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New and interesting antlions (Neuroptera: Myrmeleontidae) in small collection from United Arab Emirates

Новые и интересные муравьиные львы (Neuroptera: Myrmeleontidae) из небольшой коллекции из Объединенных Арабских Эмиратов

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Ключевые слова: Neuroptera, Myrmeleontidae, новые и малоизвестные виды, Объединенные Арабские Эмираты.

Abstract. *Nohoveus gnezdilovi* Krivokhatsky, **sp. n.** and *Subgulina vanharteni* Krivokhatsky, **sp. n.** from Sharjah Desert Park of United Arab Emirates are described. The generic affiliation for *Myrmecaelurus laetus* (Klug, 1834), *Myrmecaelurus persicus* (Navás, 1929) and *Nohoveus fidelis* Hölzel, 1968 were established on the base of male gonarcus description.

Резюме. *Nohoveus gnezdilovi* Krivokhatsky, **sp. n.** и *Subgulina vanharteni* Krivokhatsky, **sp. n.** описаны из пустынного природного парка Шарья в Объединенных Арабских Эмиратах. Родовая принадлежность видов *Myrmecaelurus laetus* (Klug, 1834), *Myrmecaelurus persicus* (Navás, 1929) и *Nohoveus fidelis* Hölzel, 1968 установлена на основании описания строения гонаркуса в гениталиях самцов.

Introduction

First small collection of Neuroptera from the United Arab Emirates (UAE) come to the collection of Zoological Institute in St. Petersburg (ZIN) after the short expedition of Dr. Vladimir Gnezdilov, cicadologist. Three interesting antlion species among collecting specimens are described here. The representative collection of palaearctic Myrmeleontidae of ZIN has been used for comparision during the work. In addition, some specimens from Museum fur Naturkunde der Humboldt-Universitat, Berlin, Germany (HUB), Naturhistoriska Riksmuseet Stockholm, Sweden (RMS), Hungarian Museum Natural History, Budapest (HNH) and Natural History Museum, California Academy of Sciences, San Francisco, USA (CAL) collections were studied.

Nohoveus gnezdilovi Krivokhatsky, **sp. n.**
(Color plate 21: fig. 1–2; 5– 6)

Material. Holotype, ♂: UAE, Sharjah Desert Park, 25°16′859″ N / 33°41′422″ E, 17.04.2010, on light, 20.00–20.30, V.M. Gnezdilov. Paratype: 1♀, with the same label.

Comparative material. *Nohoveus saudiarabicus* (Hölzel, 1982): 1♂, Yemen, Sanaa, 22.08.1930 (ZIN); 1♂, 20.03.1931, Jenjurist (ZIN); 2♀, Yemen, Wadi Zabid, 1.05.1970, A. Marzso (HNH).

Description. Largest known *Nohoveus* with yellowish body and grayish wings with brown shadows (fig. 1, 2). Forewing 29 mm, hindwing 27 mm in both sexes, abdomen 30 mm in male, and 25 mm in female.

Opistognathic head flat, with prominent eyes. Face bright, clypeus and labrum with a few short staring black hairs. Ocular rings without any hairs. Frons convex, with median sutura and two brown submedian spots. Maxillar and labial palpi small, yellow, simple, third labial segment slightly modificates to spindle and has brown spot at the middle. Antennae longer than head and pronotum, pale, straight, only flattened club curved outside.

Pronotum longer than wide, yellow with three longitudinal interrupted brown lines, bare. Meso- and meta-notum with more dark brown median and two lateral lines. There are some irregular groups of pale accumbent small hairs.

Wings lanceolate, transparent, with brown shades. Costal field with one road of cells, simple before stigma and branched in apical part. In both wings RS branched from R some before than half of it length. Cubital fork is situated much ahead of RS branching. There are 6–7 presectoral crossveins in both wings in male and 5–6 in female. Banksian lines are visible. There are dark shadows at the membrane, especially at the forewing. There is a line of small dots on Sc at the base of each transcostal vein and other line at gradates in apical field. Some apical forks are darkened too. A brown wide spots present at the rhegmal zone and at the Cu-A anastomosis of forewing; in hind wing same spots much reduced. A delicate brown border of membrane present in both wings.

