Gianfranco Liberti*

Note on *Dolichosoma* (*Dolichomorphus*) *femorale* Morawitz, 1861 (Coleoptera, Melyridae, Dasytinae): taxonomy, anatomy, distribution and presence in Italy

Riassunto: *Nota su* Dolichosoma *(*Dolichomorphus*)* femorale *Morawitz, 1861 (Coleoptera, Melyridae, Dasytinae): tassonomia, anatomia, distribuzione e presenza in Italia*.

Il sottogenere *Dolichomorphus* viene trasferito da *Psilothrix* a *Dolichosoma*. Questi due generi vengono definiti in base ai loro caratteri edeagici, non a quelli esterni. *Dolichosoma* (*Dolichomorphus*) *femorale*, l'unica specie appartenente a *Dolichomorphus* (prima ritenuta *Psilothrix*) è ora parte del genere *Dolichosoma*.

La specie *D*. (*D*.) *femorale* viene ridescritta, la sua distribuzione Euro-Asiatica viene dettagliata con numerose nuove località di ritrovamento e con particolare attenzione riservata alla sua presenza in Italia.

Viene infine proposta una chiave di determinazione per le tre specie di *Dolichosoma* presenti nell'Europa Mediterranea.

Abstract: Subgenus *Dolichomorphus* is transferred from *Psilothrix* to *Dolichosoma*. These two genera have been defined based on aedeagical characters rather than on external ones. *Dolichosoma* (*Dolichomorphus*) *femorale*, the only one species belonging to *Dolichomorphus* (previously a *Psilothrix*), is now included in genus *Dolichosoma*.

D. (*D*.) *femorale* has been re-described, its Euro-Asiatic distribution has been detailed with several new localities reported, emphasis being given to its presence in Italy.

A determination key is proposed for the three *Dolichosoma* species present in Mediterranean Europe.

Key words: Genus *Psilothrix*, Euro-Asiatic distribution, Palaearctic distribution, Italian fauna, *Dolichosoma* determination key.

Introduction

Genus *Dolichosoma* (meaning "thin body") was established by Stephens in 1830 for *Lagria linearis* Rossi, 1794, which became its type species. The noun *Dolichosoma* is neutral in gender because the Greek (also Latin) word *soma* is neutral (ICZN 1999, art. 30.1.2); due to the principle of "agreement in gender" (ICZN 1999, art. 31.2) the five adjectives used for the five *Dolichosoma* species names must be neutral too: *linearis*, *similis* and *femoralis* take the ending *-e*; *indicus* and *maximus* take *-um*.

Genus *Dolichosoma* includes now two subgenera and five species (see Constantin 2007:167 and Gimmel & Mayor 2019: 396, 404 for synonymies and new combinations of species previously included here):

D. (*Dolichomorphus*) *femorale* Morawitz, 1861: subject of the present note and here transferred from genus *Psilothrix*, it has a wide Euro-Asiatic distribution, from Italy to Sakhalin Island, in the Russian Far East.

D. (subg.?) *indicum* Pic, 1923: described from India, it is a poorly known species.

D. (*Dolichosoma*) *lineare* Rossi, 1794: described from Tuscany, common and widely spread in Europe and central Asia (at least up to the Tuva Republic).

D. (*Dolichosoma*) *maximum* Schilsky, 1894: described from Sarepta (Volgograd, southern Russia) on two ♀♀ only, a poorly known form suspected to be a junior synonym of *D*. *lineare*.

D. (*Dolichosoma*) *simile* Brullé, 1832: described from the Peloponnese, common and widely spread in Mediterranean Europe, Turkey and Caucasus.

D. lineare and *D. simile* are very similar although easily recognizable from each other. They have been already compared and discussed in previous papers (Majer 2005: 157, Pl. X, figs. 31-32, Pl. XII figs.

*Gianfranco Liberti, Via Cascina Girola 81, 21040 Uboldo (VA), Italy. E-mail: gianfrancoliberti@alice.it

22-23; Liberti 2009: 349, 364, figs. 20, 21, 30; Constantin & Liberti 2011: 40, Pl. 5 figs. 19, 20).

On the other hand, *D*. (*Dolichomorphus*) *femorale* is less known and its systematic position has been somewhat uncertain, as below explained. Scope of the paper is to establish the membership of this species into *Dolichosoma*, to keep *Dolichomorphus* as a valid name at subgenus level (transferring it from *Psilothrix* to *Dolichosoma*) and to discuss anatomy and distribution range of *D*. (*Dolichomorphus*) *femorale*.

Although the types of these three species have not been studied, there is general agreement on them and no doubts can be raised on their identification.

Materials and Methods

Materials, dissections and drawings

Materials studied come from the collections, either public or private, listed here below.

Methods for dissections, drawings and taking pictures have been previously described in detail (Liberti 2018).

In the records listed under "Materials studied", labels information are reported as "locality name" and number of specimens followed, in brackets, by collector's name, collecting date and depository. Lacking data are replaced by question marks.

Depositories

CAn = collection Fernando Angelini, housed at MZUF
CCo = collection Robert Constantin, Sain Lô, France
CLi = collection Gianfranco Liberti, Uboldo (VA), Italy
CPl = collection Isidor Plonski, Wien, Austria
MSNG = Museo Civico di Storia Naturale "Giacomo Doria", Genua, Italy
MSNVE = Museo Civico di Storia Naturale, Venice, Italy
MZUF = Museo di Storia Naturale dell'Università, Sezione di Zoologia "La Specola", Florence, Italy
NMBA = Naturhistorisches Museum Basel, Basel, Switzerland
NMBA−CB = C. J. Breit collection, housed at NMBA.
NMBA−KM = Karel Majer collection, housed at NMBA
NMBA−WW = Walter Wittmer collection, housed at NMBA
SMNS = Museum für Naturkunde, Stuttgart, Germany
SZMN = Siberian Zoological Museum, Novosibirsk, Russia
ZMB = Museum für Naturkunde, Berlin, Germany

Abbreviations

AL, EL, EW, HW, PL, PW, TL: see "Table 2. Dimensions"
abt. = about
CP = central process of last sternite (the rod-like extension in the middle of fore-border of last sternite [Figs. 4, 6, 8)]
ex., exx. = specimen, specimens
nr. = near
/ = line break (only in labels transcriptions)

