

## New species of fireflies from the Dominican Republic (Coleoptera: Lampyridae)

## Новые виды жуков-светляков из Доминиканской Республики (Coleoptera: Lampyridae)

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Three new fireflies, *Lychnacris vulpes* sp. nov., *Robopus veloz* sp. nov. and *R. oviedoensis* sp. nov., are described from the Dominican Republic.

Из Доминиканской Республики описываются три новых вида жуков-светляков: *Lychnacris vulpes* sp. nov., *Robopus veloz* sp. nov. и *R. oviedoensis* sp. nov.

**Key words:** fireflies, taxonomy, Greater Antilles, Hispaniola, Dominican Republic, Coleoptera, Lampyridae, new species

**Ключевые слова:** жуки-светляки, таксономия, Большие Антильские острова, Доминиканская Республика, Coleoptera, Lampyridae, новые виды

### INTRODUCTION

The recent studies on the firefly fauna of Hispaniola (Kazantsev, 2006; Perez-Gelabert, 2008; Kazantsev & Perez-Gelabert, 2009) where the Dominican Republic is located have increased the number of lampyrid species of this 76 thousand square km Greater Antillean island from 17 to 66. At the same time it was obvious (Kazantsev & Perez-Gelabert, 2009) that the number of species of fireflies occurring in Hispaniola would still increase. Indeed, the possibility to study the new material collected by the junior author with his Dominican colleagues in previously unexplored localities within the Dominican Republic allows adding three new fireflies to this list, which now includes 69 species. The new species belong to the genera *Lychnacris* Motschulsky, 1853 and *Robopus* Motschulsky, 1853.

Descriptions of the new species are given below.

### MATERIAL AND METHODS

The studied material was pinned. For examination, the beetles were relaxed in water, then their detached abdominal were put for several hours in 10% KOH at room temperature. The KOH treated aedeagi and terminal abdominal segments were placed in microvials with glycerin. MSP-1 zoom stereoscopic dissecting microscope with  $\times 8 - \times 80$  magnification range was used. Photographs were taken by a Canon EOS 6D camera with Canon MP-E 65 mm lens.

The following acronyms are used in this paper: ICM, Insect Center, Moscow; IIBZ, Instituto de Investigaciones Botánicas y Zoológicas, Universidad Autónoma de San-

to Domingo; NMNH, U.S. National Museum of Natural History, Washington, D.C.

