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Taxonomical revision of the *Longitarsus atricillus* species group with resurrection of *Longitarsus nigricollis* (Foudras) (Coleoptera: Chrysomelidae: Galerucinae)

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Abstract – The *Longitarsus atricillus* species group, which includes *L. atricillus* (Linnaeus 1761), *L. aeneicollis* (Faldermann 1837), *L. nigricollis* (Foudras 1860), *L. apicalis* (Beck 1917), *L. danieli* Mohr 1962, *L. idilphilus* Biondi 1984, *L. atlanticus* Döberl 2002 has been investigated in depth by the study of a large number of specimens. As a result, *L. nigricollis*, previously a synonym of *L. aeneicollis*, has been resurrected based on clear morphological differences. The lectotypes of *L. aeneicollis* and *L. nigricollis* have been designated and compared with one another; the main comparative features, as well as several new collecting localities of the two species, are reported. The neotype of *L. apicalis* has been designated. Two new synonymies are proposed: *L. rubenticollis* (Allard 1860) = *L. cribripennis* (Abeille 1909) = *L. nigricollis* (Foudras 1860). The synonymy *L. atricillus* var. *similis* Weise 1893 = *L. atricillus* (Linnaeus 1761) is confirmed. *L. bedelii* (Uhagón 1887) has been here considered "*taxon dubium*". *L. danieli* is new to Portugal. Action is required (namely an application to the International Commission on Zoological Nomenclature) to fix the problem of *L. atricillus,* whose type might be unsuitable to represent the species. A determination key for the whole group has been included.
Key words: Alticitae, key to species, lectotype designation, *Longitarsus*, neotype designation, new synonymies, taxonomy.

Riassunto – Revisione tassonomica del gruppo di specie di *Longitarsus atricillus* con riesumazione di *Longitarsus nigricollis* (Foudras) (Coleoptera: Chrysomelidae: Galerucinae)
In questo lavoro viene riconsiderata ed esaminata, attraverso lo studio di un elevato numero di esemplari, la posizione tassonomica delle specie del gruppo di *Longitarsus atricillus*, che comprende *L. atricillus* (Linnaeus 1761), *L. aeneicollis* (Faldermann 1837), *L. nigricollis* (Foudras 1860), *L. apicalis* (Beck 1917), *L. danieli* Mohr 1962, *L. idilphilus* Biondi 1984, *L. atlanticus* Döberl 2002. Nell'ambito di questo esame viene riabilitata, sulla base di importanti differenze morfologiche, la specie *L. nigricollis*, considerata precedentemente sinonimo di *L. aeneicollis*. Vengono designati e confrontati il lectotipo di *L. aeneicollis* e il lectotipo di *L. nigricollis*, vengono forniti caratteri anatomici comparativi e numerosi nuovi dati geonemici delle due specie. Viene designato il neotipo di *L. apicalis*. Due nuove sinonimie sono qui proposte: *L. rubenticollis* (Allard 1860) = *L. cribripennis* (Abeille 1909) = *L. nigricollis* (Foudras 1860). Inoltre, viene confermata la sinonimia *L. atricillus* var. *similis* Weise 1893 = *L. atricillus* (Linnaeus 1761). La specie *L. bedelii* (Uhagón 1837) è considerata "*taxon dubium*". *L. danieli* risulta nuovo per il Portogallo. Viene accennata la necessità di un'azione (una richiesta alla Commissione internazionale di nomenclatura zoologica) per risolvere il problema di *L. atricillus*, il cui tipo potrebbe non essere adatto a

rappresentare la specie. Viene infine fornita una chiave analitica per facilitare l'identificazione delle specie del gruppo.
Parole chiave: Alticitae, chiave di identificazione, designazione di lectotipo, designazione di neotipo, distribuzione, Galerucinae, *Longitarsus*, nuove sinonimie, tassonomia.

Dedication: I dedicate this work to the memory of Carlo Leonardi (1942-2024), world renowned specialist of flea beetles, mentor and dearest friend.

INTRODUCTION

The *L. atricillus* group currently includes, within the Palaearctic fauna, seven species: *L. atricillus*, *L. aeneicollis*, *L. nigricollis*, *L. apicalis*, *L. danieli*, *L. idilphilus*, *L. atlanticus*. The group was already proposed by Biondi (1984: 383).

