

Two new *Holochelus* (subgenus *Miltotrogus*) species (Coleoptera Scarabaeidae Melolonthinae Rhizotrogini) from Iran

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Abstract

Two new species of the subgenus *Miltotrogus* Reitter 1902 of the genus *Holochelus* Reitter 1889 are described from material collected during several Czech biological expeditions to Iran. *Holochelus* (*Miltotrogus*) *jelineki* sp. nov. and *Holochelus* (*Miltotrogus*) *mikatorum* sp. nov. are compared with the morphologically similar species *Holochelus* (*Miltotrogus*) *zimmermanni* (Nonveiller 1965), *Holochelus* (*Miltotrogus*) *fuscus* (Nonveiller 1965) and *Holochelus* (*Miltotrogus*) *parvus* (Nonveiller 1965), respectively. Previously unknown females of *H. (M.) parvus* and *H. (M.) zimmermanni* are described and the geographic location of the type locality of *H. (M.) fuscus* is clarified.

Key words: Coleoptera, Scarabaeidae, Melolonthinae, Rhizotrogini, *Holochelus*, *Miltotrogus*, taxonomy, new species, Iran, Palearctic region.

Introduction

The rhizotrogine genus *Holochelus* Reitter 1889 currently includes over 50 species distributed from Central Europe to Afghanistan, Pakistan and Nepal (Bezděk, 2016). The subgeneric classification of *Holochelus* is not very stable. Generally, three subgenera are recognized (e.g. Bezděk, 2016): nominotypical *Holochelus*, *Miltotrogus* Reitter 1902 and *Pakistanotrogus* Keith 2006. The taxonomic status of another subgenus *Eriotrogus* Reitter 1902 is unclear (Bunalski, 1994; Nikolajev, 2000). Nevertheless, a reclassification of the genus is in preparation (Igor V. Shokhin, personal communication, 2022).

Recently, the authors had the opportunity to study several species of the genus *Holochelus* collected in the Zagros Mountains mainly during Czech biological expeditions to Iran. Besides, a part of the material was recorded by the expedition carried out in 1977 by the Department of Entomology, National Museum (of Natural History) in Prague in cooperation with the Plant Pests and Diseases Research Institute in Tehran. Additional source of studied specimens was also material recently collected by several Czech amateur entomologists during their trips to Iran. The examination of this material enabled us to describe two new species, which were provisionally assigned to the subgenus *Miltotrogus*. The previously unknown females of *Holochelus* (*Miltotrogus*) *parvus* (Nonveiller 1965) and *Holochelus* (*Miltotrogus*) *zimmermanni* (Nonveiller 1965) are described for the first time.

Materials and methods

Specimens were examined with a Novex stereomicroscope; measurements were taken in 20 mm with an ocular grid. Length measurements are from the anterior margin

of the clypeus to apices of the elytra. The habitus photographs were taken with a Canon MP-E 65mm/2.8 1-5× macrolens attached to a Canon EOS 550D camera. Partially focused images of each specimen were stacked using the Helicon Focus 3.20.2 Pro software. Coordinates and altitude are assigned for each locality mentioned in the text (material examined in each species) (see gazetteer, table 1). These data were used in the construction of distribution maps (figure 1). The distribution map was prepared using SimpleMappr (Shorthouse, 2010). Specimens in the type series are provided with one red printed label: '[name of the taxon] sp. nov., HOLOTYPUS or PARATYPUS [with type number and sex symbol], D. Keith, A. Bezděk, R. Sehnal and D. Král det. 2021'. Verbatim label data are cited for type material examined. Separate labels are indicated by double vertical slashes [||], lines within each label are separated by a vertical slash [|.]. Information in quotes indicates the original spelling. Authors' remarks and additional comments are placed in brackets [()].

The following codes identify the collections housing the material examined (curators in round brackets):

DKCB - David Kopr collection, Budeč, Czech Republic;
DKCC - Denis Keith collection, Chartres, France;
DKCP - David Král collection, Praha, Czech Republic (deposited in NMPC);

GMCL - Geoffrey Miessen collection, Liège, Belgium;
GSCP - Guido Sabatinelli collection, Prévessin, France;
HNHM - Hungarian Natural History Museum, Budapest, Hungary (Győző Szél);

IECA - Biology Centre CAS, Institute of Entomology, České Budějovice, Czech Republic (Aleš Bezděk);

ISCR - Igor V. Shokhin collection, Rostov-na-Donu, Russia;

MMCP - Martin Mařík collection, Praha, Czech Republic;

MNCR - Milan Nikodým collection, Roztoky u Prahy, Czech Republic;
 MNHN - Muséum national d'Histoire naturelle, Paris, France (Antoine Mantilleri, Olivier Montreuil);

NMPC - National Museum, Prague, Czech Republic (Jiří Hájek);
 RSCV - Richard Schnal collection, Velenice, Czech Republic.

Table 1. Gazetteer of the known collecting localities of the examined material of *Holochelus (Miltotrogus) fuscus* (Nonveiller 1965), *H. (M.) jelineki* sp. nov., *H. (M.) mikatorum* sp. nov., *H. (M.) parvus* (Nonveiller 1965) and *H. (M.) zimmermanni* (Nonveiller 1965), with their geographic coordinates and altitude data; * type localities.

Species	Province	Locality	N	E	~ altitude m a.s.l.
* <i>H. fuscus</i>	Khuzestan	Ab-e Shimbar	32°23'28"	49°36'58"	850
<i>H. fuscus</i>	Khuzestan	Chiimbra, see Ab-e Shimbar			
<i>H. fuscus</i>	Khuzestan	Ghiimbar, see Ab-e Shimbar			
<i>H. fuscus</i>	Khuzestan	Ghiimbra, see Ab-e Shimbar			
<i>H. jelineki</i>	Lorestan	Andimeshk, 60 km NW	32°51'	47°56'	800
<i>H. jelineki</i>	Lorestan	Khorramabad, 30 km SW	33°17'08"	48°12'18"	1700
* <i>H. jelineki</i>	Lorestan	Khorramabad, 50 km SW	33°8'35"	48°10'38"	1400
<i>H. jelineki</i>	Fars	Mahmudvand	33°29'18"	48°01'59"	950
<i>H. mikatorum</i>	Fars	Chah chenar	30°00'24"	51°42'40"	1950
<i>H. mikatorum</i>	Fars	Chah gov	29°58'34"	51°44'28"	2050
<i>H. mikatorum</i>	Fars	Chah tut	30°02'48"	51°41'09"	1950
* <i>H. mikatorum</i>	Fars	Dasht-e Arzhan, 11 km W	29°35'	51°56'	1950
<i>H. mikatorum</i>	Fars	Dast-e Arzan, see Dasht-e Arzhan			
<i>H. mikatorum</i>	Fars	Dašt-e Aržan, 11 km W, see Dasht-e Arzhan			
<i>H. mikatorum</i>	Fars	Dašt-e Aržan, 3 km W see Dasht-e Arzhan			
<i>H. mikatorum</i>	Fars	Khollar, 2 km W	29°59'	52°12'	2200
<i>H. parvus</i>	Isfahan	Demaveh, 16 km SEE	32°57'09"	50°38'50"	2450
<i>H. zimmermanni</i>	Kermanshah	Jalilvand	34°14'22"	46°32'33"	1650
<i>H. zimmermanni</i>	Lorestan	Malavi, 8 km NW	33°16'	47°42'	880