Discussion

Subgenus ***Dolichomorphus*** Fiori, 1905

Psilothrix (subg. *Dolichomorphus*) Fiori 1905: 81, type species *Dolichosoma femoralis* Morawitz, 1861

In Tab. 1 a comparison between *Dolichosoma* (*Dolichosoma*) *lineare* (type species of genus *Dolichosoma*), *Dolichosoma* (*Dolichomorphus*) *femorale* and *Psilothrix protensa* Küster, 1850 (type species of genus *Psilothrix* Küster, 1850) is proposed (Tab. 1 and Figs 1-11). In the last column of the table the comparison is extended to other *Psilothrix* species, namely to *Psilothrix viridicoerulea* group (including *P. viridicoerulea* Geoffroy, 1785, *P. melanostoma* Brullé, 1832 and *P. illustris* Wollaston, 1854) as defined by Liberti & Plonski (2019: 154); to *Psilothrix severa* group (including *P. severa* Kiesenwetter, 1859 and *P. constantini* Bahillo de la Puebla & Lopez-Colon, 2014) and to *Psilothrix faraonum* Kiesenwetter, 1867.

As can be inferred from the table, the differential definition of genus *Psilothrix* versus *Dolichosoma* must take into account, as most important and constant, the characters found in genitalia, namely:

- median lobe shape: the angle between basal and apical parts is rectangular in *Dolichosoma*, obtuse in *Psilothrix* (compare Fig. 2 with Fig. 9); the apical part is clearly longer than the basal one in *Dolichosoma*, the two parts have comparable length in *Psilothrix*;
- internal sac length and spines: it is very short and

fitted with large, well visible, blackish spines in *Dolichosoma* (Figs. 9, 11, 13); very long and fitted with many small, yellowish spines (if any) in *Psilothrix* (Fig. 2);

- tegmen shape: parameres are parallel, rather straight, apex is clearly bi-lobate in *Dolichosoma* (Fig. 5); parameres are slightly curved and converging, apex is more or less emarginated in *Psilothrix* (Fig. 3);
- last sternite: central process is shorter in *Dolichosoma* than in *Psilothrix* and emargination of posterior side is weaker in *Dolichosoma* than in *Psilothrix* (compare Figs. 6, 8 with Fig. 4).

Other two *Psilothrix* species, although not included in the table, have been taken into account too:

P. albilanea Peyerimhoff, 1925, a north-African species falls, more or less, close to the group *viridicoerulea*.

P. foveicollis (Kirby, 1837), the only nearctic species of the genus *Psilothrix*, looks slightly different from the other (palaearctic) species here considered: it shows the median lobe angle between basal and apical parts only slightly obtuse − but the length of the two parts is comparable and the internal sac is free from conspicuous sclerites, so that its median lobe clearly appears of the *Psilothrix* type − and the last (8°)

Tab. 1. Main characters differentiating *D.* (*Dolichosoma*), *D.* (*Dolichomorphus*) and *Psilothrix*.