New diagnostic characters are provided to clarify the related taxonomy of the species of the group. Morphologically, the seven species are fairly homogeneous: *aeneicollis* and *nigricollis* have similar habiti. *L. apicalis*, *L. danieli*, *L. idilphilus*, *L. atlanticus* closely resemble one another. All the species of the group have the same aedeagus shape apart from *aeneicollis*.

After examination of many specimens from Europe, North Africa and western-central Asia, *L. nigricollis*, previously considered a synonym of *L. aeneicollis*, is reinstated based on important morphological differences. New collecting localities extend and clarify the distribution ranges of both species (Fig. 1).

MATERIALS AND METHODS

All observations were carried out with Kiowa and Tiesselab binocular stereo-microscopes. Dissection methods followed those described in Farina, 2021: 11. The aedeagi were dry-mounted, the spermathecae were included in DMHF (Dimethyl-hydantoin formaldehyde) or in entomological glue. Both aedeagi and spermathecae were set on the same label with the specimen or on another label underneath. The biometric measurements were taken using a Kiowa stereomicroscope with an eyepiece micrometre. The length of elytra and prothoraces were measured by keeping the specimens tilted to have the base and the apex of the elytra (or the fore and the rear margin of pronotum) on the same plane (Farina & Leonardi, 2018: 186). The drawings were made with a Kiowa stereomicroscope, by using an eyepiece equipped with a 20x20 grid and manually transferring the observed image on graph paper. The macrophotos were taken using a Keyence VHX 7000 4K.

Collection localities were recorded as written on the specimens' labels. Countries have been arranged from west to east and from north to south; within each country, localities are grouped by depository, and these are listed in alphabetical order. For Italy only, localities are grouped also by administrative regions.

For museum and collection acronyms, those proposed by Sabaj Pérez (2010: online reference, version 2.0) have been employed.

The specimens studied and mentioned in this study are kept in the following institutional and private collections:

BMNH: Natural History Museum, London (BMNH-War: A. Warchałowski collection)

BVCM: Gloria Bastazo-José Miguel Vela collection, Malaga, Spain

CGCB: Christoph Germann collection, Basel, Switzerland

HNHM: Hungarian Natural History Museum, Budapest
LFCC: Laura Farina collection, Casatenovo, Lecco, Italy
MBCA: Maurizio Biondi collection, L'Aquila, Italy
MDC: Centre des collections Louis Lortet du Musée des Confluences, Lyon
MHNB: Naturhistorisches Museum, Basel (MHNB-Heik: 1953 F. Heikertinger collection)
MNHN: Muséum National d'Histoire Naturelle, Paris (MNHN-Dog: S. Doguet collection; MNHN-Obe: R. Oberthür collection)
MHNP: Národní muzeum (National Museum), Prague, Czech Republic
MLBC: Márk Lukátsi collection, Budapest, Hungary
MSNG: Museo Civico di Storia Naturale "G. Doria", Genova (MSNG-Bin: G. Binaghi collection; MSNG-Dod: A.
Dodero collection; MSNG-Man: C. Mancini collection)
MSNM: Museo di Storia Naturale di Milano (MSNM-Ber: M. Bergeal collection)
MSNVR: Museo Civico di Storia Naturale, Verona
SZCM: Stefano Zoia collection, Milano, Italy
UUZM: Uppsala Universitet, Evolutionsmuseet, Uppsala
ZMB: Museum für Naturkunde, Berlin
ZSM: Zoologische Staatssammlung München.

Anatomical terms and abbreviations in the text

El: elytral length; Ew: elytral width (taken together); (….)m: mean value of….; n: number of specimens in the
sample; Pl: prothorax length; Pw: prothorax width; Ptl: male first protarsomere length; Ptw: male first protarsomere width; Sl= pronotum corners setae length; Tl: length of hind tibia in stretched position; (!): specimens dissected for genitalia examination; /: line break within the label (in species determination labels lines break are not shown); //: next label on the same pin; wings polymorphism is reported as: macropterous, brachypterous, micropterous (Furth, 1980a: 132).

SPECIES DISCUSSION

L. suturalis Auctorum (nec Marsham 1802)

Under this name (anyway unavailable because of homonymy, as detailed below), two different species have been until now confused, namely *L. aeneicollis* (Faldermann 1837) and *L. nigricollis* (Foudras 1860).

The synonymy *L. aeneicollis=L. nigricollis=L. suturalis* has been accepted so far (see below under "Historical").