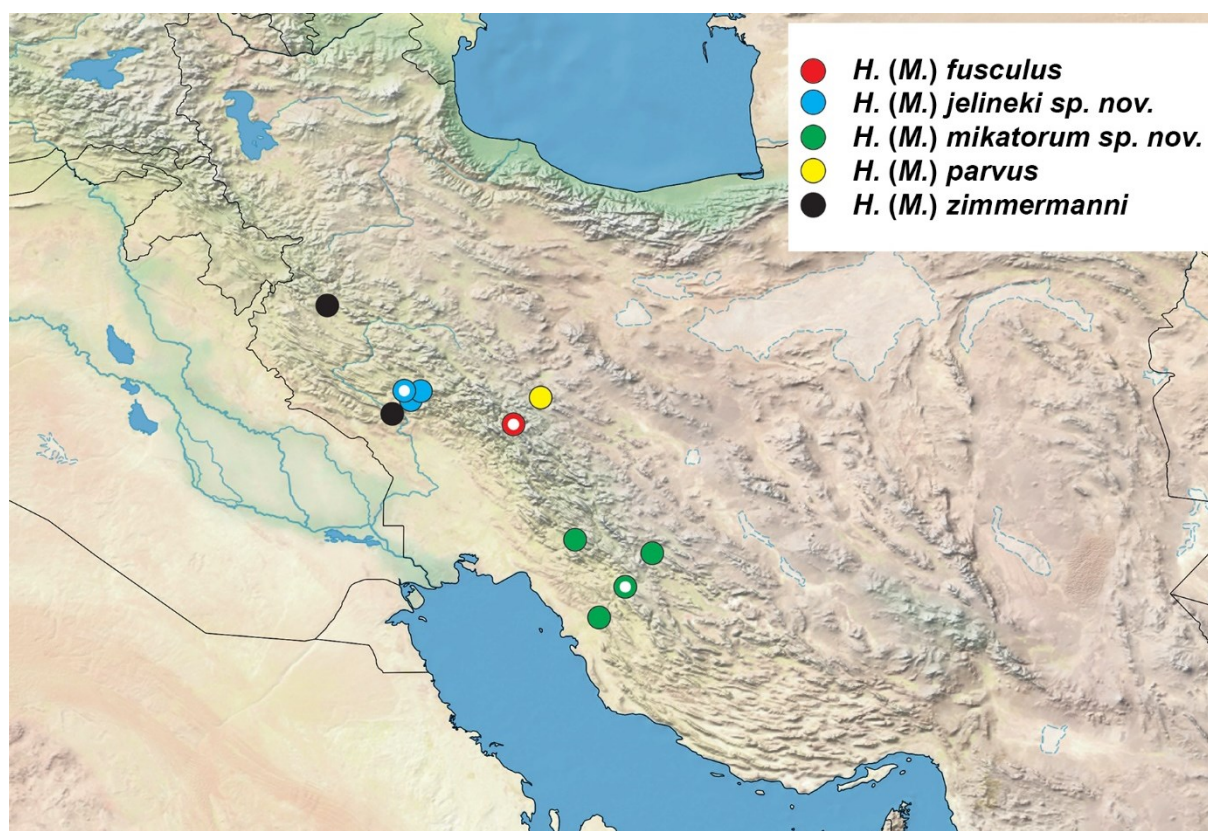


Figure 1. Map with distribution of *Holochelus (Miltotrogus)* species in Iran based on material examined. White dot indicates type locality.

Results and discussion

Holochelus (Miltotrogus) fuscus (Nonveiller 1965) (figures 1, 2A-E)

Miltotrogus fuscus Nonveiller 1965: 59, figure 23 (original description); Petrovitz, 1980: 619 (record from Kazerun, Fars); Bunalski *et al.*, 2014: 162 (Iran, checklist).

Holochelus (Miltotrogus) fuscus: Smetana and Král, 2006: 218 (new combination, catalogue); Bezděk, 2016: 267 (catalogue); Schoolmeesters, 2022: unpaginated (catalogue).

Type locality. ‘Ghiimbra [= Iran, Khuzestan province, Ab-e Shimbar, 32°23'28" N, 49°36'58" E]’ - see Remark.

Type material examined. IRAN, Khuzestan: Holotype, male, labelled: ‘Ghiimbar | Escalera [h] || Holotypus [p, red letters] | Miltotrogus | fuscus Nonvll. [h, red frame] || Museum Paris [p] || AM274 | 15. 6. 2013 CZ | Ri. Sehnal VIDIT [p]’ (MNHN, figures 2A-B, 2D-E); paratype, male, labelled: ‘[no locality label] || Paratypus [p, red letters] | Miltotrogus | fuscus Nonvll. [h, red frame] || Museum Paris [p]’ (MNHN); paratype (= allotype), female, labelled: ‘[no locality label] || Allotypus [p, red letters] | Miltotrogus | fuscus Nonvll. [h, red frame] || Museum Paris [p]’ (MNHN).

Additional material examined (51 specimens). IRAN, Khuzestan: Haut-Kharoum, Chiimbar (Vallée), v. 1899, Escalera, 38♂♂, 13♀♀ (MNHN, figure 2C).

Distribution. Iran, Khuzestan and Fars provinces (Nonveiller, 1965; Petrovitz, 1980) (see also map on figure 1).

Remark. *Holochelus (M.) fuscus* was described by Nonveiller (1965) according to specimens collected by the Spanish naturalist Manuel Martínez de la Escalera (1867-1949) during his 1899-1900 expedition to the Near East (Martín Albaladejo and Izqueirido Moya, 2011). Nonveiller (1965) gave the type locality as ‘Ghiimbra’, but such Iranian locality was unknown to later authors (e.g. Petrovitz, 1980). Locality label associated with the holotype specimen is surprisingly written by Nonveiller himself as ‘Ghiimbar | Escalera’ - see figure 2B. Obviously, this is a misspelling of ‘Chiimbra’ written on printed locality labels under non-type material of the same species in MNHN (figure 2C). Historic ‘Chiimbra’ is nowadays Iranian locality Ab-e Shimbar (see Arroyo Rey, 2011 for details), an intermittent stream in Khuzestan province.