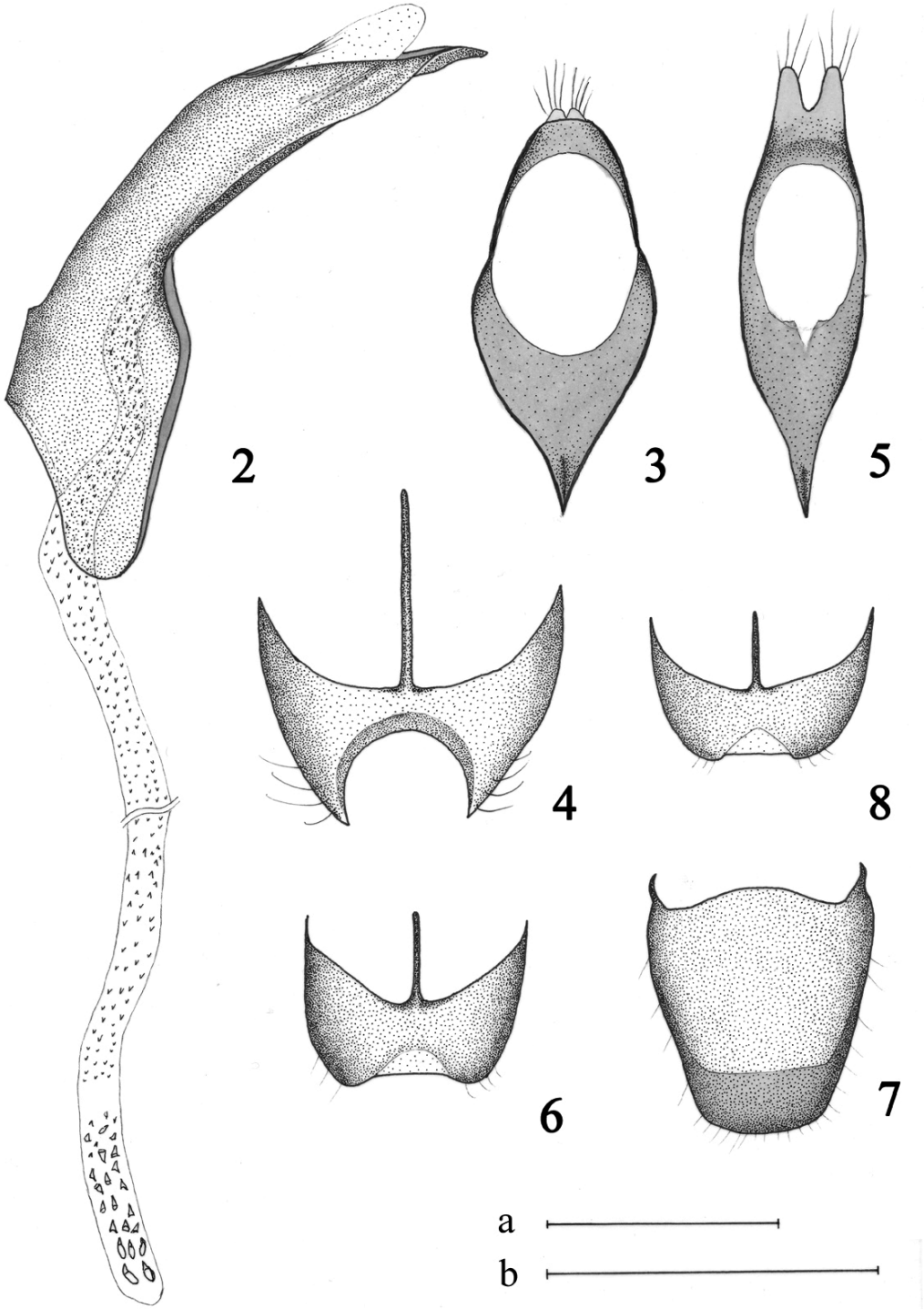
	Dolichosoma* (*Dolichosoma*) *lineare	***Dolichosoma* (*Dolichomorphus*) *femorale***	***Psilothrix protensa***	**Other *Psilothrix* species: *viridicoerulea* group, *severa* group, *pharaonum***
Body shape	Unusually thin and long: TL/EW >5	Thin and long (Fig. 1): TL/EW = 4.0−4.5	Thin and long: TL/EW = 4.0−4.5	All elongate (more or less like *P. protensa*).
Pronotum shape	Much longer than wide: EW/EL = 0.7−0.75	As long as wide or slightly transverse (Fig. 1): EW/EL = 1.0−1.15	Longer than wide: EW/EL = 0.85−1.0	As long as wide or, more often, moderately transverse.
Last palpomere	normal size, shape approx. cylindrical.	Large, approx. triangular, securiform.	normal size, shape approx. cylindrical.	as in *P. protensa*, often more or less widened in the middle.
Dorsal setae and elytral pubescence	Only a few erect, black setae mainly on head and pronotum. Elytral pubescence whitish, adpressed, short.	Several erect, black, setae scattered all over. Elytral pubescence whitish, recumbent, rather short (Fig. 1).	Many erect, black setae scattered all over. Elytral pubescence hardly visible (on elytral border only), very short, whitish.	Mostly as in *P. protensa*, but *P. pharaonum* looks similar to *D. femorale*.
Dorsal integuments	Moderately rough; elytral punctuation fine and shallow.	Moderately rough; elytral punctuation fine and shallow.	Very rough; elytral punctuation strong and deep.	Mostly as in *P. protensa*, but at times elytral punctuation sparser.
7th sternite (last but one)	Moderately emarginated and fitted with two small tuft of black setae on rear border, slightly flattened in the middle.	Slightly emarginated on rear border, slightly flattened in the middle.	Strongly emarginated in the middle of posterior border.	Variable in *P. viridicoerulea* group. Slightly emarginated on rear border and flattened in the middle in *P. severa* group and *P. pharaonum*.
8th (last) sternite	Feebly emarginated on rear border. CP short (Fig. 8).	Feebly emarginated on rear border. CP short (Fig. 6).	Strongly emarginated on rear border. CP long (Fig. 4).	Variably emarginated on rear border. CP long.
Tegmen shape	Elliptical, parameres parallel.	Elliptical, parameres parallel (Fig. 5).	Egg shaped. parameres slightly convergent (Fig. 3).	All similar to *P. protensa.*
Tegmen apex	Clearly bi-lobate.	Clearly bi-lobate (Fig. 5).	Emarginated (if bi-lobate the lobes are very small) (Fig. 3).	All as in *P. protensa.*
Median lobe of aedeagus	Angle between basal and apical parts rectangular, apical part clearly longer than basal part (Fig. 9).	Angle between basal and apical parts rectangular, apical part clearly longer than basal part (Fig. 11).	Angle between basal and apical parts obtuse, apical part not (much) longer than basal part (Fig. 2).	All, more or less, as in *P. protensa.*
Internal sac of median lobe	Short, fitted with several large, blackish spines (Fig. 9).	Short, fitted with several large, blackish spines (Fig. 11).	Very long, fitted with many very small, yellowish spines (Fig. 2).	All, more or less, as in *P. protensa.*

sternite rear side emargination is rather weak − but with a longer CP and a wide clear area on rear border. Also taking into account the last palpomere sub-cylindrical shape, it is the writer opinion that *P. foveicollis* would be a true *Psilothrix* and should not be regarded as particularly close to subgenus *Dolichomorphus*.
All external characters (with the exception of the last palpomere) are more variable: they may not have generic value and look like being relevant at the level of species only.
As the table reports, for external appearance *D.* (*Dolichomorphus*) *femorale* looks more like a *Psilothrix* than a *Dolichosoma* − pronotum and body shape, pubescence (but not integuments punctuation) − but it actually appears to be a *Dolichosoma*, clearly differing from all *Psilothrix* at least for the four characters above reported: median lobe shape, internal sac (length and spines), tegmen and last sternite structures.