Legs pale brown with black bristles and hairs. Special sensory femoral hairs are absent. Tibial spurs as long as (in the hind legs some shorter) first tarsal segment. Spurs are pale reddish, thin and straight. Claws same colored, but longer and orthogonally directed. Fifth tarsomer maximal length and equal 2–4th together.

Abdomen of male long, due to increased 4–6 segments, has two pare of hair pencils. Continuous median and two abrupt lateral brown lines are present on the pale tergites of abdomen. Abdomen ended with ectoproctes with tapered angles. Genitalia of male characterized by plane curved tube of gonarcus without abrupt angle with parameres inserted into the tip (fig. 5).

Abdomen of female with the segments of normal length. Female genitalia with visible lateral gonapophisis with digging setae, well developed anterior gonapophisis and reduced small posterior gonapophisis (fig. 6).

Comparision. This species has no closely related group in *Nohoveus* Navás, 1919 due to very long abdomen of male and unique pictures on wings (not similar to *N. saudiarabicus*); its genital construction is typical for *Nohoveus* and *Nophis* Navás, 1912 both, but abdomen has no sharp bend, characteristic for *Nophis*. There are no reasons to describe the new genus nevertheless.

Etymology. The species is named after the name of my

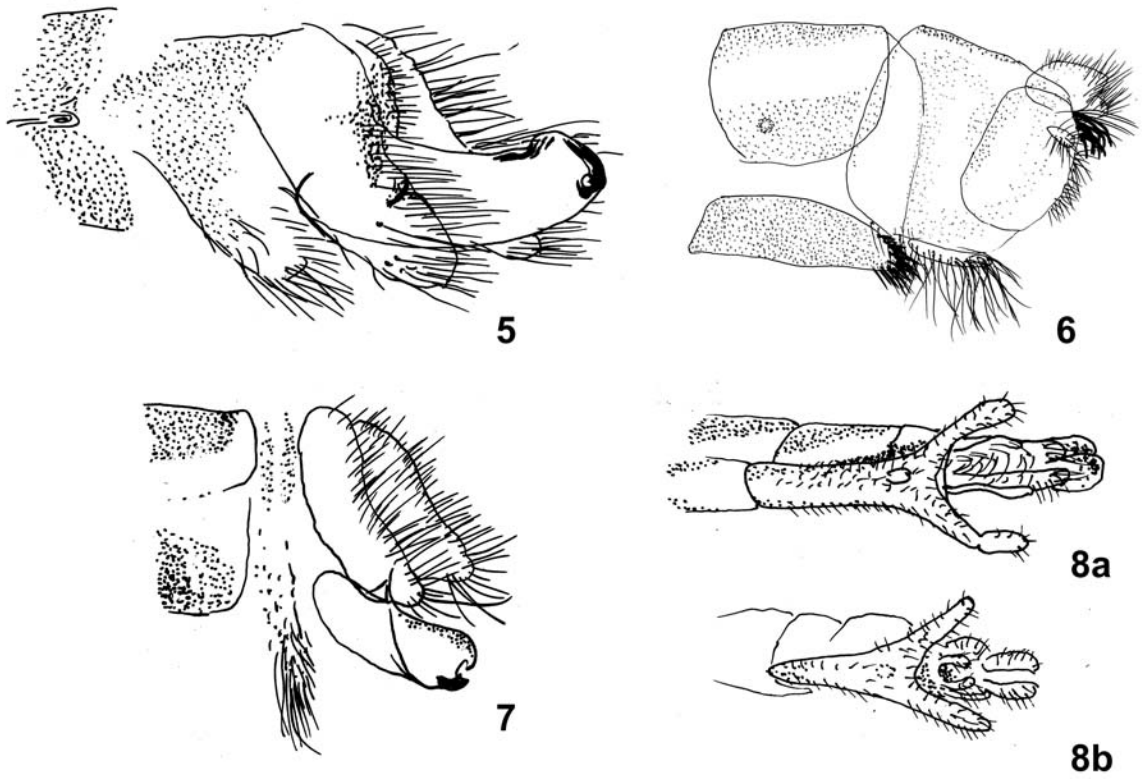

Fig. 5–9. *Nohoveus*, *Myrmecaelurus* and *Subgulina* (5, 7 – male genitalia; 6, 8 – female genitalia).
Рис. 5–9. Представители родов *Nohoveus*, *Myrmecaelurus* и *Subgulina* (5, 7 – генитилии самца; 6, 8 – гениталии самки).
