8. *Dercylus* (*Dercylus*) *buckleyi*: 7- habitus; 8- median lobe of aedeagus, left lateral view and dorsal view of apex. Scale bar = 1 mm.

***Dercylus* (*Dercylus*) *heynei* (Kuntzen, 1912)**

(Figs. 9, 10, 12)

Material examined: (1 ♂): PERU, Cusco, La Convencion, Echarate, comunidad Segakiato, 11°45'38.6"S, 73°14'57.7"W, 908 m, 02-03-III-2011, M. Alvarado & E. Razuri coll. (MUSM); (1 ♂): PERU, Cusco, La Convencion, Santa Teresa, 13°08'34.57"S, 72°36'24.57"W, 1705 m, 18-II-2021, M. Rodriguez coll. (MUSM); (1 ♂): PERU, Cusco, La Convencion, Santa Teresa, 13°08'39"S, 72°30'15"W, 1668 m, 07-V-2013, E. Razuri coll. (MUSM); (1 ♂): PERU, Loreto, Maynas, Iquitos, rightbank of Amazonas river, 03°41'29.07"S, 73°12'38.79"W, 91 m, 31-VII-2018, Y. Ortega coll. (MUSM); (1 ♀): PERU, Madre de Dios, Tambopata, Madre de Dios river, 40 km to Lagarto, 26-VIII-1987, I. Bohorquez coll. (MUSM); (1 ♀): PERU, Madre de Dios, Tambopata, Zona Reservada Tambopata, 300 m, 08-V-1986, I. Bohorquez coll. (MUSM).



Figs. 9-10. *Dercylus (Dercylus) heynei*: 9- habitus; 10- median lobe of aedeagus, left lateral view and dorsal view of apex. Scale bar = 1 mm.

Note: This species was described based on two specimens, male and female, from Chanchamayo, Peru (Kuntzen 1912). The specimens examined agree fairly well with external morphological characters assigned to this species (Kuntzen 1912). However, to clarify its taxonomic position it would be necessary to compare them with specimens of other similar South American species such as *Dercylus (Dercylus) gibbosus* Laferte-Senectere, 1851 (Guiana, Suriname) and *Dercylus (Dercylus) alternans* Kuntzen, 1912 (Colombia, Venezuela).

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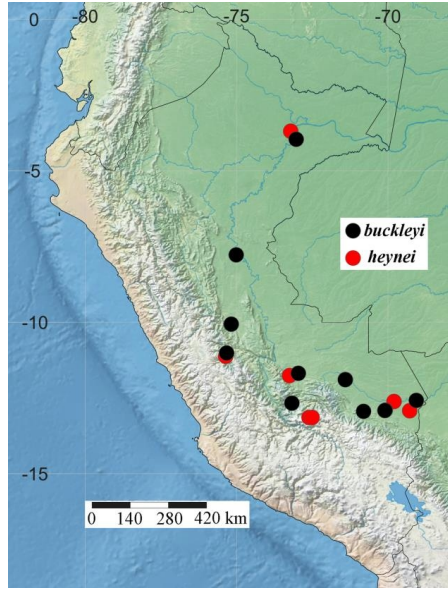
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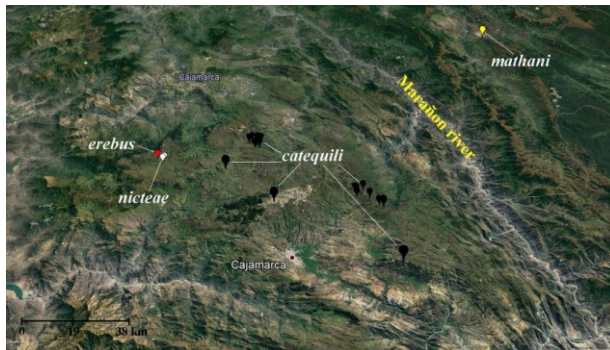
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11



12



13

Figs. 11-13. Distribution maps: 11- *Dercylus* (*Licinodercylus*) species in Peru; 12- *Dercylus* (*Dercylus*) species in Peru; 13- *Dercylus* (*Licinodercylus*) species in northern Peru.