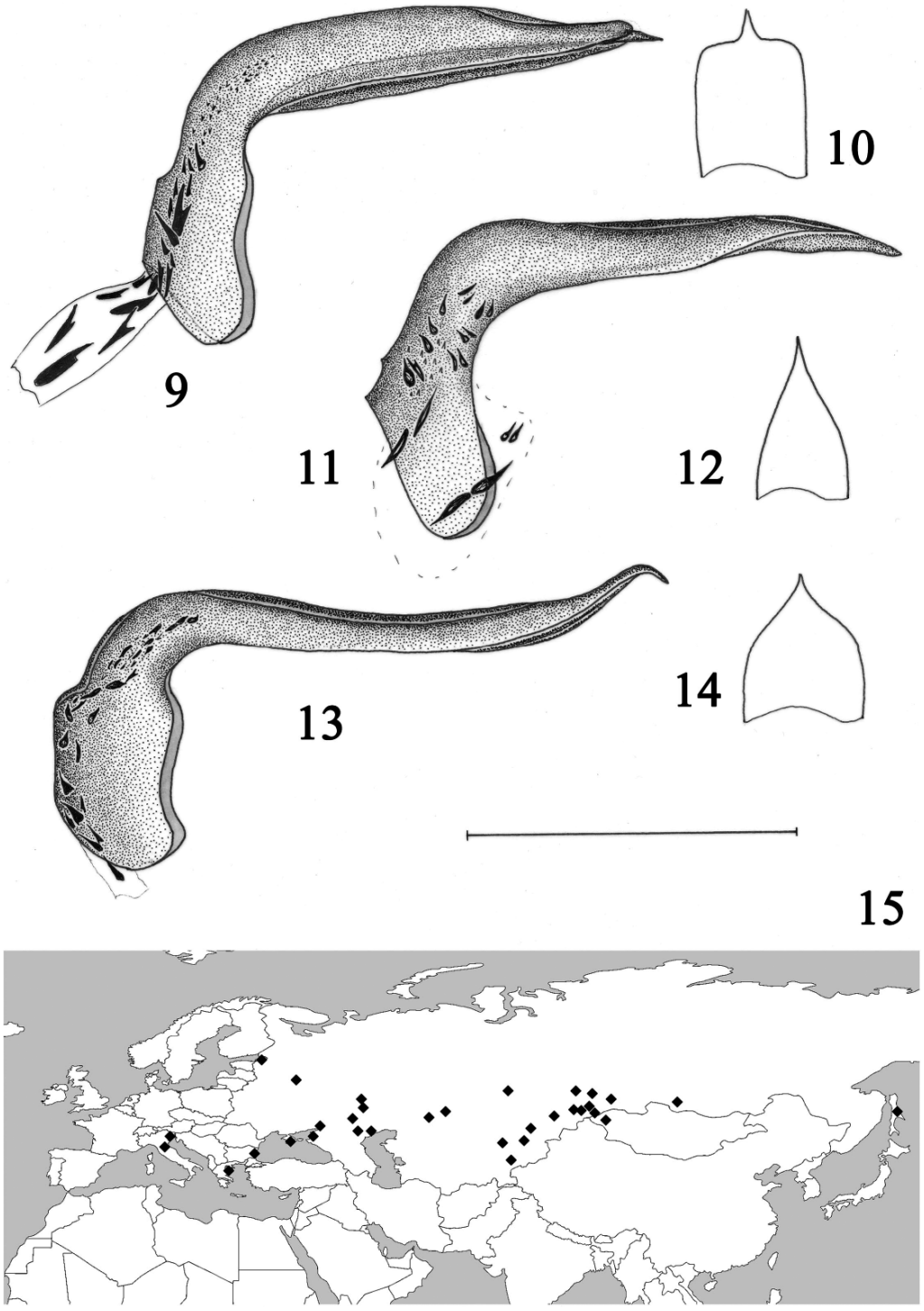
Fig. 1. *Dolichosoma* (*Dolichomorphus*) *femorale* Morawitz. Habitus (ex. from Sant'Erasmo Island near Venice). Scale: 1 mm.

Dolichomorphus was originally defined on the ground of external characters only which are, more or less, intermediate between *Psilothrix* and *Dolichosoma*, as correctly stated by his Author (Fiori 1905: 82).
D. (*Dolichomorphus*) *femorale*, for aedeagus structure, looks close to both *D.* (*Dolichosoma*) *simile* and *D.* (*Dolichosoma*) *lineare* (which, in turn, are similar to each other) but, for general appearance (body shape and pubescence) and last palpomere it appears rather different from them. That is why it is seems advisable to retain *Dolichomorphus* as a valid name and to give it a subgeneric level:
Dolichomorphus Fiori, 1905, subgenus
of ***Dolichosoma*** (not subgenus of ***Psilothrix*****,**
not good genus) **n. comb.**
Main differences from *D.* (*Dolichosoma*) are pronotal shape (which is nearly as long as wide), elytral pubescence (made of longer, slightly raised setae and by the presence of several, scattered black erect setae on the whole elytral surface) and shape of the last palpomere (large and securiform).
A further difference (but rather difficult to study) − namely claws structure − was pointed out by Majer (2005: 157, Pl. X figs. 23-26); the value of this character seems difficult to understand because differences can be observed, in claws structure, both between the different *Psilothrix* species and between *Psilothrix*, *D.* (*Dolichosoma*) and *D.* (*Dolichomorphus*); the two *Dolichosoma* (*Dolichosoma*) have nearly identical claws but they are, anyway, very similar to each other. Both in *Psilothrix* and *Dolichosoma* claws are asymmetrical, as follows:

- protarsi: internal claw well developed and external one (slightly) reduced,
- mesotarsi and metatarsi: internal claw (slightly) reduced and external one well developed [see in Mayor & Gimmel (2019: Fig. 4) a remarkable photograph of the right metatarsal claw of *P. foveicollis*], which is the same pattern found in genus *Danacea* where, however, the "reduced" claws are



Figs. 2-8. 2, 3, 4 − *Psilothrix protensa* Küster (ex. from Scopello, near Trapani, Sicily). 5, 6, 7 − *D.* (*Dolichomorphus*) *femorale* Morawitz (5, 7: ex. from Casalecchio di Reno; 6: ex. from Sant'Erasmo Island). 8 − *D.* (*Dolichosoma*) *lineare* (Rossi) (ex. from Vaccarizza, Pavia prov., Lombardy). 1 − median lobe with internal sac. 3, 5 − tegmens. 4, 6, 8 − last sternites. 7 − last tergite. Scales = 0.5 mm; scale a applies to Figs. 3-7; scale b applies to Fig. 2.



Figs. 9-15. 9, 10 − *D.* (*Dolichosoma*) *lineare* Rossi (ex. from Vaccarizza, Pavia prov.). 11, 12 *D.* (*Dolichomorphus*) *femorale* Morawitz (ex. from Sant'Erasmo). 13, 14: *D.* (*Dolichosoma*) *simile* Brullé (ex. from Capo d'Otranto, Lecce prov.). 15 − distribution map of *D.* (*Dolichomorphus*) *femorale* Morawitz. 9, 11, 13 − median lobes with internal sac, lateral sight. 10, 12, 14 − median lobe apices, outline in ventral sight. Scale = 0.5 mm.

heavily modified. It is to be noted here that in other Melyridae Dasytinae genera, as for example in genus *Dasytes*, all claws are symmetrical and well developed.

In *D*. (*Dolichomorphus*) *femorale* all claws look less asymmetrical than in *D*. (*Dolichosoma*) and in *Psilothrix* and show (protarsi and, to a lesser extent, mesotarsi) a rather wide tooth on the well-developed claw. In *D*. (*Dolichosoma*) claws have no teeth and, in *Psilothrix*, a variable, more or less sclerotized tooth (depending on species) is present on the well-developed claw.