5, 6 – *Nohoveus gnezdilovi* **sp. n.**; 7 – *Myrmecaelurus laetus* (Klug, 1834); 8 – *Subgulina vanharteni* **sp. n.**; 9 – *S. iranica* (Hölzel, 1968).

friend entomologist Dr. Vladimir Gnezdilov, permanent collector of antlions during all his expeditions.

Myrmecaelurus laetus (Klug, 1834)
(Color plate 21: fig. 3, 7)

Material. 1♂, UAE, Umm Al Quwain, sand dunes nr to sea coast, 25°31′369″ N / 55°31′499″ E, 7.04.2010, V.M. Gnezdilov.

Comparative material. *Myrmecaelurus laetus* (Klug, 1934): *Myrmeleon laetus*, syntype, ♀, Arabia Ies (Iran) (HUB); 1♂, Gusseinabad, S of Nasrutabad, 3.04.1898, N. Zarudny (ZIN); 2♀, Bareng – Nasrutabad, 11.05.1898 (ZIN); 1♂, 10♀, Reizar, Gil'mend Afg. Flus, Seistan, 23.05.1898, N. Zarudny (ZIN); 3♂, 2♀, Kambil', Kuche, Makran, 8.03.1901, N. Zarudny (ZIN); 3♂, 4♀, Lekubal', Kuche, 9.03.1901, N. Zarudny (ZIN); 1♀, Iran, Parag, Makran, Sea coast, SE Persia, 17.03.1901, N. Zarudny (ZIN); 1♂, Ge v., Kir R., Ge Co., 22–26.03.1901, N. Zarudny (ZIN); 1♂, Tangi Dain Canion, Karvandar, Bampur, 24.04.1901, N. Zarudny (ZIN); 2♀, Gusseinabad, S of Nasrutabad, 26–29.05.1901 (ZIN); 3♀, Afghanistan, Eastern Prov., 08.1940 (ZIN); 2♀, Balkh-Kundus, 03–05.1941 (ZIN); Eastern Prov. [Nangarkhar], E. Borovkov (ZIN); 1♂, 1♀, Jordania, Jordantal, Ufer N.d. Toten Meer, 350 m, 18.08.1958, J. Klapperich (HNH); 4♀, Chapliar Distr., Nangarkhar, 08.1960 (ZIN); 1♂, 3♀, Turkhanskaya steppe, Nangarkhar, 06.1962, E. Borovkov (ZIN); 1♂, Shizuar env., Nangarkhar, 1.07.1962, E. Borovkov (ZIN); 2♀, Barikot [Batikot] v., Nangarkhar, 04.1963, E. Borovkov (ZIN); 1♀, Iran, Robishar lake, 12.06.1975, B. Sanford (CAL).

