

## Research article

Submitted: April 16th, 2023 – Accepted: October 16th, 2023 – Published: December 21st, 2023  
DOI: 10.13133/2284-4880/1494

# A new species of *Zorochros* from Iran, with additional records and an updated checklist of Iranian species of this genus (Coleoptera: Elateridae, Negastrinae)

Hiva NASSERZADEH<sup>1,\*</sup>, Giuseppe PLATIA<sup>2</sup>, Sayeh SERRI<sup>1</sup>

<sup>1</sup> *Insect Taxonomy Research Department, Iranian Research Institute of Plant Protection, Tehran, 19395-1454* – hnasserzadeh@gmail.com, h\_nasserzadeh@yahoo.com; Orcid: 0000-0001-5827-7334; serrisayeh@gmail.com; Orcid: 0000-0001-8130-6869

<sup>2</sup> *Via Molino Vecchio, 21a, 47043 – Gatteo (FC), Italy* – giuseppe.platia52@gmail.com.

\*Corresponding author

## Abstract

A new species from western provinces of Iran, *Zorochros parvus* Nasserzadeh & Platia, sp. nov., is described, and a new Iranian record of *Z. murinus* (Reitter, 1895) is presented, with figures and distributional maps of both species at regional level. An updated checklist of Iranian species of *Zorochros* Thomson, 1859, with their provincial distribution, is finally included.

**Keywords:** *Zorochros*, new species, new record, click beetles, distributional maps, checklist, Iran.

urn:lsid:zoobank.org:pub:579FA81B-ED1E-4556-8A1A-965EA45209AC

## Introduction

The genus *Zorochros* Thomson, 1859, including more than 70 species in Palearctic Region, is distributed worldwide. This genus consists of small, sub-aquatic elaterids. Adults inhabit riverbanks, in gravel, under stones and detritus (Schimmel & Tarnawski 2012; Laibner 2000). Fifteen species were recorded thus far from Iran (Cate 2007; Cate et al. 2002; Han et al. 2015; Nasserzadeh et al. 2018, 2021; Platia 2013, 2015). In this study, one new species and new record are added to the list of *Zorochros* species of Iran.

## Material and Methods

Specimens were collected by aspirator through searching in detritus, debris and under stones near water. Species of this genus are not attracted by light traps and light sources in general.

Morphological characters and dissected male external genitalia were studied with a Zeiss stereomicroscope model Stemi SV11 and with an Olympus compound microscope model BH2. Photographs were taken using a digital Canon 650D Camera connected to an Olympus SZH Stereomicroscope. The photos were modified by Photoshop CS software.

For studying the genitalia, abdomen was removed using forceps. The extracted aedeagi were mounted in Euparal® on transparent cards or fixed by water-soluble glue on the card and pinned with the specimens. Body length was measured along the midline from the anterior margin of the frons to the apex of the elytra; the width was measured across the broadest part.

Localities of the type specimens are quoted directly from label data and are given in quotation marks. One slash “/” indicates new line. The author’s corrections and extra data are given in brackets “[ ]”.

The map of Iran was downloaded from Wikimedia (Zifan 2017) and modified in Photoshop.

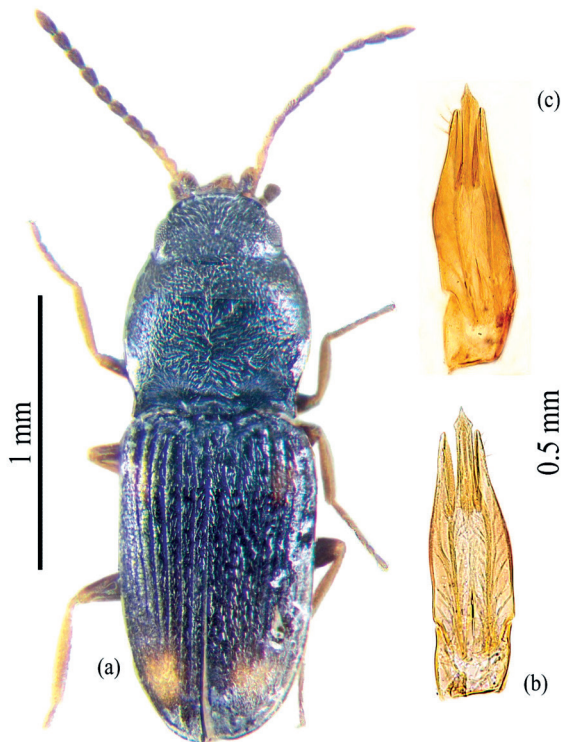
Acronyms of the collections:

HMIM Hayek Mirzayans Insect Museum, Tehran, Iran  
CPG Giuseppe Platia collection, Gatteo, Italy

## Results

**Subfamily Negastrinae Nakane & Kishii, 1956**  
**Genus *Zorochros* C.G. Thomson, 1859**

***Zorochros parvus* Nasserzadeh & Platia, sp. nov.**  
(Figs 1–2, 5)



**Fig. 1** – *Zorochros parvus* sp. nov., male holotype. **a**, Dorsal habitus; **b**, aedeagus, dorsal view, photography by compound microscope, 40×; **c**, aedeagus, dorsal view, photography by compound microscope, 10×.

**Type locality.** Iran: Lorestan province, Pol-e Dokhtar County, ca. 5 km. West of Saramad village.

**Type material.** Holotype: ♂ (HMIM): Iran: “Lorestan prov. / Andimeshk to Khorramabad / hwy., ca. 50 km N Andimeshk, 586 m., N32 57 47.7 E48 08 43.1, 10.VI.2019, leg. H. Nasserzadeh”. Paratypes: 2 ♂♂ (HMIM), 1 ♂ (CGP): same data as holotype. [aedeagi of all three type specimens mounted in Euparal® on transparent card].

**Diagnosis:** The species is characterized by its small size and coloration, and by the acarinate posterior angles of pronotum. It is comparable with *Z. pallierus* (Desbrochers des Loges, 1875), from which it can be easily distinguished by the less convex body and the coarser and granulated punctuation of pronotum.

**Description. Male** (Fig. 1a). Body shiny black to brown with four yellowish or pale spots (a first pair on humeral angles, a second one before the elytral apex; Fig. 1a); first to third antennomeres yellow; tibia, tarsus and distal end of the femurs yellow; body covered by short, very fine, whitish pubescence.

Head with flat frons, moderately granulated with semicircular anterior margin. Antennae not reaching the posterior pronotal angles, being shorter by approximately one antennomere; slightly serrated from fourth antennomere; second and fourth antennomeres equal in length, third slightly smaller than both; fourth to tenth antennomeres

triangular, approximately 1.5 times longer than width; last antennomere slightly longer than penultimate, ellipsoidal.

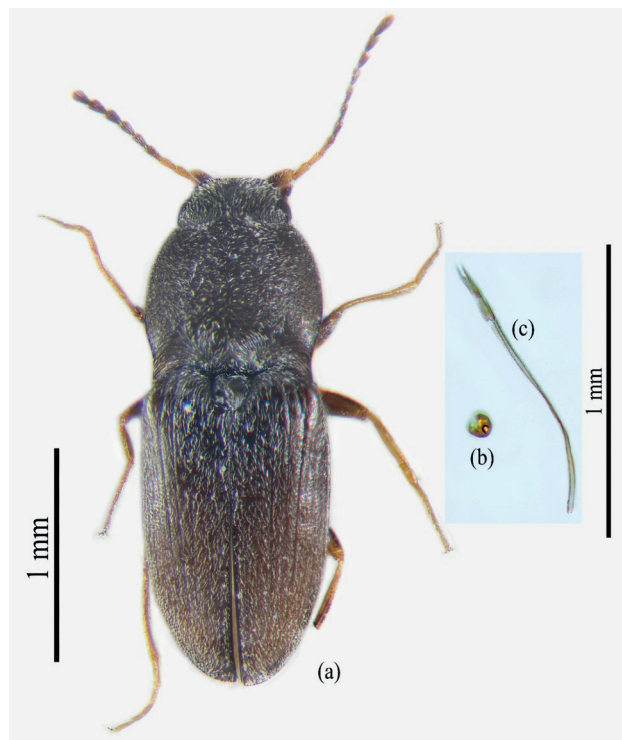
Pronotum 1.1 × wider than long, widest at middle, convex; sides arcuate, from posterior third narrowing, distinctly sinuated before the posterior angle, the latter stout, divergent and not carinate; the entire surface is punctured-granulated, punctures dense and coarse, granules more densely distributed over the central part of the disk.