Dolichosoma* (*Dolichomorphus*) *femorale Morawitz, 1861

Dolichosoma femorale Morawitz 1861: 317, Loc. typ. Sarepta [a district of Volgograd, South European Russia]; Kiesenwetter 1863: 644 note (*Dolichosoma* subg. *Psilothrix*); Kiesenwetter 1867: 137, 139 (not a syn. of *Dasytes femoralis* Kryn.); Schilsky 1894a: 235 (*Psilothrix femoralis*); Schilsky 1894b: n. 45; Schilsky 1897: n. 34 X; Fiori 1908: 240 (*Psilothrix* subg. *Dolichomorphus rufimanus* Fiori, 1905: a junior synonym of *D*. *femorale* Morawitz, 1861); Porta 1929: 123; Pic 1937: 108 (*Lasius* subg. *Dolichomorphus*); Kaszab 1955: 117, figs. 41, 40 O [*Psilothrix* subg. *Dolichomorphus*, present in Hungary]; Kaszab 1977: 59 [new for Mongolia]; Majer 1986a: 127; Majer 1986b: 313; Lohse 1992: 22; Liberti 1995: 21 (*Psilothrix*); Majer 2005: 157, Pl. 10, figs. 7, 8, 24-29 [*Dolichomorphus* good genus].

= *Psilothrix* (subg. *Dolichomorphus*) *rufimanus* Fiori 1905: 81 Loc. typ. Casalecchio di Reno, Bologna [synonymized by Fiori 1908: 240]; Pic 1937: 108 (*Lasius femoralis* var. *rufimanus*).

Historical

When describing this species, Morawitz correctly included it in genus *Dolichosoma*.

Soon afterwards, in 1867, Kiesenwetter embodied it in *Psilothrix* (but Kiesenwetter considered *Psilothrix* as a *Dolichosoma* subgenus).

Schilsky (1894a: 235) included *D*. *femorale* among the *Psilothrix*, by him considered as a valid genus, probably due to its deceiving external appearance.

In 1904 Andrea Fiori (1905: 81) collected this species in Italy, at Casalecchio di Reno (near Bologna), as here below detailed. He thought to have found a new *Psilothrix* species and named it *P*. *rufimanus* (creating, for it, the new subgenus *Dolichomorphus*). But a few years later this same Author (Fiori 1908: 240), warned by Schilsky, realized the mistake, synonymized his species with *D*. *femorale* Morawitz and, aware of the external differences from *Psilothrix*, proposed to keep his subgenus *Dolichomorphus* as a valid one.

Subsequent Authors (see above under the species bibliography) accepted the Fiori proposal and the species was left within *Psilothrix* (as subg. *Dolichomorphus*) until recently when Majer (2005: 157) considered *Dolichomorphus* as a good genus.

Description

Elongate, thin, sexual differences reduced. Body entirely blackish with a greenish hue, tibiae variably yellowish: at least the anterior ones entirely, the other four more or less darkened; tarsi variably darkened: at least the first two articles yellow in part. Antennae yellow with, at least, the first and the 3-4 last articles more or less darkened (but, at times, nearly entirely blackish). Head and pronotum integument rather strongly punctuated and rough, but not very evidently because somewhat hidden by pubescence; elytra less strongly punctuated than head and pronotum. Entirely covered with sparse, strong, erect black setae and rather dense, thin, whitish adpressed pubescence.

♂♂ − Head, eyes included, as wide as (or slightly wider than) pronotum. Last palpomere large, hatchet shaped. Antennae rather short with sub-triangular articles, their internal angles either sharp (3°−5°) or just rounded (7-10°), 6° smaller than 5° and just smaller than 7°. Pronotum as long as wide, narrowed in basal half. Elytra parallel with apices separately rounded. Penultimate sternite simple on rear border, feebly depressed in the middle; last sternite feebly emarginated on rear border with CP rather short (Fig. 6); last tergite longer than in other *Dolichosoma* species (Fig. 7). Tarsal claws only slightly asymmetrical, pro- and mesotarsi claws fitted with a rather wide tooth. Median lobe as in Figs. 11 and 12. Internal sac (Fig. 11) short, fitted with blackish spines variably sized: at least 4 rather large. Tegmen (Fig. 5) sub-ellipsoidal, apically bi-lobated.

♀♀ − As the male but: body size slightly larger; head (eyes included) just narrower than pronotum, eyes smaller, last palpomere more rounded, antennae slightly shorter; pronotum feebly transverse; elytra slightly widened in apical half.

Tab. 2. Dimensions of *D.* (*Dolichomorphus*) *femorale* (all measures in mm).

	♂♂	♀♀
TL (from mandibles to elytral apex)	3.70-4.20	4.20-4.40
AL (antennal length)	1.20-1.40	1.10-1.20
HW (head width)	0.70-0.80	0.70-0.75
PL (pronotum length)	0.65-0.70	0.70-0.75
PW (pronotum width)	0.65-0.75	0.75-0.85
EL (elytral length)	2.60-3.00	2.65-3.20
EW (elytral width)	0.80-0.95	1.00-1.30

Localities

A distribution map is proposed in Fig. 15.

All localities here below reported have been either kindly communicated − by Matthias Borer (NMBA), Robert Constantin (CCo), Isidor Plonski (CPl, SMNS) and Sergei Tshernyshev (SZMN) − or relate to materials personally studied by the writer (all other depositories).

Unless differently stated, (nearly) all locality names below reported (as well as their spelling) can be retrieved in well-known internet maps; only in a few doubtful cases the coordinates (if present in the label) have been copied.

Italy

Veneto − Laguna Veneta, probably "Lido", 2 ♀♀ (Giordani-Soika, 12.VI.1947, MSNVE)[(A)]; Sant'Erasmo island nr. Venice, locality "Capannone", 6 ♂♂, 11 ♀♀ (Liberti, 25.VI.1988, CLi)[(B)].

Emilia-Romagna − Bibione, 2 exx. (Mantič, 1-8.VII.1995, NMBA-KM); Emilia, 10 exx. (?, ?, NMBA-CB & NMBA-WW); Casalecchio di Reno nr. Bologna, 33 exx. (Andrea Fiori, 1904, 4.VII.1905, 19.VI.1907, NMBA-KM, NMBA-CB, ZMB, MZUF, MSNG & CLi)[(C)].

Croatia

Istria − Levade nr. Portole, 1 ex. (?, ?, NMBA-WW).

Greece

Halkidiki − Perea nr. Thessaloniki, 1 ♀ (Fancello, 9.VIII.2007, CLi).

Bulgaria

Burgas district − Ropotamo nr. Primorsko, 4 exx. [Kroupa, 1-10.VII.1971, CLi (1 ♂) & NMBA-KM (3 exx.)].

Ukraine

Crimea − Yalta, Gornyi Sanatorium, 2 exx. (Pavlov-Veriovkin, 24.V.1978, SZMN).