Myrmecaelurus persicus (Navás, 1929): *Nohoveus persicus*, holotype, ♂, without tip of abdomen, Bushire, Persia (RMS); 1♀, Shaandak, Kirman, 22.06.1898, N. Zarudny (ZIN); 1♀, Bazman, S. Kirman, 23.06.1898, N. Zarudny (ZIN); 1♀, Kyaguruka, Ge, Makran, 27.03.1901, N. Zarudny (ZIN); 1♂, Iran, Bampur env., 8.04.1901, N. Zarudny (comp. with type) (ZIN); 1♂, Bampur env., 8.04.1901, N. Zarudny (ZIN); 1♂, Rasy R., Bampur, 9.04.1901, N. Zarudny (ZIN); 11♀, Podagi, Bampur, 26.04.1901, N. Zarudny (ZIN); 4♂, 1♀, Gunich-Tanhkan, 27.04.1901, N. Zarudny (ZIN); 1♂, Chaashen, Sargad, Bampur, 28.04.1901, N. Zarudny (ZIN); 1♂, Torosh Spring, Sargad, Bampur, N. Zarudny (ZIN); 3♂, 1♀, Kuusha-Larumba, Bampur, 6–10.05.1901, N. Zarudny (ZIN); 1♂, Sija-Dzhengal', Bampur, 11.05.1901, N. Zarudny (ZIN); 1♀, Nusretabad, Seiistan, 23–24.06.1901, N. Zarudny (ZIN); 4♂, Nekhi-Bendan Co., Khorasan, 26–30.06.1901, N. Zarudny (ZIN); 15♂, 18♀, Iran, Jazd, 1200 m, N 14, 28.05.1999, G. Koszegi, K. Gasko (HNH); 4♀, Iran, Kavir Des., Houz-e Soltan, Prov. Makran, 50″55′E, 35″5′N, 3 km S Kusk-e Nosrat, 28.06.2000, Gy. Fabian et al. (HNH).

Nohoveus fidelis Hölzel, 1968: 4♂, 8♀, Israel, Centr. Negev, Makhtesh Ramon, 8–14 km ENE Mizpe Ramon, 18.04.1994 (V. Zaitzev, M. Volkovitsh, M. Dolgovskaya) (ZIN).

Description of male. Middle sized yellow antlion with broun figures on the body (fig. 3). White pheromone brushes placed at 6 and 7 segments of abdomen. Male genitalia characterized by curved gonarcus tube with visible abruption close the middle (fig. 3). That abruption is a characteristic of the genus *Myrmecaelurus* Costa, 1855 in contrast to *Nohoveus*, which has plane curved gonarcus.

Comparision. The specimens in wing and body opinion (fig. 3) was closed to *Nohoveus fidelis* Hölzel, 1968, which known from Iran and Israel, and wide spread saharo-iranian *Myrmecaelurus laetus* (Klug, 1834) and irano-arabian Myrmecaelurus persicus (Navás, 1929). Last two species were described without male genitalia description (syntypes of *laetus* are females, holotype of *persicus* is male without tip of abdomen (both examined)). According to my research of the morphological diversity in different populations both sexes of *laetus* can be recognized by strong vertical brown stroke on postscutellum instead of fork in persicus.

Hereby, firstly after distinctive generic differentiation *Myrmecaelurus* and *Nohoveus* [Hölzel, 1972], in this communication the names *Myrmecaelurus laetus* (Klug, 1834) and *Myrmecaelurus persicus* (Navás, 1929) are established on the base of new generic placement distinctions. The generic position of *Nohoveus fidelis* Hölzel, 1968 has to be confirmed, as it has recently been used in another combination as well [Stange, 2004].

Subgulina vanharteni Krivokhatsky, **sp. n.**
(Color plate 21: fig. 4, 8)

Material. Holotype, ♀: UAE, Sharjah Desert Park, 25°16′859″ N / 33°41′422″ E, 17.04.2010, on light, 20.00–20.30, V.M. Gnezdilov. Paratypes: 2♀, with the same labels.