Scutellum as long as wide, slightly sinuated at apex and convex.

Elytra approximately two times longer than pronotum and as wide as pronotum at widest length; flat on the central part, abruptly sloping at sides; sides parallel from apical base to posterior third, then converging to the apices;



**Fig. 2** – Habitat of *Zorochros parvus* sp. nov. in its type locality.



**Fig. 3** – *Zorochros murinus* (Reitter, 1895), female. **a**, Dorsal habitus; **b**, internal genitalia, spermatheca; **c**, internal genitalia, ovipositor.



Fig. 4 – Map of the Iranian provinces.





 *Zorochochros parvus* sp. nov.  *Zorochochros murinus*

Fig. 5 – Distribution map of *Zorochochros parvus* sp. nov. and *Z. murinus* (Reitter, 1895) in Iran.

eight striae regularly marked, the three lateral ones not complete, interstriae flat and finely punctured.

Femurs simple; tibiae sub-straight, not dilated. Aedeagus as in Fig. 1b, c (length 0.35–0.40 mm).

**Female.** Unknown.

**Size.** Length 1.9–2.1 mm; width 0.6–0.7 mm.

**Distribution:** Western Iran (Fig. 5).

**Etymology.** The name refers to the small size of the species (from the Latin *parvus*, meaning small).

**Habitat.** Riverbanks, in gravel and/or under stones.

***Zorochochros murinus* (Reitter, 1895)**  
(Figs 3-5)

**Material examined.** 1 ♀ (HMIM): **Iran:** Kermanshah province, Javanrood to Tazeh-abad Rd., 13km. W. Javanrood, Aliabad, 34.47.57.7N, 46.23.54.4E, 1127 m, 29 May 2007, leg. H. Nasserzadeh, R. Zahiri, O. Montreuil; 2 ♀♀ (HMIM): **Iran:** Ilam province, Dehloran to Abdanan rd., Cham Kabood, 32.55.0.5N, 47.31.31.9E, 743 m, 6 May 2008, leg. H. Nasserzadeh, M.R. Nematian, O. Montreuil.

**Distribution.** Europe: Azerbaijan, Armenia, Georgia, Russia (South European Territory); Asia: Kyrgyzstan, Turkmenistan, Turkey (Cate 2007). **New record for Iran** (Fig. 5).

**Checklist of *Zorochochros* species and their provincial distribution in Iran:**

Distribution data are based on current study, Cate 2007, Cate et al. 2002, Dolin & Atamuradov 1994, Han et al. 2015, Nasserzadeh et al. 2018 and 2021, Platia 2013 and 2015. See the map of Iranian provinces (Fig. 4).