Two "geographical forms" can be easily recognized under these names, on the ground of: median lobe of aedeagus shape, ductus spermathecae convolution, male first protarsomere and wings development:

1. the "western form": usually macropterous (humeral calli often developed: in 85% of the specimens studied), median lobe of aedeagus usually shorter and wider, ductus spermathecae complicated by a large number of coils, first male protarsomere not broadened.
2. the "eastern form": wings often reduced (humeral calli often scarcely or not prominent; developed in no more than 56% of the specimens studied), median lobe of aedeagus longer and narrow, ductus spermathecae with 2-4 coils, first male protarsomere broadened.

Other authors too had already noticed and reported some of these differences: Jolivet (1967: 351) refers wing polymorphism for *L. suturalis* ("Ailé ou microptère"); Furth (1980a: 135, Table 1) reports that in Israel, *L. suturalis* is macropterous; Biondi (1984: 385) writes: "Among specimens of *L. suturalis* (Marsham) there are sometimes individuals showing different levels of wing reduction: specimens with undeveloped wings are particularly frequent in Apennines and Eastern Europe populations" ["Non raramente in *L. suturalis* (Marsham) sono presenti individui che mostrano differenti livelli di riduzione alare: questi esemplari meiotteri sono particolarmente frequenti in popolazioni dell'Appennino e dell'Europa orientale"]; Doguet (1994: 236) referring to *L. suturalis* writes: "In specimens from Eastern Europe or Asia Minor the median lobe of aedeagus is very elongate and very narrow " ("Chez les exemplaires d'Europe orientale ou d'Asie mineure le lobe median de l'édéage est très allongé et très étroit "); Leonardi, *in verbis*.

The "western" form has a wide distribution ranging: from Portugal to central Asia, the "eastern" one is mainly spread eastwards (from the Balkans to central Asia). That results in a large overlap: as a matter of fact, they have been found to occur together in several places (Fig. 1).
In my opinion, both clear anatomical differences and the overlap of their distribution ranges justify the split of this taxon in two different species: in the west, the resurrected *L. nigricollis* and, in the east, *L. aeneicollis*.

Historical
Genus *Longitarsus* Latreille 1829 (5: 155), type species *Chrysomela atricilla* Linnaeus 1760
Illiger, 1807: 52 [*Longitarses*]; Latreille, 1825: 405 [Longitarse]; Berthold, 1827: 401 [*nomen nudum*]; Chevrolat in d'Orbigny, 1848: 440; Foudras, 1860: 125; Allard, 1860: 87; Kutschera, 1862: 97; Allard, 1866: 296-297; Redtenbacher, 1874: 503; Chapuis, 1875: 69; Weise, 1886: 927; Bedel, 1898: 185; Fowler, 1890: 335-336; Heikertinger, 1912: 10-13; Heikertinger, 1914: 266; Maulik, 1926: 333; Samuelson, 1973: 56; Warchałowski, 1996: 4-5; Löbl & Smetana, 2010: 522; Bouchard, 2024: 301.
= *Thyamis* Stephens 1831: 307
= *Teinodactyla* Chevrolat in Dejean 1833: 392
= *Teinodactila* Motschoulsky 1866: 416-418
= *Inopelonia* Broun 1893: 1392
= subg. *Apterius* Blatchley 1921: 19

1802 – Marsham described *Chrsyomela suturalis* (Marsham, 1802: 201-202, locus typicus: England). As later noticed by Silfverberg (1977: 94), this name was not available because a species of Chrysomelidae (not of the Alticitae group) with the same name had been described previously: *Chrysomela suturalis* Fabricius 1775 (Syst. Ent., p. 95).

1831 – Stephens (1831: 311) proposed the synonymy *Chrysomela suturalis* Marsham = *Thyamis suturalis*.

1837 – Faldermann (1837: 346) described *Teinodactyla aeneicollis*, loc. typ. Transcaucas.

1860 – Foudras (1860: 273-274) described *Teinodactyla nigricollis*, loc. typ. Lyon and Draguignan (France).

1860 – Allard (1860: 141-144) proposed the synonymy *Teinodactyla nigricollis* = *Teinodactyla suturalis* [in a table *T. nigricollis* ("Nom de M. Foudras", written in italics) is compared with *T. suturalis* ("Nom de E. Allard", written in Roman letters)].

1889 – Weise (1889: 419) proposed the synonymy *Longitarsus aeneicollis* = *Longitarsus suturalis*. In this work Weise denies the report of Allard (1866: 493-494) who considers *Thyamis aeneicollis* Fald. as *T. atricilla* L.