Holochelus (Miltotrogus) jelineki sp. nov. (figures 1, 3A-B, 5A, 6A, 7)

Type locality. Iran, Lorestan prov., 50 km SW of Khorramabad, [33°8'35.273"N, 48°10'38.190"E, D. Kopr, pers. comm. 2022], 1400 m a.s.l.

Type material (37 specimens). IRAN, Lorestan: Holotype, male, labelled: ‘Iran, Lorestan prov. | 7.-8.5.2016, 50km SW of | Khorramabad, 1400m, | D. Kopr, Obořil | & Škorpík lgt. [p]’. Paratypes: Nos. 1-8 (4♂♂, 4♀♀): same label data as holotype; Nos. 9-13 (4♂♂, 1♀): ‘SW Iran, Pol-e Tang | 60 km NW Andimeshk | 10.-11. 4. 1977 [p] || Loc. no. 284 | Exped. Nat. Mus. | Praha [p]’; Nos. 14-33 (16♂♂, 4♀♀): ‘Iran, Lorestan | 30km SW of | Khorramabad | 1700 m 21.5.2019 | M. Mařík lgt. [p]’; Nos. 34-36 (2♂♂, 1♀): ‘SW IRAN, Lorestan prov. |

Khorramabad area, Mahmudvand | 30.04.[20]07, A. Klimenko leg. [p]’.

Type depository. HT, PT Nos. 9-13 in NMPC; PT Nos. 1, 5 in DKCC; PT Nos. 2, 7-8 in DKCB; PT Nos. 3, 6 in RSCV; PT No. 4 in DKCP; PT Nos. 14-16, 30 in MNCR; PT Nos. 17, 31 in IECA; PT Nos. 18-25 in MMCP; PT Nos. 26-34 in GMCL; PT Nos. 35-36 in ISCR.

Description of the holotype (♂). Total body length (from anterior margin of clypeus to elytral apex) 9.0 mm. Reddish brown, head, outer margins of protibiae and scutellum darkened. Erect setation whitish to yellowish (figure 3A).

Head. Labrum bilobate, emarginate, central area smooth. Clypeus cupuliform, transverse, 2.5 times broader than long, lateral margins definitely convergent towards rounded anterior angles, anterior margin almost straight, well raised, slightly emarginate medially. Surface with punctation irregular of size and distribution, larger and denser posteriorly, less towards margins. Frontoclypeal suture visible as very fine smooth line, bisinuate, more evident laterally. Frons and vertex clearly tumid, covered with large and very dense umbilicate, strongly inserted punctation. Frons and vertex with long, erect, yellowish setation. Antennae with ten antennomeres; club with three antennomeres, straight, hardly arched apically, longer than funicle without scape, scape very long; antennomere 2 obconic, antennomeres 3-6 cylindrical and elongate, antennomere 7 transverse. Apical maxillar palpomere fusiform, dorsal depressed area present, matte.

Pronotum transverse, with greater width about at middle, approximately twice broader than long. Anterior margin thickened, irregularly crenulated on posterior edge by line of setiferous punctures; anterior angles considerably blunt, not marked; posterior angles strongly rounded off; posterior margin not bordered. Punctation double umbilicate, rather sparse, especially discally, irregularly distributed, denser laterally and anteriorly; near posterior margin, and on both sides of scutellum with smooth areas. Sparse long erect setation discally, emerging from large punctures, with some shorter, strongly reclined setae, especially close to anterior angles. Lateral margins crenulate, bearing long strong setae, posterior margin with much less evident setation, spaced along basal smooth areas.

Scutellum with considerably scattered punctation discally; shortly setaceous.

Elytra with juxtasutural costa flat basally, becoming convex and widened apical, vanishing before apical declivity, with traces of two additional costae discally, in form of more convex lines, little less punctate than surrounding integument. Punctation average of size, irregular of form, often transverse, more or less inserted in depressions of integument. Short setation whitish, from one to two diameters of point of length, definitely reclined. Longer setation basally only. Epipleuron with row of long setae, tapering as of middle of elytron length.

Legs. Protibiae tridentate, basal tooth slightly prominent, inner apical spur inserted posteriorly of level of medial tooth. Inner dorsal margin of metatibiae with row of several short denticles. Protarsal claws hooked, with obsolete basal denticle; meso- and metatarsal claws strongly hooked, with basal denticle small and acute.