Species name	Province names
<i>Zorochochros araxicola</i> (Reitter, 1895)	Chaharmahal va Bakhtiyari, Hamedan, Hormozgan ( <i>New record</i> ), Ilam, Lorestan
<i>Z. dilatatus</i> Nasserzadeh & Platia, 2018	Hamedan, Ilam, Kermanshah, Khuzestan ( <i>New record</i> ), Lorestan
<i>Z. frenzeli</i> Platia, 2015	Hormozgan
<i>Z. freyi</i> (Dolin, 1996)	Hormozgan, Ilam
<i>Z. hispidus</i> (Dolin & Atamuradov, 1987)	Khorasan-e Razavi
<i>Z. iranicus</i> (Dolin, 2002)	Fars, Hamedan, Hormozgan, Kerman, Kermanshah, Khuzestan, Khorasan-e Razavi ( <i>New record</i> ), Sistan va Baluchestan
<i>Z. kermanensis</i> Platia, 2015	Kerman
<i>Z. kopetdagensis</i> (Dolin, 1994)	Golestan (from original description)
<i>Z. mesasiaticus</i> (Dolin, 1995)	Qom
<i>Z. murinoides</i> (Gurjeva, 1963)	Hormozgan, Kerman
<i>Z. murinus</i> (Reitter, 1895)	Ilam, Kermanshah ( <i>New records for Iran</i> )
<i>Z. nanus</i> (Gurjeva, 1963)	Qazvin
<i>Z. palliocrus</i> (Desbrochers des Loges, 1875)	No locality was cited
<i>Z. parvus</i> sp. nov.	Lorestan
<i>Z. pilosellus</i> (Reitter, 1895)	Alborz, Azarbaijan-e Gharbi, Chaharmahal va Bakhtiyari, Fars, Hamedan, Ilam, Kermanshah, Lorestan, Tehran, Zanjan
<i>Z. quadrinaevus</i> (Reitter, 1895)	Fars, Gilan ( <i>New record</i> ), Golestan, Kordestan
<i>Z. recellentus</i> (Dolin, 1995)	Lorestan ( <i>New record</i> )

## References

- Cate P.C., Platia G., Schimmel R. 2002. New species and records of click beetles (Coleoptera: Elateridae) from Iran, with a checklist of known species. *Folia Heyrovskyana*, 10: 25–68.
- Cate P.C. 2007. Family Elateridae, pp. 89–209. In: Löbl I., Smetana A. (eds), *Catalogue of Palaearctic Coleoptera*, Vol. 4. Elateroidea - Derodontoidea - Bostrichoidea - Lymexyloidea - Cleroidea - Cucujoidea. Apollo Books, Stenstrup.
- Dolin V.G., Atamuradov K.I. 1994. Click-beetles (Elateridae) of Turkmenistan. Institut zoologii NAN Ukrainy, Kiev, 178 pp. [in Russian]
- Han T., Park I.G., Park H. 2015. Two new species of the genus *Zorochros* (Coleoptera: Elateridae: Negastriinae) from Korea. *Zootaxa*, 3904 (2): 261–269, Doi: 10.11646/zootaxa.3904.2.5
- Laibner S. 2000. Elateridae of the Czech and Slovak Republics. Ing. Vit Kabourek. Zlin, Czech Republic, 292 pp.
- Nasserzadeh H., Platia G., Parsi F., Serri S. 2018. Three new species, *Elathous zagrosensis* sp. n., *Zorochros dilatatus* sp. n., and *Dicronychus iranicus* sp. n., and noteworthy records of click beetles from western Iran (Coleoptera: Elateridae). *Zootaxa*, 4394 (4): 517–536, Doi: 10.11646/zootaxa.4394.4.3
- Nasserzadeh H., Platia G. 2021. A study of the click beetles (Coleoptera: Elateridae) of northwestern Iran with three new species *Reitterelater prosternalis* sp. n., *Melanotus borumandi* sp. n. and *M. kurdestanicus* sp. n. *Zootaxa*, 4941 (3): 338–368, Doi: 10.11646/zootaxa.4941.3.2
- Platia G. 2013. Click-beetles collected in Iran by the expeditions of the Naturkundemuseum Erfurt with description of two new species (Insecta: Coleoptera: Elateridae). *Vernate*, 32: 391–402.
- Platia G. 2015. New or interesting click-beetles collected in Iran by the expeditions of the Naturkundemuseum Erfurt (Insecta: Coleoptera: Elateridae). *Vernate*, 34: 275–284.
- Schimmel R., Tarnawski D. 2012. New and little known species of the genus *Zorochros* Thomson, 1859 (Coleoptera: Elateridae) from Palaearctic and Oriental Region. *Annales de la Société entomologique de France*, 48 (3–4): 347–362, Doi: 10.1080/00379271.2012.10697784
- Zifan A. 2017. Map of Iran with province names. Own work; derived from File:BlankMap-World6-Equirectangular.svg. Available on line at: [https://commons.wikimedia.org/wiki/File:Iran\\_provinces.svg](https://commons.wikimedia.org/wiki/File:Iran_provinces.svg)