1912 – Tomlin & Sharp (1912: 75-76) proposed the synonymy *L. nigricollis* = *L. aeneicollis* = *L. suturalis*.

1977 – Silfverberg (1977: 91-94), in his work on the nomenclature of Coleoptera Polyphaga, observed that a number of commonly used specific names were junior primary homonyms and had therefore to be rejected. Concerning *Longitarsus suturalis* (Marsham 1802), Silfverberg explained: "described as *Chrysomela suturalis* in Ent. Brit., p. 201, and preoccupied by *Chrysomela suturalis* Fabricius 1775 (Syst. Ent., p. 95) (= *Zygogramma suturalis*). The oldest available name is *Longitarsus aeneicollis* (Faldermann, 1837), described as *Haltica* in Nouv. Mém. Soc. Imp. Moscou, 1837, 5: 346" [actually Faldermann wrote *Teinodactyla* (1837: 346)].

1977-1998 – Even after the publication of Silfverberg's work (1977: 91-94), *L. suturalis* was the most commonly used name [Daccordi & Petitpierre, 1977: 233; Furth, 1980: 115; Furth, 1980a: 135; Gruev, 1979: 130; Biondi, 1984a: 70; Biondi, 1984: 372-394; Nonveiller, 1984: 296, 320; Bastazo & Vela, 1985: 160; Gruev *et al.*, 1987: 237; Biondi, 1990: 151; Biondi, 1990a: 349; Biondi, 1990b: 170; Gruev, 1990: 334; Bastazo *et al.*, 1993: 58; Gruev *et al.*, 1993: 109; Doguet, 1994: 235, who writes: "Currently, for many authors, this species must be named *L. aeneicollis* (Fald)": "Actuellement, pour des nombreaux auteurs, cette espèce doit prendre le nom de *L. aeneicollis* (Fald)"; Ocejo & Gurrea, 1995: 61; Tomov *et al.*, 1996: 344; Vig, 1996: 130; Petitpierre & Gomez-Zurita, 1998: 19].

***Longitarsus aeneicollis* (Faldermann 1837) (Figs. 2a, b)**

Teinodactyla aeneicollis Faldermann 1837: 346-347. *Loc. typ.*: Transcaucasus.

Weise, 1893: 967 [*Thyamis*]; Tomlin & Sharp, 1912: 75 [*Longitarsus*]; Heikertinger, 1930: 1328; Vitale, 1935: 79; Csiki & Heikertinger, 1940: 170; Silfverberg, 1977: 94; Döberl, 1994: 107-108 (probably referring to *L. nigricollis*); Doguet, 1994: 235; Warchałowski, 1995: 204-207 (referring in part to *L. nigricollis*); Biondi, 1996: 16 (probably referring in part to *L. nigricollis*); Doguet *et al.*, 1996: 321 (probably referring in part to *L. nigricollis*); Biondi & Di Casoli, 1996: 183 (probably referring to *L. nigricollis*); Rozner, 1996: 256 (probably referring in part to *L. nigricollis*); Warchałowski, 1996: 37-40 (referring in part to *L. nigricollis*); Biondi & Laurenzi, 1997: 486 (probably referring to *L. nigricollis*); Gruev & Döberl, 1997: 142-143 (referring in part to *L. nigricollis*); Gruev & Tomov, 1998: 87 (referring in part to *L. nigricollis*); Petitpierre, 1999: 104 (probably referring to *L. nigricollis*); Schöller & Heinig, 2000: 199 [*L. aeneicollis* erroneously credited to "Richter, 1920"] (probably referring to *L. nigricollis*); Vives, 2000: 16-17 (probably referring to *L. nigricollis*); Biondi & De Nardis, 2001: 39 (probably referring to *L. nigricollis*); Gruev, 2002: 27 (probably referring in part to *L. nigricollis*); Gruev, 2002a: 57 (probably referring

in part to *L. nigricollis*); Vig, 2002: 117 (referring in part to *L. nigricollis*); Brelih *et al.*, 2003: 111 (probably referring to *L. nigricollis*); Warchałowski, 2003: 442-443 (probably referring in part to *L. nigricollis*); Biondi, 2005: data on CD-Rom (probably referring to *L. nigricollis*); Gruev & Döberl, 2005: 73 (referring in part to *L. nigricollis*); Čížek & Doguet, 2008: 107 (Fig. 196), 112 (probably referring to *L. nigricollis*); Löbl & Smetana, 2010: 522; Warchałowski, 2010: 868 (referring in part to *L. nigricollis*); Baviera & Biondi, 2015: 14 (probably referring to *L. nigricollis*); Salvi *et al.*, 2019: 104, 107, 110 (referring in part to *L. nigricollis*); Salvi *et al.*, 2020: 5, 11-12. 14 (referring in part to *L. nigricollis*).