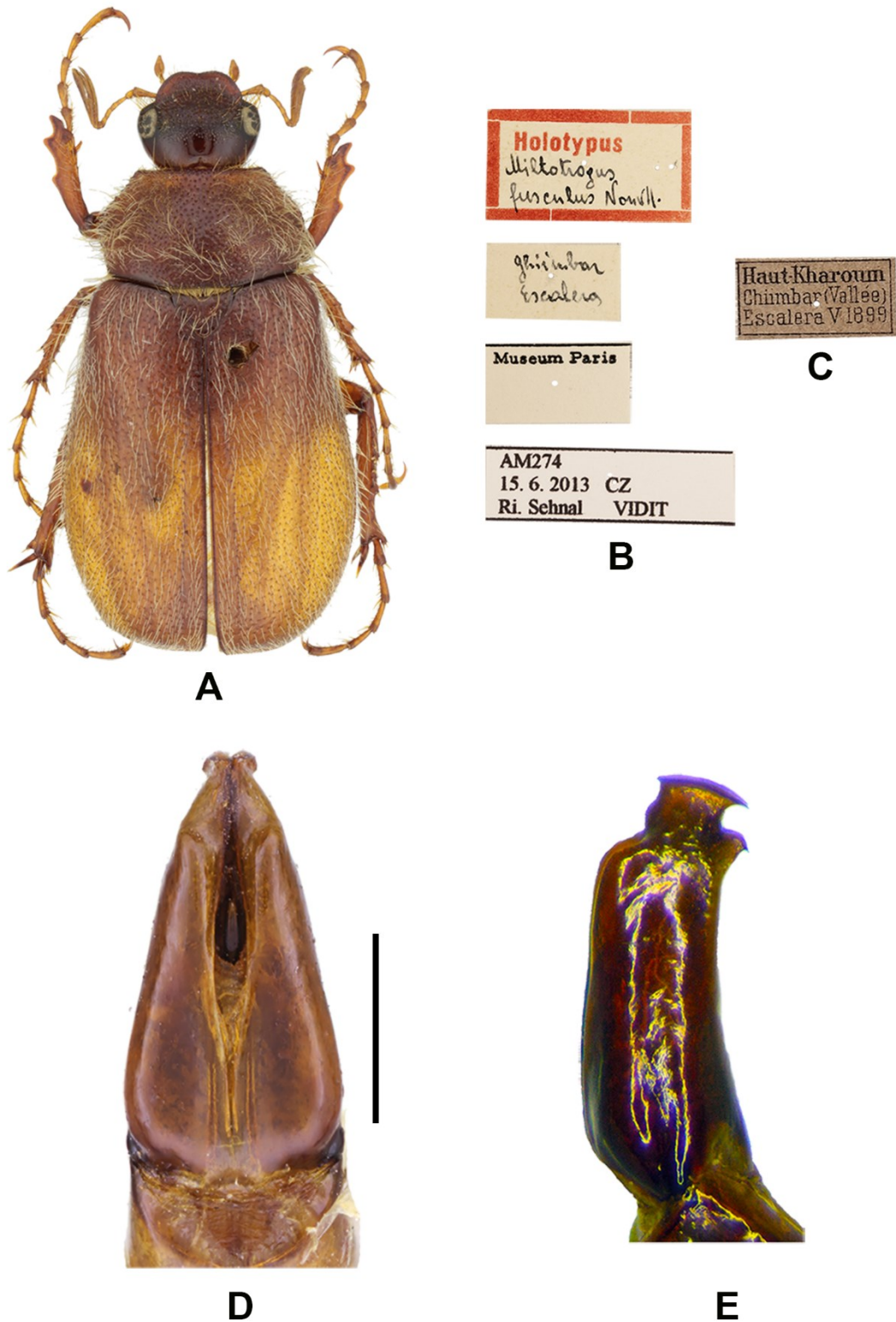


Figure 2. *Holocheilus (Miltotrogus) fuscus* (Nonveiller 1965). **A.** holotype, male (9.7 mm), dorsal view; **B.** holotype, associated labels; **C.** label associated with non-type specimens in NMHN; **D.** holotype, aedeagus in dorsal view; **E.** holotype, aedeagus in lateral view. Scale bar = 1.0 mm (for figures D and E).

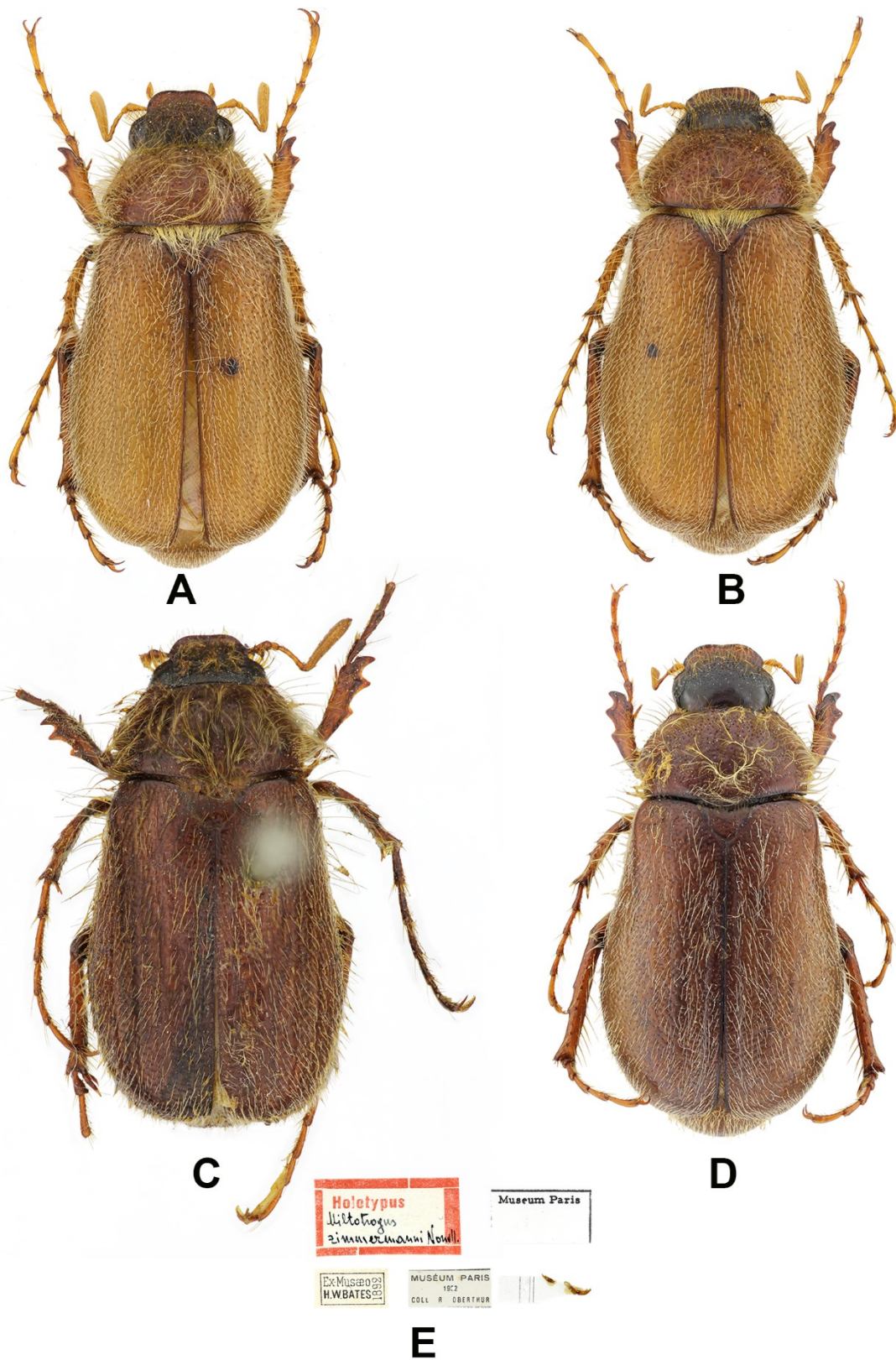


Figure 3. *Holocheilus (Miltotrogus) jelineki* sp. nov. (A-B) and *H. (M.) zimmermanni* (Nonveiller 1965) (C-E). A. holotype, male (9.0 mm), dorsal view; B. paratype No. 5, female (9.3 mm), dorsal view; C. holotype, male (10.0 mm), dorsal view; D. female (Kermanshah, Jalilvand, 12.0 mm), dorsal view; E. holotype, associated labels.