## TAXONOMY

Order **COLEOPTERA**

Family **LAMPYRIDAE**

Subfamily **LAMPYRINAE**

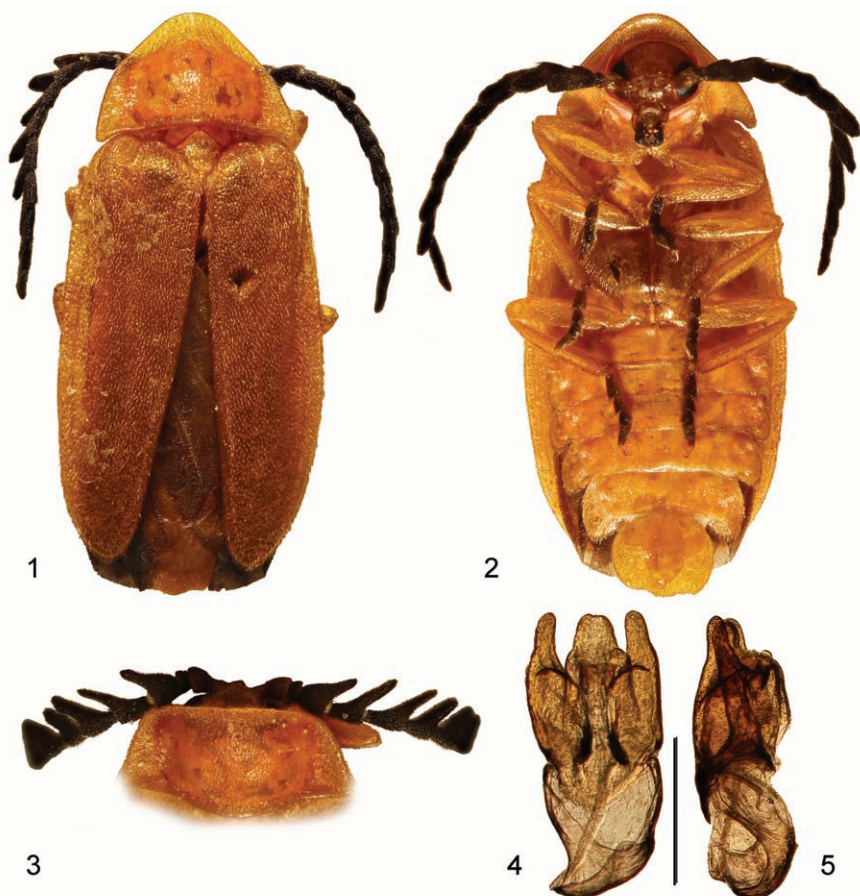
Genus *Lychnacris* Motschulsky, 1853

*Lychnacris vulpes* sp. nov.  
(Figs 1–5)

*Holotype*. Male, Hispaniola, **Dominican Republic**, Azua, Las Yayitas, 31 Aug. 2008 (coll. D. Perez & S. Medrano) (NMNH).

*Description*. Male. Orange testaceous; antennae, except scapus, terminal palpomeres and tarsi black.

Eyes relatively small (interocular distance about 1.2 times as long as eye diameter). Labrum slightly elongate, triangular. Maxillary palps small, with ultimate palpomeres noticeably longer and wider than others. Antennal sockets separated by about half their diameter. Antennae attaining to elytral two thirds, from antennomere 3 flabellate, with flabellae of antennomeres 3 and 4 about 1.2 times as long as antennomeres; antennomere 3 about twice as long as antennomere 2 and 0.8 times as long as antennomere 4; pubescence short and decumbent (Figs 1–3).



**Figs 1–5.** *Lychnacris vulpes* sp. nov., holotype, male: **1, 2**, general view; **3**, head with basal antennomeres; **4, 5**, aedeagus. Dorsal view (1), ventral view (2, 4), anterior view (3), lateral view (5). Scale bar: 0.5 mm.

Pronotum transverse, 1.5 times as wide as long, trapezoidal, triangularly produced anteriorly, with prominent acute posterior angles; dense punctuation relatively fine at disk and rough at margins. Scutellum transverse, triangular, truncate at apex (Fig. 1).

Elytra relatively broad, 1.9 times as long as wide, noticeably tapering distally, finely and rather scarcely punctate, with short decumbent pubescence (Fig. 1).

Tergite VIII with rounded distal dents, tergite IX symmetrical, tergite X absent; ultimate ventrite VIII with triangular and distally rounded visible portion and relatively long and moderately narrow spiculum ventrale (Fig. 2). Aedeagus short and robust, with broad parameres and broad median lobe (Figs 4, 5).

Female. Unknown.

Length: 7.9 mm. Width: 3.0 mm.

**Comparison.** *Lychnacris vulpes* sp. nov. may be easily distinguished from other *Lychnacris* species of the island by the uniformly orange testaceous body and flabellate antennae (Figs 1–3). The short and robust aedeagus of the new species with the very broad median lobe (Figs 4, 5) also seems to be fairly unique.

**Etymology.** The name of the new species is derived from the Latin noun *fox*, alluding to its almost uniformly orange testaceous body.