= *Longitarsus suturalis* (Marsham 1802) (in part) [unavailable: see discussion above]
Oertzen, 1886: 290; Kolbe, 1920: 401; Heikertinger, 1930: 1328; Tölg, 1938: 239; Csiki, 1940: 274; Csiki & Heikertinger, 1940: 169-170; Král, 1954: 177; Lopatin, 1960: 630; Haberman, 1962: 85, 88, 106; Kaszab, 1962: 313; Konnerth-Ionescu, 1963: 256 (in the *Longitarsus* species list, mistakenly written "*Aphthona*" *suturalis* instead of "*Longitarsus*"); Lopatin, 1963: 365; Mohr, 1965: 703; Jolivet, 1967: 351; Warchałowski, 1974: 522; Silfverberg, 1977: 94; Gruev, 1979: 130; Furth, 1980: 115; Furth, 1980a: 135; Biondi, 1984: 385. 391; Nonveiller, 1984: 296, 320; Gruev *et al.*, 1987: 237; Gruev, 1988: 162; Gruev, 1990: 334; Bastazo *et al.*, 1993: 58; Gruev *et al.*, 1993: 109; Doguet, 1994: 235-236; Biondi *et al.*, 1995: 16; Rozner, 1996: 256; Tomov *et al.*, 1996: 344; Vig, 1996: 130; Löbl & Smetana, 2010: 522.

Type and species identification
One syntype of *Teinodactyla aeneicollis* [*Teinodactyla aeneicollis* Fald. Pers. // Coll. Mniszech // Muséum Paris / 1952 / Coll. R. Oberthür // Syntype / *Longitarsus aeneicollis* (Faldermann, 1837)], housed at MNHN was seen as a detailed photo [kindly supplied by Dr. Christophe Rivier (Figs. 5a, b)]. This specimen is very damaged, as only the elytra have been preserved. The labels contain details of the species' name and locality (Fig. 5c), handwritten by Faldermann (authenticity verified by comparison with the sample reported by Horn *et al.*, 1990: 506-507, Tafel 21, Fig. 27). Further syntypes were not available. They are indeed missing in some of the other collections where according to Horn *et al.* (1990: 114), the Faldermann types might be preserved. Unsuccessful searches were carried out at the Zoological Institute of the Russian Academy of Sciences (St. Petersburg) and Zoological Museum of the Moscow Lomonosov State University (information kindly provided by the respective curators Dr. Alexey Moseyko and Dr. Aleksey Gusakov). It has been impossible to check for further syntypes (maybe still existing) in remaining collections (Horn *et al.*, 1990: 114).
Therefore, the above reported syntype of *L. aeneicollis* is now redefined as Lectotype:
Teinodactyla aeneicollis Fald. Pers. // Coll. Mniszech // Muséum Paris / 1952 / Coll. R. Oberthür // Syntype / *Longitarsus aeneicollis* (Faldermann, 1837) // *Lectotypus* / *Longitarsus aeneicollis* (Faldermann) / des. Laura Farina, 2024.
Given the entangled taxonomy of the *Longitarsus* group of species here discussed, is thought to be useful to designate a lectotype. Although heavily damaged, the MNHN syntype is suitable on the grounds of:
1. anatomy: the remains (elytra) are perfectly compatible with the species *L. aeneicollis*. The humeral calli clearly appear weak or undeveloped, suggesting reduced or vestigial wings. In the material studied, specimens with humeral calli reduced or absent appear much more frequently in *L. aeneicollis* (44%) than in *L. nigricollis* (15%) as reported above.

2. geography: Pers. (=Persia, now Iran) being the typical locality, it agrees with the known distribution range [*L. aeneicollis* is mainly (98% of the specimens studied) distributed in eastern Europe and western Asia].

Description

Body length: ♂♂ (n= 20): 2.14-2.45 mm; ♀♀ (n= 20): 2.28-2.60 mm.

Shape ovate-elongate, rather convex, elytral sides sub-parallel (Figs. 2a, b). Elytra yellow or yellowish-brown, scutellum brown and variably narrow dark suture; sometimes elytral sides slightly dark; head dark brown; pronotum brown with weak bronze reflections, sometimes reddish or reddish-brown. More or less dark brown venter. Legs yellow, hind femora brown with weak bronze reflections; two last tarsomeres and claws slightly darkened. Antennae basally yellow, then progressively darkened from 5°-6° antennomeres.