Comparative material. *S. iranica* (Hölzel, 1968): 1♀, Goarpusht vil., Bampur, SE Persia, 10.04.1901, N. Zarudnyi (ZIN); 1♀, Chaashan, Sarhad, Bampur, SE Persia, 28.04.1901, N. Zarudnyi (ZIN).

Description. Small pale yelow antlion with dark brown pictures (fig. 4). Forewings 18 mm (19 mm in paratypes); hindwings 17 mm (18 mm in paratypes); abdomen 13 mm (huddled), 14 (gaunt – in paratypes).

Head flat, with eyes far apart. Face light, with small medial strike and pale brown narrow trapezium under antennae. Dark brown zigzag above antennae; two median spots at the frons and halfring with central macula at the vertex are pale brown. Three long white rim setae cover eyes extended from edges of frons. Antennae clavate, light brown with dark rings on each segment. Clava flattened and swirled. Palpi light, last segment of labial palpi fusiform with darker area around sensory pit.

Pronotum longer than wide, light-fulvous, with three longitudinal dark brown stripes. Lateral margins of pronotum with long white upward directed hairs. Interrupted 3-line figured delicate picture prolongs onto the meso- and postnotum.

Legs light-fulvous, with white and black hairs and setae. Forecoxa with a site of long white hairs. Base of fore- and midfemora with short black sensor hair each. Tarsus: 5th segments of all tarsi twice longer than basitarsus and as long as 2nd, 3rd and 4th together. Spurs brick red, slightly curved, twice shorter than basitarsus. Claws orthogonally directed, twice shorter than 5th segment.

Wings lanceolate. All longitudinal veins light with dark brown punctation. Membrane of forewing darkened with brown sites. Pterostigma brown, all Banksian lines undistinct, but membraine of wings has been curled around RS and Cu (so the Banksian lines are present). Forewing with 4, hindwing with 2 presectoral crossveins (holotype in right wing has 1); inner cubital field and exterior Cu-A field of forewing without supplementary veins.

Abdomen dark-brown with yellow longitudinal submedial lines. Profil of sternit VIII of female more deep than in other species of *Subgulina* Krivokhatsky, 1996 (fig. 8).

Male unknown.

Comparision. New species of *Subgulina* much close to *S. iranica*, which habit in other continental brink of Persian Gulf. *S. vanharteni* **sp. n.** differs from *S. iranica* by solid figures of pronotum and much brown coloration and dotted hind wings in postrhegmal area. More over, the lateral processes of female sternit VIII in new species some longer, than in *iranica* (fig. 9).

Etymology. The species is named in honor of Tony van Harten, entomologist, expert on Arabian fauna.

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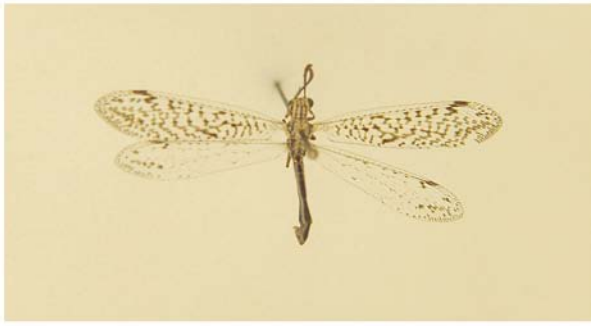

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Fig. 1. *Nohoveus gnezdilovi* **sp. n.**, holotype, male.
Fig. 2. *Nohoveus gnezdilovi* **sp. n.**, paratype, female.
Fig. 3. *Myrmecaelurus laetus* (Klug 1834), male.
Fig. 4. *Subgulina vanharteni* **sp. n.**, paratype, female.

Рис. 1. *Nohoveus gnezdilovi* **sp. n.**, голотип, самец.
Рис. 2. *Nohoveus gnezdilovi* **sp. n.**, паратип, самка.
Рис. 3. *Myrmecaelurus laetus* (Klug 1834), самец.
Рис. 4. *Subgulina vanharteni* **sp. n.**, паратип, самка.

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