European Russia, north

Saint Petersburg Oblast − Repino (finnish Koukkala), 1 ex. (Grigoriev, 1899, SZMN).

Moskow Oblast: Vostryakovo, 1 ex. (Pavlov-Veriovkin, 8.VI.1950, SZMN).

European Russia, south

southern Russia [?, ?, NMBA-CB (4 exx.) & NMBA (4 exx.)].

Astrachan Oblast − nr. Astrachan, 2 exx. (Yakovlev, ?, SZMN).

Kalmykia Republic − Lysyi Liman salt lake bank, 2 exx. (Formichev, VII.1977, SZMN); nr. Sadovoye selo, 1 ex. (Khachikov, 6.VI.1989, SZMN).

Krasnodar Krai − Sadki near Primorsko-Akhtarsk, 1 ex. (Solodovnikov, 28.VI.1990. SZMN); Tuapse, 1 ex. (Berlov, 2.VI.1975, SZMN).

Rostov Oblast − Aksaiskii raion [province], 3 Km N Stshepkino, 2 exx. (Savitsky, 14.VI.1988, SZMN).

Saratov Oblast − Balakovo, 1 ex. (Milko, 14.VIII.1996, SZMN); Saratov, 1 ex. (?, ?, NMBA-WW);

Ul'yanovsk Oblast − Isheevka, 2 exx. (Isaev, 7.VII.1977, SZMN); Staraya Kulatka, Vyazovyi Gai, 1 ex. (Isaev, 29.V.1992, SZMN).

Volgograd Oblast − Volgograd (old Sarepta, typical locality), 14 exx. [Becker, likely 1880 to 1885, CCo (1 ♂); Zurcher, ?, CCo (3 ♂♂, 1 ♀); ?, ?, NMBA-CB (9 exx.)].

Asiatic Russia

Altai Krai − Malinovoe Ozero, bank of salt lake, 4 exx. (Dudko, 10.VI.2017, SZMN); Topchikha selo, 7 exx. (Gurina, 13.VI.2018, SZMN); Vladimirovka selo, 8.5 Km SSW, 2190 m in Charyshskii raion, 3 exx. (Reshetnikov, 6.VII.2019, SZMN).

Irkutsk Oblast − Kitoj river near confluence with Toisuk affluent, 1 ex. (Koktysheva, 8.VII.1995, SZMN).

Kemerovo Oblast − Podiakovo selo [55°34'N, 85°50'E], 1 ex. (Efimov, 7.VII.2007, SZMN); Prokopievsk, 1 ex. (Polevod, 1.VI.1980, SZMN).

Khakassia Republic − Beya, 1 ♂ (Uselnikov, 5.VII.1973, MSNG); Birikchul, 2 exx. (Logunov, 19.VII.1990, SZMN).

Novosibirsk Oblast − Karasuk 20 Km W: Troitskoe selo 3 Km W, 16 exx. (Tshernyshev, VI-VII.2007, SZMN); Mochishche 6.5 Km SE, 2 exx. (Tshernyshev, 30.V.2012, SZMN); poselok Stepnoi, 1 ex. (Tshernyshev; 11.VIII.2019, SZMN).

Sakhalin Oblast − Voshod state farm in Tymovskii rajon, Sakhalin island, 1 ex. (Pavlov-Veriovkin, 5.VII.1970, SZMN).

Tuva Republic − Khorumnug-Tajga [Mountain range] on Bufen river, 1200 m, 1 ♀ (Vaschenko, 20.VI.1999, CLi) [a locality not identified, possibly 180 Km SSE Kyzyl, close to Erzin]; Kyzyl, 4 ♀♀, (?, 5.VI.1999, CAn); Mugur Aksy, 1 ex. (Korotiaev, 1972, SZMN); Shara nur lake, S of Samagaltay, 1 ex. (Zinchenko, 3.VI.1989, SZMN).

Tyumen Oblast − island in Solenoye Lake, 2 exx. (Dudko, 19.VII.2004, SZMN).

Kyrgyzstan

Bishkek botanical garden, 1 ex. (Barkalov, 18.V.1987, SZMN); Chon Arik, 30 Km S of Bishkek, 26 exx. [Majer, 2-4.VII.1981, NMBA-KM (13 exx.); Schön K., 2.VII.1980, NMBA-KM & CLi (12 exx.+1 ♂)].

Uzbekistan

Mt. Chimgan, Chatkal Range, 32 Km E of Chirchiq, 1 ex. (Kadleč, 26.VI.1980, NMBA-KM).

Kazakhstan

Kazakhstan, 1 ex. (?, ?, NMBA-WW).

Akmola Oblysy − Korgalzhyn State Reserve [51°45'N, 71°28'E], 2 exx. (Kazenas, 28.VI.2005, SZMN).

Aktobe Oblysy − Embi 20 Km NE, 1 ex. (Ivanov, 18.IV.2012, SZMN).

Almaty Oblysy − Almaty, 1 ex. (Kolov, 8.VI.2001, SZMN); Ili river abt. 70 Km N (upstream) of Kapchagai [43°58'N, 79°37'E], 3 exx. (Tshernyshev, 30.VI.2006, SZMN).

East Kazakhstan Oblysy − 20 Km N of Tarbagatai Mounts [47°10'N, 82°10'E], 2 exx. (Medvedev, 6.VI.1962, SZMN]; Zaysan, 1 ex. (Danilevski, 10.VI.1987, NMBA-KM).

Nord Kazakhstan Oblysy − Ruzaevka [54°04'N, 44°52'E], 23 exx. (Sukacheva, 28.VI.1982, SZMN)

Mongolia

Khovd aimag − Ueng-Gol, 25 km SW Ueng [unidentified locality], 2 exx. (?, 28.7.1975, CPl & SMNS).

(A) = At MSNVE 2 ♀♀ are housed, labelled "Laguna Veneta / ricerche lagunari [Venice lagoon / field researches] 1944-48 / Staz. terr. [territorial station] n° 975 / Giordani Soika". This label refers to a long series of field entomological collections carried out in these years (1944−1948) by Antonio Giordani-Soika (1913−1997) in the whole Veneto region and not at all limited to the Venice lagoon. Unfortunately locality "n° 975" was not found in the Museum records: only the date has been retrieved: 12.VI.1947. But in the same register book it appears that Giordani Soika, the day before (on 11.VI.1947), collected at Marghera (in the Venice lagoon) and, in these days (just before the 11th and after the 12th), he was actively collecting very close to Venice, in locality Lido [information kindly supplied by Enrico Ratti (formerly MSNVE Director)].