Abdomen. Propygidium microreticulate, with fine and very scattered punctation basally, much larger and dense close to pygidium. Pygidium alutaceous, microreticulate, with punctation rather dense, rugose, setation short, clearly reclined, more erect apicad.

Aedeagus as in figures 5A, 6A.

Sexual dimorphism. Female (figure 3B) very similar to male but little larger and stouter, antennal club shorter, clypeus less convergent towards anterior angles laterally, anterior margin more emarginate, legs shorter, basal accessory denticles of claws stronger.

Variability. Paratypes are somewhat variable in body length (males: 9.0-12.1 mm, females: 9.3-11.7 mm). Pronotum and elytra of some paratypes are slightly darker than those of the holotype. Specimens collected in 1977 have partially abraded setae on pronotum.

Etymology. Patronymic, dedicated to Josef Jelínek, former director of the Department of Entomology, National Museum, Prague and mastermind of 1977 expedition to Iran.

Distribution. Iran, Lorestan province (see figures 1, 7).

Differential diagnosis. According to the shape of aedeagus, the new species belongs to the species group *H. (M.) pilicollis* sensu Nonveiller (1965). The parameres in this group are relatively simply built, narrowed subapically, the apex is with a separate area of different shape being characteristic of individual species (see figures 5A, 6A and Nonveiller, 1965: figures 9a-j, 10a-j). Furthermore, clypeus is built as usually (not remarkably narrowed as in *H. (M.) angustifrons* species group (see Nonveiller, 1965: figures 8a-b). Representatives of *H. (M.) parvus* group possess a different aedeagus shape (see figures 5C-D, 6C-D and Nonveiller, 1965: figure 28). Within the *H. (M.) pilicollis* species group, the new species is morphologically most similar to the *H. (M.) fuscus* and *H. (M.) zimmermanni* species. However, it differs from them clearly by sparser punctation of pronotum and absence of long, soft, erect setation of elytral base. In addition, the shape of the parameres in *H. (M.) jelineki* sp. nov. is also distinctly different (see figures 5A, 6A).

***Holochelus (Miltotrogus) mikatorum* sp. nov.**
(figures 1, 4A-B, 5C, 6C)

Type locality. Iran, prov. Fars, 11 km W of Dasht-e Aržan, ca 29°35'N, 51°56'E, ca 1950 m a. s. l.

Type material (20 specimens). IRAN, Fars: Holotype, male, labelled: 'S IRAN, Prov. Fārs | 11 km W Dašt-e Aržan | (W Šīraāz) 1.V.2002 | lgt. S. Kadlec [p]'. Paratypes: Nos. 1-3 (3♂♂): 'S IRAN, Prov. Fārs | 3 km SSW Dašt-e Aržan | (W Šīraāz) 30.IV.2002 | lgt. S. Kadlec [p]'; Nos. 4-6 (2♂♂, 1♀): 'S Iran p. Fars SSW | 3 km Dašt-e Aržan | W Sirāz 30.IV.2002 | Johanides lgt. [p]'; No. 7 (1♂): 'S IRAN, Prov. Fārs | 3 km SSW Dašt-e Aržan | (W Šīraāz) 30.IV.2002 | lgt. M. Johanides [p]'; Nos. 8-11 (1♂, 3♀♀): same data, but 'lgt. P. Kabátek'; Nos. 12-14 (3♂♂): 'IRAN, FARS | vic[inity]. Dast-e Arzan | 29°35'N, 51°56'E, 1950 m | 27./28. V. 1997 | leg. A. Hofmann & P. Kautt [p]'; Nos. 15-16 (1♂, 1♀): 'IRAN 22.-23.IV.2000 (light) | Fars Prov., Zagros Mts. | 2 km W KHOLLAR | (29°59'N, 52°12'E), 2200m [p] || Iran 2000, Czech Biological | Expedition | J. HÁJEK & M. MIKÁT

leg. [p]'; No. 17 (1♂): 'FARS / KAZERUN | Chah chenar | 3.-5.5.1975 | L.T. Abai [lgt.] [p]'; No. 18 (1♀): 'FARS | Kazerun – Chah tut | 11.5.1976 | Abai L.T. [lgt.] [p]'; No. 19 (1♂): 'FARS | Kazerun - Chah gov | 17.5.1976 | Abai L.T. [lgt.] [p]'.
Type depository. HT, PT Nos. 9, 15, 16 in NMPC; PT Nos. 1-2 in IECA; PT No. 3 in DKCP; PT Nos. 4-8, 10, 13-14 in RSCV; PT Nos. 11-12 in DKCC; PT Nos. 17-19 in GSCP.

Description of the holotype (♂). Total body length (from anterior margin of clypeus to elytral apex) 14.2 mm. Yellowish brown, with head definitely darker, pronotum distinctly shining, elytra somewhat pruinose close to base, erect setation whitish to yellowish (figure 4A).

Head. Labrum bilobate, emarginate, central area smooth. Clypeus transverse, 3.5 times broader than long. Sides slightly convergent in rather flat curve towards well rounded anterior angles, anterior margin straight, raised, with vague medial sinuosity. Punctation average of size, deep, scattered behind anterior margins, most dense towards fronto-clypeal suture. Fronto-clypeal suture black, evident laterally, slightly bisinuate medially. Frons with large dense umbilicate punctation. Vertex clearly tumefied, with large partially confluent, umbilicate, definitely deep punctation. Frons and vertex with long erect yellowish setation. Antennae with ten antennomeres, club with three antennomeres, being slightly arched, distinctly longer than funicle without scape. Scape very long, antennomere 2 obconic, antennomere 3, 4 and 5 cylindrical and elongate, antennomere 6 transverse, antennomere 7 considerably transverse. Apical maxillar palpomere fusiform with dorsal slightly depressed area.

Pronotum transverse, its greater width about at middle, less than two times broader than long. Anterior margin distinctly thickened, irregularly crenulate on its posterior edge by a row of setiferous punctures. Anterior angles considerably blunt, not protruding. Posterior angles strongly rounded. Base not bordered, with a small smooth area on both sides of scutellum. Punctation of average size, umbilicate, irregularly distributed, denser close to sides and anterior margin and partially discally. Erect setation rather long, flexuous and partly depilated. All margins evidently long ciliate setaceous, except close to smooth basal areas. Lateral margins crenulate.

Scutellum broadly triangular, with punctation more or less parallel with lateral margins; disc smooth, adpressed.