Frons [‘*postfrons*’ *sensu* Heikertinger, 1913 (Fig. 5)] and vertex [*sensu* Doguet, 2004 (Fig. 5a)] entirely microgranulated. Frontal tubercles separate from frons by weak frontal furrows. Frontal ridge prominent, with surface smooth and shiny. Ocular furrows deep and complete in distal part.

Antennae long about 2/3 of the body length. Antennomere ratio (n=10): 16:11:9:12:13:12:13:13:13:13:17 (no significant difference has been noticed between males and females).

Pronotum transverse [(Pw/Pl)m= 1.61], convex, wider at about basal 2/5; sides rounded, lateral calli (at anterolateral corners) slightly developed, showing an angular or obtuse dentiform profile; surface bright, often microgranulated, sometimes reticulated, regularly punctate with rather strong punctation (around 80% of the specimens), sometimes shallow; four setae (one per corner) in undamaged specimens: the erect setae slightly longer than last antennomere [(Sl)m= 0.23 mm].

Elytra moderately convex and elongate [(El/Ew)m = 1.53], sides sub-parallel up to about the basal half, then more rounded, separately rounded apically; maximum width approximately in the middle. Surface more or less microgranulated, sometimes reticulated, more strongly punctate than pronotum, very slightly punctate or sometimes not punctate at apex; punctures showing traces of alignment beside sutural stripe more or less extended on sides. Humeral calli sometimes developed (macropterous specimens), but, on approximately 44% of the examined specimens, weak or absent: these specimens have short or reduced wings (brachypterous or micropterous).

Male last sternite without longitudinal groove or with only a slight impression.

First tarsomere of fore legs clearly widened in male [(Ptl/Ptw)m=1.675] (Fig. 11b).

Median lobe of aedeagus (Figs. 9a-d): in lateral view distal 3/4 weakly curved, bent ventrally at apex, apical tip facing ventrally; in ventro-dorsal view elongate, very narrow in its mid point, rather broadened at apex with the tip rather short and prominent. Ventral groove moderately deep, its base fairly smooth.

Apex of the distal part of the spermatheca rarely with an evident protuberance more or less developed. Basal part of spermatheca (Figs. 11c, d) sub-cylindrical; ductus spermathecae forming from 2 to 4 coils, ductus insertion at base reversed backwards.

Morphological data. – ♂♂ (n=20): El = 1.57-1.82 mm; (El)m = 1.69 mm; Ew = 1-1.14 mm; (Ew)m = 1.09 mm; Pl = 0.40-0.49 mm; (Pl)m = 0.43 mm; Pw = 0.63-0.76 mm; (Pw)m = 0.69 mm; Tl = 0.64-0.83 mm; (Tl)m = 0.76 mm; Ptl= 0.117-0.152 mm; (Ptl)m= 0.141 mm; Ptw = 0.070-0.094 mm; (Ptw)m= 0.084 mm; El/Ew = 1.45-1.61; (El/Ew)m = 1.55; El/Pl = 3.45-4.35; (El/Pl)m = 3.90;

Pw/Pl = 1.43-1.72; (Pw/Pl)m = 1.60; Tl/El = 0.41-0.51; (Tl/El)m = 0.46; Ptl/Ptw = 1.429-1.857; (Ptl/Ptw)m = 1.675. Values of Ptl and Ptw have been rounded to the third decimal.
♀♀ (n=20): El = 1.65-1.94 mm; (El)m = 1.76 mm; Ew = 1.14-1.37 mm; (Ew)m = 1.16 mm; Pl = 0.42-0.51 mm; (Pl)m = 0.45 mm; Pw = 0.70-0.82 mm; (Pw)m = 0.72 mm; Tl = 0.75-0.92 mm; (Tl)m = 0.82 mm; El/Ew = 1.33-1.59; (El/Ew)m = 1.52; El/Pl = 3.64-4.33; (El/Pl)m = 3.96; Pw/Pl = 1.50-1.72; (Pw/Pl)m = 1.63; Tl/El = 0.42-0.48; (Tl/El)m = 0.46.