Genus *Robopus* Motschulsky, 1853

***Robopus veloz* sp. nov.**

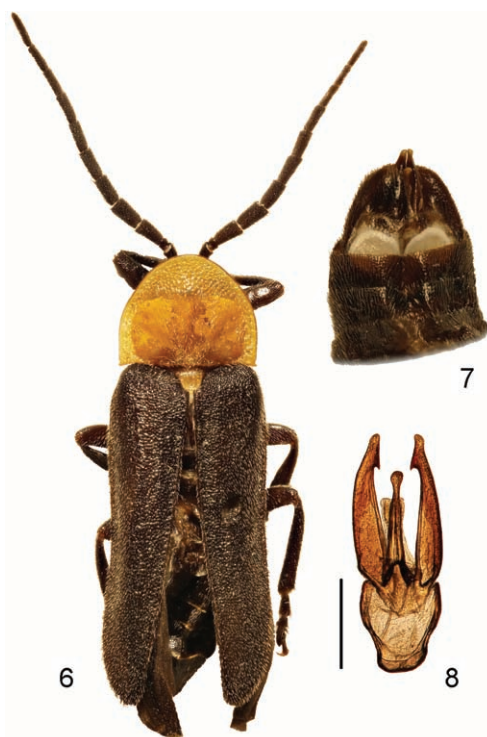
(Figs 6–8)

**Holotype.** Male, Hispaniola, **Dominican Republic**, Pedernales, 3 km S Oviedo, km 1 trail Fondo Paradi, 17°49.085'N, 71°26.336'W, 120 m, 27 Aug. 2011 (coll. D. Perez, S. Medrano & A. Hilario) “[day + UV]” (NMNH).

**Paratypes.** 3 males and 1 female, same data as for holotype (ICM, IIBZ, NMNH).

**Description.** Male. Black; prothorax and scutellum testaceous; photic spots on ventrite VII white.

Eyes moderately large (interocular distance about 0.8 times as long as eye diameter). Labrum transverse, semicircularly



**Figs 6–8.** *Robopus veloz* sp. nov., holotype, male: 6, general view; 7, abdomen; 8, aedeagus. Dorsal view (6), ventral view (7, 8). Scale bar: 0.5 mm.

incised distally. Ventral surface of head densely punctate, anteriorly with shallow median excavation. Ultimate palpomeres securiform, considerably exceeding other palpomeres in length and width. Antennae almost attaining to elytral three fourths, antennomeres conspicuously flattened; antennomere 3 about 3.6 times as long as antennomere 2 and 0.9 times as long as antennomere 4; pubescence short and decumbent (Fig. 6).

Pronotum transverse, 1.4 times as wide as long, almost semicircular, with conspicuously produced forward anterior margin and short posterior angles. Scutellum transverse, trapezoidal, truncate at apex (Fig. 6).

Elytra moderately long, 2.3 times as long as wide, slightly concave at sides, densely and rather coarsely punctate, with traces of oblique longitudinal costae, covered with short decumbent pubescence (Fig. 6).

Distal margin of ventrite VII concave, ultimate ventrite (VIII) elongate, pointed distally; tergite VIII triangular, rounded distally; photic spots on ventrite VII round, nearly contiguous (Fig. 7). Aedeagus with narrow parameres provided with sharp downward directed apical teeth; median lobe short, conspicuously shorter than parameres, constricted near apex and bulbous distally, straight in lateral view; phallobase noticeably asymmetrical, with short median suture (Fig. 8).

Female. Similar to male, but larger, with somewhat shorter antennae.

Length: Length: 6.8–7.9 mm (males); 10.5 mm (female). Width: 2.4–2.8 mm (males); 3.8 mm (female).

*Comparison.* *Robopus velozii* sp. nov. is similar to *R. bastardoii* Kazantsev et Perez, 2009 in coloration, but is distinguishable from the latter species by the uniformly testaceous pronotum, black elytra and testaceous scutellum. The aedeagus of the new species, with the short and distally bulbous median lobe, also distinguishes it from other congeners (Fig. 8).

*Etymology.* The new species is named after Dominican biologist Denia Veloz (Secretaria de Medio Ambiente, Santo Domingo), who carried out very important support work during the Dominican Orthopteroids project.