Elytra microreticulate, except close to base, rendering them somewhat dull, widened towards middle, short whitish setation intermixed with some longer erect flexuous setae close to base. Intervals 3 and 5 very slightly convex, less punctate than surrounding integument, juxtasutural interval strongly widened posteriad. Epipleuron evident and broad under umbone, then tapering, reaching external apical round-off of elytra, bearing rather long setation near humerus, quickly tapering.

Legs. Protibiae tridentate, basal tooth slightly prominent. Internal apical spur inserted posteriorly of level of median tooth. Inner dorsal margin of mesotibiae with short denticles, inner dorsal margin of metatibiae much less so. Claws of posterior tarsus, rather short, hooked, with basal accessory denticle small and acute.

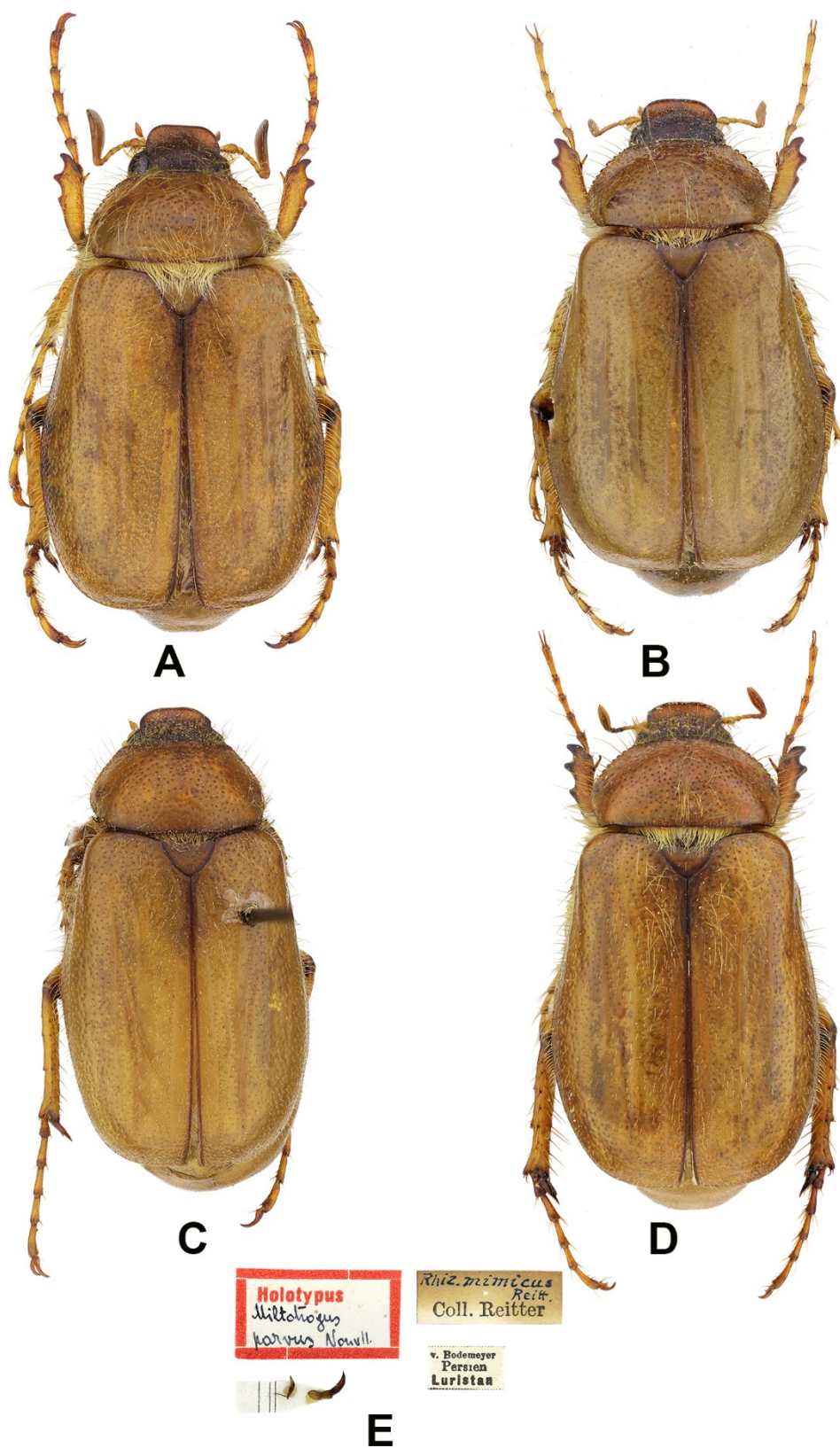


Figure 4. *Holocheilus (Miltotrogus) mikatorum* sp. nov. (A-B) and *H. (M.) parvus* (Nonveiller 1965) (C-E). **A.** holotype, male (14.2 mm), dorsal view; **B.** paratype No. 9, female (12.1 mm), dorsal view; **C.** holotype, male (12.1 mm), dorsal view; **D.** female (Isfahan, Zagros Mts., 13.4 mm), dorsal view; **E.** holotype, associated labels.