Distribution

The species is mainly present in the eastern Palaearctic regions, from the Balkans to Russia and western Asia (Fig. 1). Specimens from Algeria, Tunisia, Libya, Spain and Portugal have been also studied: the species looks like expanding its range in North Africa, southern Spain and Portugal. Both diffusion and stabilization in these localities need better understanding by means of further observations.
According to the material studied the distribution of *L. aeneicollis* is as follows:
Europe: Albania, Bosnia-Herzegovina, Bulgaria, Croatia, Greece, Hungary, Macedonia, Montenegro, Portugal, Rumania, Russia, Serbia, Slovakia, Spain, Ukraine.
Asia: Autonome Republik Krim, Armenia, Azerbaijan, Georgia, Iran, Israel, Lebanon, Syria, Turkey.
Africa: Algeria, Tunisia, Libya.

There is no doubt that further studies will increase this list. Several authors indeed (Biondi, 1984a: 70; Gruev & Döberl, 1997: 142-143; 2005: 73; Vig, 2002: 117; Warchałowski, 2003: 442-443) report other localities too, but determination (*aeneicollis* or *nigricollis*) might be in need of double checking.

Notes

Dark morph (altitudinal form) of *L. aeneicollis*

A population sample [9 exx. (5 ♂♂ e 4♀♀)] from Greece, Prionia, Mt. Vermion (MHNP), is characterized by a darker habitus: 3♂♂ and 4♀♀ have upperside dark brown with weak metallic reflections, humeral calli and apex of elytra lighter (yellowish-brown); 2♂♂ have yellowish-brown elytra with elytral stripe and epipleura darkened and reddish pronotum. All the specimens have reduced wings. These characters might be related to the increasing altitude.

***Longitarsus nigricollis* (Foudras 1860) *status res.* (Figs. 2c, d)**

Teinodactyla nigricollis Foudras 1860: 161-162. *Loc. typ.*: surroundings of Lyon and Provence (close to Draguignan)
Kutschera, 1863: 304 [*Longitarsus*]; Redtenbacher, 1874: 508 [*Teinodactyla*]; Weise, 1893: 967; Heikertinger, 1912a: 194 [*Longitarsus*]; Tomlin & Sharp, 1912: 75; Heikertinger, 1930: 1328; Vitale, 1935: 79; Sainte-Claire Deville, 1937: 368; Csiki & Heikertinger, 1940: 170; Doguet, 1994: 235; Warchałowski, 1995: 204; Warchałowski, 1996: 37-38; Döberl & Gruev, 1997: 142; Warchałowski, 2003: 443; Löbl & Smetana, 2010: 522; Warchałowski, 2010: 868.

= *Longitarsus suturalis* (Marsham 1802) (in part) [see discussion above]
Stephens, 1831: 311 [*Thyamis*]; Miller, 1862: 355 [*Longitarsus*]; Kutschera, 1863: 303-305; Allard, 1866: 301, 391-393 [*Thyamis*]; Redtenbacher, 1874: 508 [*Longitarsus*]; Oertzen, 1886: 290; Weise,

1893: 966-968; Bedel, 1898: 191 [*Thyamis*]; Stierlin, 1898: 618 [*Longitarsus*]; Paganetti & Hummler, 1910: 170-171; Heikertinger, 1912a: 194; Tomlin & Sharp, 1912: 75-76; Fowler, 1913: 291; Kolbe, 1920: 401; Heikertinger, 1930: 1328; Portevin, 1934: 303-304 [*Thyamis*]; Porta, 1934: 357-358 [*Longitarsus*]; Vitale, 1935: 79; Sainte-Claire Deville, 1937: 368; Tölg, 1938: 239; Csiki, 1940: 274; Csiki & Heikertinger, 1940: 169-170; Seabra, 1943: 107; Müller, 1949-1953: 524; Král, 1954: 177; Horion, 1955: 71; Lopatin, 1960: 630; Haberman, 1962: 85, 88, 106; Kaszab, 1962: 313; Mohr, 1962a: 73-74, 96-97; Konnerth-Ionescu, 1963: 256 [in the *Longitarsus* species list, mistakenly written "*Aphthona*" instead of "*Longitarsus*"]; Lopatin, 1963: 365; Kevan, 1967: 95, 101; Mohr, 1965: 703; Jolivet, 1967: 351; Pūtele, 1971: 189; Leonardi, 1972: 7, 19-20, Figs. 29-30; Warchlaowski, 1974: 522; Daccordi & Petitpierre, 1977: 233; Silfverberg, 1977: 94; Gruev, 1979: 130; Furth, 1980: 115; Furth, 1980a: 135; Biondi, 1984a: 70; Biondi, 1984: 379-394; Nonveiller, 1984: 296, 320; Bastazo & Vela, 1985: 160; Gruev *et al.*, 1987: 237; Gruev, 1988: 162; Biondi, 1990: 151-152; Biondi, 1990a: 349; Biondi, 1990b: 170; Gruev, 1990: 334; Bastazo *et al.*, 1993: 58; Gruev *et al.*, 1993: 109; Doguet, 1994: 235-238; Biondi *et al.*, 1995: 16; Garcia-Ocejo & Gurrea, 1995: 61; Rozner, 1996: 256; Tomov *et al.*, 1996: 344; Vig, 1996: 130; Petitpierre & Gomez-Zurita, 1998: 19; Petitpierre, 1999: 104; Löbl & Smetana, 2010: 522.