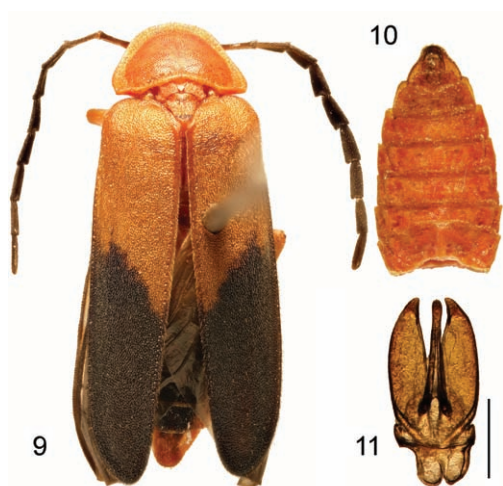
***Robopus oviedoensis* sp. nov.**  
(Figs 9–11)

*Holotype.* Male, Hispaniola, **Dominican Republic**, Pedernales, Oviedo, ~2 km way to Alto de la Rosa, 17°49.625'N 71°25.595'W, 90 m, 27 Aug. 2011 (coll. D. Perez) (NMNH).

*Paratypes.* 28 males, same data as for holotype (ICM, IIBZ, NMNH).

*Description.* Male. Orange testaceous; antennae, terminal palpomeres, elytral distal half, more so at suture, median line on abdominal tergites, tibiae and tarsi black; pronotum, except at margins, and abdomen pinkish orange.

Eyes small (interocular distance 1.4 times as long as eye diameter). Labrum



**Figs 9–11.** *Robopus oviedoensis* sp. nov., holotype, male: **9**, general view; **10**, abdomen; **11**, aedeagus, Dorsal view (9), ventral view (10, 11). Scale bar: 0.5 mm.

transverse, truncate distally. Ventral surface of head densely punctate, with narrow median groove. Ultimate palpomeres securiform, noticeably exceeding other palpomeres in length and width. Antennae attaining to elytral three fourths, from antennomere 3 conspicuously flattened and slightly serrate, with antennomere 3 about 3.1 times as long as antennomere 2 and 1.1 times as long as antennomere 4; pubescence short and decumbent (Fig. 9).

Pronotum transverse, 1.3 times as wide as long, semicircular, noticeably narrowed posteriorly, with somewhat straightened near anterior angles sides and blunt posterior angles; with very dense fine punctuation at disk and relatively large dense punctures at margins. Scutellum transverse, triangular, rounded distally (Fig. 9).

Elytra moderately long, 2.3 times as long as wide at humeri, almost parallel-sided, very densely punctate, with vague traces of oblique longitudinal costae, covered with short decumbent pubescence (Fig. 9).

Distal margin of ventrite VII almost truncate, photic spots elongate, broadly separated, ventrite VIII oval; tergite VIII



triangular, rounded distally, with slightly concave sides (Fig. 10). Aedeagus with broad flattened parameres provided with sharp downward directed apical teeth; median lobe as long as parameres, narrow, slightly bent in lateral view; phallobase conspicuously constricted proximally and emarginate at proximal margin, with long median suture (Fig. 11).

Female. Unknown.

Length: 6.0–10.2 mm. Width: 1.9–3.4 mm.

*Etymology.* The species name refers to Oviedo, the locality where the type series was collected.

*Comparison.* *Robopus oviedoensis* **sp. nov.** habitually reminds *R. acutangulus* Kazantsev et Perez, 2009, but may be distinguished by the broad transverse pronotum and orange testaceous head with complete median groove. The aedeagus of the new species, with broad parameres and conspicuously constricted proximally phallobase (Fig. 11), is quite unlike that of all other *Robopus* species.

## ACKNOWLEDGEMENTS

It is our pleasant duty to express gratitude to Sardis Medrano (Instituto Dominicano de Investigaciones Agropecuarias y Forestales, Santo Domingo), Alexis Hilario (Santo Domingo) and América Sánchez (IIBZ) for their help in collecting Dominican fireflies. The Drake Fund of the U.S. National Museum of Natural History Entomology Department supported the 2012 visit by D.E. Perez-Gelabert to the Dominican Republic.

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*Received October 15, 2013 / Accepted November 23, 2013*