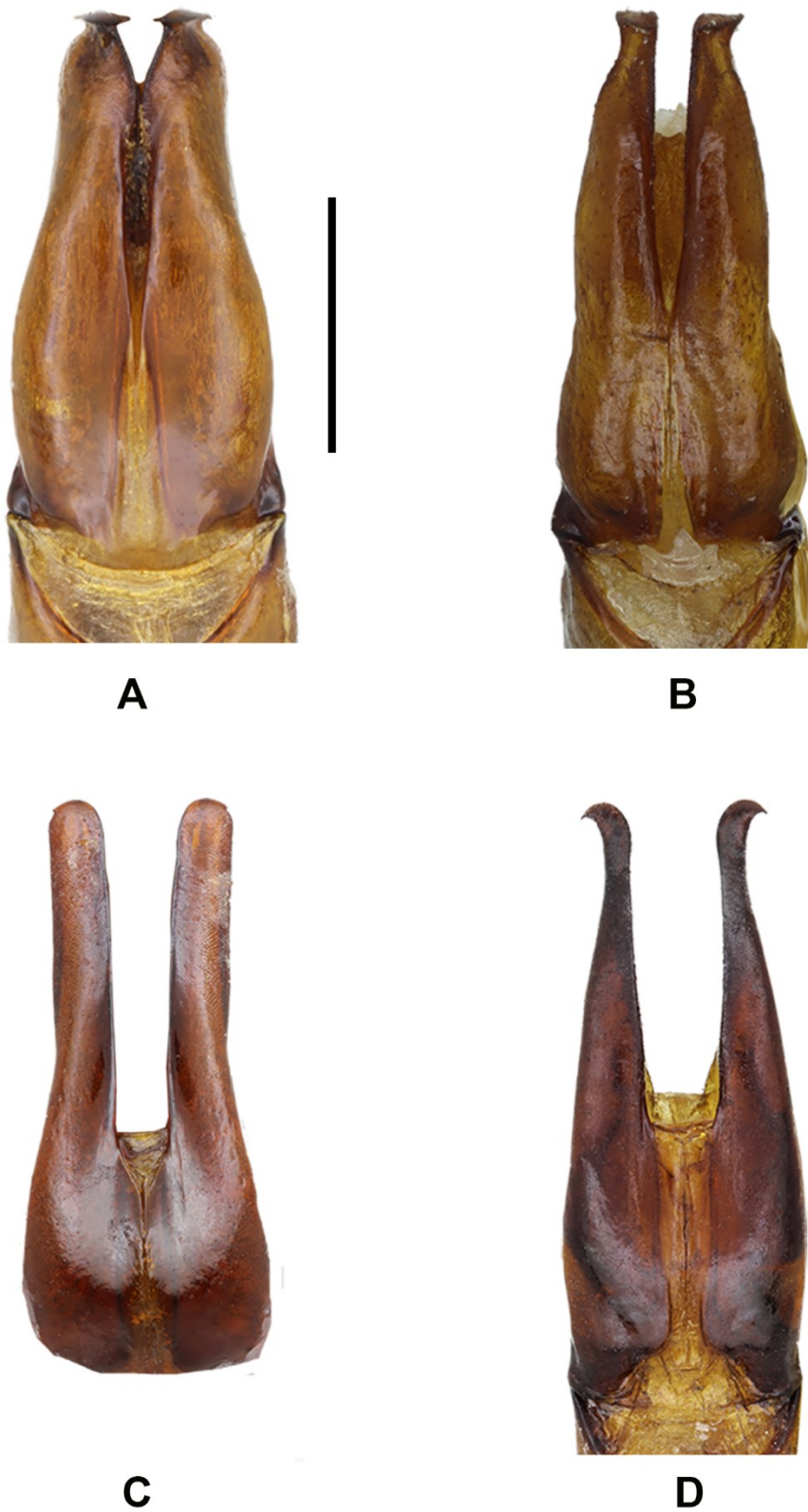


Figure 5. Aedeagus of *Holocheilus (Miltotrogus)* species in dorsal view, holotypes. **A.** *H. (M.) jelineki* sp. nov.; **B.** *H. (M.) zimmermanni* (Nonveiller 1965); **C.** *H. (M.) mikatorum* sp. nov.; **D.** *H. (M.) parvus* (Nonveiller 1965). Scale bar = 1.0 mm.

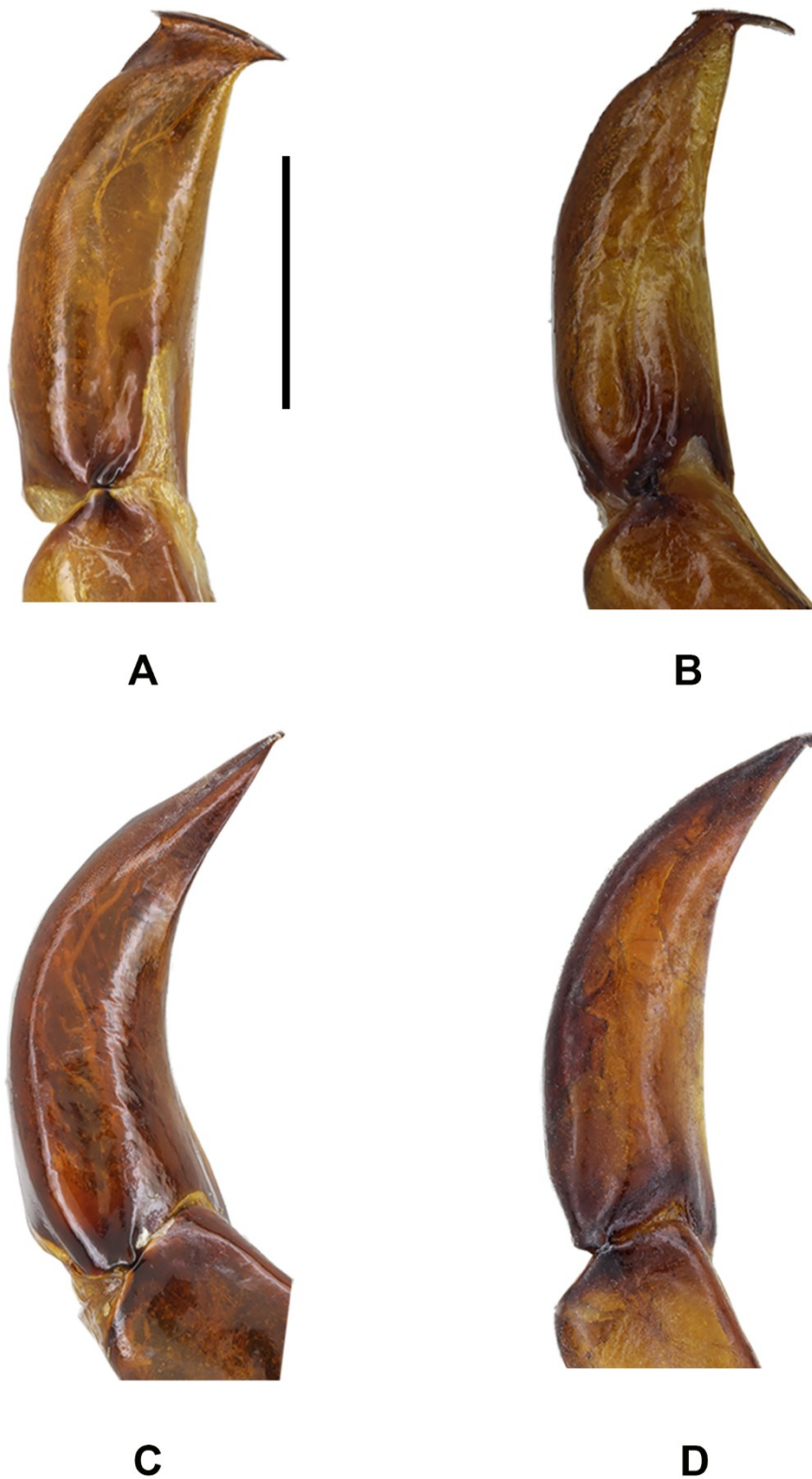


Figure 6. Aedeagus of *Holocheilus (Miltotrogus)* species in lateral view, holotypes. **A.** *H. (M.) jelineki* sp. nov.; **B.** *H. (M.) zimmermanni* (Nonveiller 1965); **C.** *H. (M.) mikatorum* sp. nov.; **D.** *H. (M.) parvus* (Nonveiller 1965). Scale bar = 1.0 mm.