(B) = here the writer observed several individuals, active on the blossoming ears of a couch grass

[*Elymus pungens* (Pers.) R & S (*sensu* Pignatti): determination kindly done by Enrico Banfi], a weed abundant on canals banks in brackish, uncultivated grounds.

(C) = Andrea Fiori (1854−1933) collected this species, at Casalecchio di Reno, at least three times: in 1904 [Fiori (1905: 84) reports to have found this species on ears (probably blossoming) of the couch grass *Elymus repens* (formerly *Agropyrum*): a weed very close to *E. pungens* and replacing it on non-salted grounds (as Enrico Banfi informed)], in 1905 and again in1907 (the writer supposes both times in the same place), as can be read in the labels of the materials studied:

19 specimens (3 MZUF, 2 ZMB, 5 MSNG, 2 NMBA−KM, 7 NMBA−CB) labelled "Casalecchio / (Bologna) 4.VII.1905 / leg. A. Fiori". The 2 specimens kept at ZMB, 1 ♂ e 1 ♀, also bear, respectively, the following labels:

♂: "Hololectotypus / D. fuliginosus Sch.",
♀: "Allolectotypus / D. fuliginosus Sch."
both handwritten [but the writer is not aware of any *Dasytes* (or *Psilothrix*, or *Dolichosoma*) *fuliginosus* described by Schilsky].

The 5 specimens kept at MSNG bear a label handwritten by Giorgio Fiori (1923−1983, grand-son of Andrea Fiori).

14 specimens (9 MZUF, 3 MSNG, 1 CLi, 1 NMBA−CB): "Casalecchio / (Bologna) 19.VI.1907 / leg. A. Fiori".

<u>*Other localities reported in the literature*</u>:

Kaszab 1955: Hungary: Sashegy near Budapest; Serbia: Grebenaç (Bansag region, or Banat).

Kaszab 1977: Mongolia: Khovd aimag: Somon Uenč, Somon Bulgan; Southern Gobi aimag: Dund gol; Uvs aimag: Somon Naranbulag.

Majer 1986a: European Russia: Crimea; Kazachstan: Povolži.

CONCLUSIONS

Determination key for Italian *Dolichosoma* subgenera and species

In Italy (as well as in the Mediterranean Europe) only the following three *Dolichosoma* species can be found:

1 Pronotum as long as wide or just transverse; elytral pubescence double: thin, rather dense and slightly raised setae plus several black, erect setae sparsely placed on elytral surface; last palpomere securiform (subg. ***Dolichomorphus***). Here only one species with (at least) anterior tibiae yellowish and median lobe of aedeagus as in Figs. 11, 12..... .....***femorale***

- Pronotum much longer than wide, elytral pubescence nearly scale-like, rather sparse, adpressed, whitish with black erect setae absent or, if present, only close to elytral apex, last palpomere cylindrical (subg. ***Dolichosoma***). Here two species with all legs entirely black **2**

2 Elytral apex sharp, elytra with two-three longitudinal, weak, rather unclear striae. Pronotum with only a few (often free from) black, erect setae. Median lobe of aedeagus as in Figs. 9, 10; internal sac rather short, with several tiny basal spines and a group of 6−10 very large apical spines, similar to each other but variably sized. Length 4−6 mm..... .....***lineare***

- Elytral apex rounded, elytra free from striae. Pronotum usually fitted, on lateral borders, with 5−10 black, erect setae. Median lobe of aedeagus as in Figs. 13, 14; internal sac very short, fitted with several, rather small basal spines plus a number (< 10) of slightly larger apical ones. Length 4−5.5 mm .....***simile***

ACKNOWLEDGEMENTS

I am really grateful to all friends and colleagues who made possible the writing of this paper: Enrico Banfi (determination of graminaceous weeds and related information), Robert Constantin (transmission of data from his collection), Bernd Jaeger (loan of materials from ZMB); Isidor Plonski (transmission of data from his collection), Roberto Poggi (access to collections of MSNG and related information) and Enrico Ratti (access to collections and documents of MSNVE).

A special thank is due to Matthias Borer, Naturhistorisches Museum Basel, and Sergei Tshernyshev, Siberian Zoological Museum, Novosibirsk, who carried out the long and boring task of listing all data relating to the abundant materials kept in their Museums.

Fabrizio Fanti, very kindly, revised the text. The text has also been revised by two anonymous Readers who are, here, gratefully thanked for their help.

References

Bahillo de la Puebla P., Lopez-Colon J. I., 2014 - *Psilothrix constantini*, especie nueva de Dasytidae de la Peninsula Iberica (Coleoptera: Cleroidea). Heteropterous Revista de Entomologia, 14: 95-103.

Brullé G. A., 1832 - Expedition scientifique de la Morée; Section des Sciences Physiques Tome III, 1.re Partie. Zoologie. Deuxième Section − Des Animaux articulés. Imprimeur Levrault, Paris, 395 pp.

Constantin R., 2007 - Révision des *Aplocnemus* de France avec description de trois nouvelles espèces. Observations taxonomiques et faunistiques sur les espèces françaises de Dasytidae et Acanthocnemidae (Coleoptera, Cleroidea). Bulletin de la Société entomologique de France, Paris, 112(2): 151-170.

Constantin R., Liberti G., 2011 - Coléoptères Dasytidae de France. Musée des Confluences, Lyon, 144 pp.

Fiori A., 1905 - Descrizione di un Dasytidae nuovo e di un altro poco conosciuto in Italia. Rivista Coleotterologica italiana, Camerino, 3(4): 81-89.

Fiori A., 1908 - Rettifica di alcune specie di Coleotteri credute nuove. Rivista Coleotterologica italiana, Camerino, 6(12): 237-241.

Geoffroy E. L., 1785 - Novae Species. In Fourcroy A. F. - Entomologia Parisiensis, sive Catalogus Insectorum que in Agro Parisiensis reperiuntur; secundum Methodum Geoffrœanam in sectiones, genera et species distributus, cui addita sunt nomina trivialia et fere trecentae novae species. Pars prima. Privilegio Academiae Parisiis, 231 pp.

Gimmel M. L., Mayor A. J., 2019 - On the north American species of *Dolichosoma* Stephens and *Psilothrix* Küster (Coleoptera: Melyridae: Dasytinae: Dasytini). The Coleopterists Bulletin, 73(2): 395-407.

ICZN (International Commission on Zoological Nomenclature), 1999 - International Code on Zoological Nomenclature, fourth edition. The International Trust for Zoological Nomenclature c/o The Natural History Museum, London, 306 pp.

Kaszab Z., 1955 - Különbözó Csápú Bogarak Diversicornia I. Lágytestú Bogarak Malacodermata (62 ábrával). Magyarország Allatvilága, VIII Kötet, Coleoptera III, 1. Füzet. Akademiai Kiadó, Budapest, 144 pp.

Kaszab Z., 1977 - Faunistische Angaben über Coleopteren und Strepsiteren aus der Mongolei. Folia entomologica hungarica, 30(1): 51-68.

Kiesenwetter v. H., 1859 - Beitrag zur Käferfauna Griechenlands. Fünftes Stück: Elateridae, Dascillidae, Malacodermata. Berliner entomologische Zeitschrift, Berlin, 3: 17-34.

Kiesenwetter v. H., 1863 - Erste Abteilung, Coleoptera, vierter Band [published in parts from 1856 to 1863]. In Erichson W. F., Schaum H., Kraatz G., Kiesenwetter H. - Naturgeschichte der Insecten Deutschland. Nicolaischen Verlagsbuchhandlung, Berlin, 746 pp.

Kiesenwetter v. H., 1867 - Revision der Dasytidengattung *Dolichosoma*. Berliner entomologische Zeitschrift, Berlin, XI: 136-140, tav. I.

Kirby W., 1837 - Fauna Boreali-Americana; or the zoology of the northern parts of British America: containing descriptions of the objects of natural history collected on the late northern land expeditions, under command of Captain Sir John Franklin, R.N. Part IV. Insecta. Josiah Fletcher, Norwich, UK, 34+325 pp., 8 pl.

Küster H.C., 1850 - Die Käfer Europa's. Nach der Natur beschrieben. 21es Heft. Julius Merz, Bauer & Raspe, Nürnberg, a-d + 100 sheets.

Liberti G., 1995 - Famiglia Melyridae, pp. 16-22. In Audisio P., Gobbi G., Liberti G. & Nardi G. - Coleoptera Polyphaga IX (Bostrichoidea, Cleroidea, Lymexyloidea). In: Minelli A., Ruffo S. & La Posta S. (Eds.) - Checklist delle specie della fauna italiana, 54. Edizioni Calderini, Bologna, 27 pp.

Liberti G., 2009 - The Dasytidae (Coleoptera) of Sardinia. Zootaxa, 2318: 339-385.

Liberti G., 2018 - The *Aplocnemus* Stephens, 1830, of Greece (Coleoptera, Cleroidea, Dasytidae). A contribution to their knowledge. Natural History Sciences. Atti della Società italiana di Scienze naturali e del Museo civico di Storia naturale, Milano, 6(1): 3-26.

Liberti G., Plonski I. S., 2019 - The *Psilothrix* Küster, 1850 of the group *viridicoerulea* Geoffroy, 1785 (Coleoptera: Melyridae: Dasytinae). Zeitschrift der Arbeitsgemeinschaft Österreichischer Entomologen 71: 153-170.

Lohse G.A., 1992 - 30. Familie: Melyridae: pp 19-23. In Lohse G.A., Lucht W.H. - Die Käfer Mitteleuropas 2. Supplementband mit Katalogteil. Goecke & Evers Verlag, Krefeld, 375 pp.

Majer K., 1986a - Komentovany Katalog Ceskoslovenskych Druhu Celedi Phloiophilidae a Melyridae (Excl. Malachiinae) (Coleoptera, Cleroidea). Zbornik Slovenského národnhéo Múzea, Bratislava, 22: 113-129.

Majer K., 1986b - Dasytinae from Mongolia (Coleoptera: Melyridae). Acta Zoologica Hungarica, Budapest, 32(3-4): 303-315.

Majer K., 2005 - Family Dasytidae pp. 150-163. In Kolibač J., Majer K., Svihla V. - Beetels of the superfamily Cleroidea in the Czech and Slovak Republics and neighbouring areas. Clarion Productions, Praha, 186 pp.

Morawitz F., 1861 - Einige neue Melyridae beschrieben. Bulletin de la Societé Imperiale des Naturalistes, Moscou, III: 314-320.

PEYERIMHOFF P.M., 1925 - Nouveaux coléoptères du Nord-Africain. Cinquantième note. Annales de la Société entomologique de France. Paris, 94: 1-29.
PIC M., 1937 - Coleopterorum Catalogus auspiciis et auxilio W. Junk, editus a S. Schenkling, Pars 155: Dasytidae: Dasytinae. Dr. W. Junk Verlag, s'-Gravenhage, 130 pp.
PORTA A., 1929 - Fauna Coleopterorum Italica, Vol. III, Diversicornia. Stabilimento Tipografico Piacentino, Piacenza, 466 pp.
ROSSI P., 1794 - Mantissa Insectorum, exhibens species nuper in Etruria collectas, adiectis faunae etruscae illustrationibus ac emendationibus. Tom. II. Ex Typographia Prosperi, Pisis, 154 pp.
SCHILSKY J., 1894a - Beitrag zur Kenntniss der Dasytinen. Deutsche entomologische Zeitschrift, Berlin, 1894 (II): 225-236.
SCHILSKY J., 1894b - in KÜSTER H.C., KRAATZ G. - Die Käfer Europa's nach der Natur beschrieben. XXXes Heft. Verlag von Bauer und Raspe, Nürnberg, 100 Nr's.
SCHILSKY J., 1897 - in KÜSTER H.C., KRAATZ G. - Die Käfer Europa's nach der Natur beschrieben. XXXIVes Heft. Verlag von Bauer und Raspe, Nürnberg, 100 Nr's.
STEPHENS J.F., 1830 - Illustrations of British Entomology; or a Synopsis of Indigenous Insects, containing their generic and specific distinctions, with an account of their metmorphoses, times of appearence, localities, food and economy, as far as practicable. Mandibulata vol. III. Baldwin and Cradock, London, 374 + 4 (indices) + 1 (list of plates + errata) pp.
WOLLASTON T.V., 1854 - Insecta Maderensia; being an account of the insects of the islands of the Madeiran group. J. Van Voorst, London, 634 pp.