Figure 7. Type locality of *Holochelus (Miltotrogus) jelineki* sp. nov. (Lorestan prov., 50 km SW of Khorramabad), the dominant stand is formed by oak *Quercus brandtii* Lindl. Photo by David Kopr, May 8, 2016.

Abdomen. Propygidium convex, with rather irregular distributed rugose punctation, finely reticulate, with flattened apex. Setation very short, reclined. Punctation denser and coarser laterally and close to basal angles. Pygidium clearly microreticulate, with punctation finer and more scattered basally, with larger and much denser punctation especially laterally.

Aedeagus as in figures 5C, 6C.

Sexual dimorphism. Female (figure 4B) similar to male, stouter, larger, clypeus with straight anterior margin and anterior angle less strongly rounded, carina on vertex higher and uniform set more posteriorly, antennomeres 3, 4 and 5 shorter, antennal club definitely shorter, outer protibial teeth stronger, especially basal one, lateral pronotal margins more strongly crenulate, elytra shiny more definitely widened, with setation of epipleuron much longer posteriorly of humerus, tarsi shorter, pygidium more shiny, with still more scattered punctation.

Variability. Paratypes are slightly variable in body length (males: 11.5-14.2 mm, females: 12.1-14.8 mm).

Etymology. Patronymic; named in honour of the Mikát's family, long-time friends of D. Král and renowned biologists, spouses Blanka and Miroslav and their children (Šárka and Michael). Additionally, Miroslav is one of the collectors of the new species.

Distribution. Iran, Fars province (see also map on figure 1).

Differential diagnosis. In identifying the material of this new species according to the key in Nonveiller

(1965), we get unequivocally to the thesis 28 - *H. (M.) parvus*. This species is very distinctive by the shape of parameres that are gradually narrowing anteriorly and their apex is acute and curved gradually obliquely downwards. In addition, their apical part is finely sculptured and therefore matte (see figures 5D, 6D and Nonveiller, 1965: figure 28). Nonveiller (1965) considers this species to be a separate *H. (M.) parvus* species group. *Holochelus (M.) mikatorum* sp. nov. differs from *H. (M.) parvus* clearly by denser punctation of pronotum and the sparser and less evident setation on elytra (see figure 4A). Shape of parameres is distinctly different (compare figures 5C and 5D).

***Holochelus (Miltotrogus) parvus* (Nonveiller 1965)**
(figures 1, 4C-E, 5D, 6D)

Miltotrogus parvus Nonveiller 1965: 65, figure 28 (original description).

Holochelus (Miltotrogus) parvus: Smetana and Král, 2006: 218 (new combination, catalogue); Bunalski *et al.*, 2014: 162 (Iran, checklist); Bezděk, 2016: 267 (catalogue); Schoolmeesters 2022: unpaginated (catalogue).

Type locality. 'Luristan'.

Type material examined. IRAN, Lorestan: Holotype, male, labelled: 'v. Bodemeyer | Persien | Luristan [p] || Rhiz. mimicus | Reitt. [h] | Coll. Reitter [p] || Holotypus [p, red letters] | Miltotrogus | parvus Nonvll. [h, red frame]' (HNHM, figures 1, 4C, 4E, 5D, 6D).

Additional material examined (5 specimens). IRAN,

Isfahan: Zagros Mts., Demaveh (16 km SEE), 32°57'09"N 50°38'50"E, 2457 m, 31.v.2018, Vit. Kubáň lgt., at light, 1♂, 4♀♀ (MNCR).

Description of female (figure 4D). Similar to male, but stouter, more convex. Clypeus shorter, more transverse, more convergent anteriorly, anterior angle more strongly rounded. Antennomeres 3, 4 and 5 shorter, antennal club shorter and straight. Lateral pronotal margins more strongly crenulated. Elytra more widened posteriorly. Soft, erect setation somewhat shorter and less dense on pronotum. Outer protibial teeth stronger, especially basal one. Tarsi shorter, claws shorter, more strongly curved and with evident basal accessory denticle.

Distribution. Iran, Isfahan and Lorestan provinces (see also map on figure 1).

Holochelus (Miltotrogus) zimmermanni (Nonveiller 1965)

(figures 1, 3C-E, 5B, 6B)

Miltotrogus zimmermanni Nonveiller 1965: 58, figure 22 (original description); Carpaneto *et al.*, 2000: 236 (record from Turkey).

Holochelus (Miltotrogus) zimmermanni: Smetana and Král, 2006: 218 (new combination, catalogue); Bezděk, 2016: 267 (catalogue); Schoolmeesters, 2022: unpaginated (catalogue).

Type locality. 'Kurdistan'.

Type material examined. IRAN, Kurdistan: Holotype, male, labelled: 'Kurdistan [h] || Ex Musaeo | H.W.BATES | 1892 [p] || MUSEUM PARIS | 1902 | COLL R OBERTHUR [p] || Holotypus [p, red letters] | Miltotrogus | zimmermanni Nonvll. [h, red frame] || Museum Paris [p]' (MNHN, figures 1, 3C, 3E, 5B, 6B).

Additional material examined (12 specimens). IRAN, Kermanshah: Jalilvand, Panjsavar, 22.-23.v.2007, O. Montreuil lgt., 5♂♂, 3♀♀ (IECA), 1♂, 1♀ (RSCV); Lorestan: 8 km NW Malavi, 880 m, 9.-10.iv.1977, Loc. no. 283, Exped. Nat. Mus. Praha, 2♂♂ (NMPC).

Description of female (figure 3D). Similar to male, but stouter, more convex. Clypeus shorter, more transverse, more convergent anteriorly, anterior angle more strongly rounded. Antennomeres 3, 4 and 5 shorter, antennal club shorter and straight. Lateral pronotal margins more strongly crenulated. Elytra more widened posteriorly. Soft, erect setation somewhat shorter and less dense on pronotum. Outer protibial teeth stronger, especially basal one. Tarsi shorter, claws shorter, more strongly curved and with evident basal accessory denticle.

Distribution. Iran, Kermanshah, Kurdistan and Lorestan provinces (see also map on figure 1). Carpaneto *et al.* (2000) reported the species from Turkey, but without any precise data. This record seems to be questionable.

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