= *Longitarsus aeneicollis* Auctorum (nec Faldermann 1837)
Döberl, 1994: 107-108; Warchałowski, 1995: 204-207 (in part); Biondi, 1996: 16 (in part); Doguet *et al.*, 1996: 321 (in part); Warchałowski, 1996: 37-40 (in part); Biondi & Di Casoli, 1996: 183; Rozner, 1996: 256 (in part); Biondi & Laurenzi, 1997: 486; Döberl & Gruev, 1997: 142-143 (in part); Gruev & Tomov, 1998: 87 (in part); Petitpierre, 1999: 104; Schöller & Heinig, 2000: 199 [*L. aeneicollis* erroneously credited to "Richter, 1920"]; Vives, 2000: 16-17; Biondi & De Nardis, 2001: 39; Gruev, 2002: 27 (in part); Gruev, 2002a: 57 (in part); Vig, 2002: 117 (in part); Brelih *et al.*, 2003: 111; Warchałowski, 2003: 442-443 (in part); Biondi, 2005: data on CD-Rom; Döberl & Gruev, 2005: 73 (in part); Čížek, 2006: 30, 31, Fig. 98; Čížek & Doguet, 2008: 107, Fig. 196, 112; Löbl & Smetana, 2010: 522; Warchałowski, 2010: 868 (in part); Baviera & Biondi, 2015: 14; Salvi *et al.*, 2019: 104, 107, 110 (in part); Salvi *et al.*, 2020: 5, 11-12. 14 (in part); Biondi, 2021: data on Checklist of the Italian Fauna, Version 1.0 [https://www.lifewatchitaly.eu/en/initiatives/checklist-fauna-italia-en/checklist/; last accessed 16 April 2024].

= *Longitarsus rubenticollis* (Allard 1860: 118-119) [*Teinodactyla*] ***nov. syn.***
Allard, 1866: 303, 392-393 [*Thyamis*]; Paulino de Oliveira, 1893: 376 [*Longitarsus*]; Weise, 1893: 967 [variety of *suturalis*]; Heikertinger, 1912a: 194 [variety of *suturalis*]; Peyerimhoff, 1915: 45 [*Thyamis*]; Heikertinger, 1930: 1328 [subspecies of *suturalis*] [*Longitarsus*]; Portevin, 1934: 303-304 [variety of *suturalis*] [*Thyamis*]; Porta, 1934: 358 [*Longitarsus*]; Csiki & Heikertinger, 1940: 170 [variety of *suturalis*]; Seabra, 1943: 107 [variety of *suturalis*]; Lopatin, 1963: 365 [subspecies of *suturalis*]; Jolivet, 1967: 352; Biondi, 1984a: 70 [morph of *suturalis*]; Biondi, 1984: 384 [variety of *suturalis*]; Gruev, 1988: 162 [variety of *suturalis*]; Warchałowski, 2003: 443 [syn. of *aeneicollis*]; Doguet, 1994: 236 [variety of *suturalis*]; Warchałowski, 1995: 204-205 [ab. of *aeneicollis*]; Warchałowski, 1996: 37, 39 [ab. of *aeneicollis*]; Gruev & Döberl, 1997: 142-143 [syn. of *aeneicollis*]; Čížek & Doguet, 2008: 112 [ab. of *aeneicollis*]; Löbl & Smetana, 2010: 522 [syn. of *aeneicollis*]; Warchałowski, 2010: 868 [syn. of *aeneicollis*].
= *Longitarsus cribripennis* (Abeille 1909: 79-81) [*Thyamis*] ***nov. syn.***

Heikertinger: 1930: 1328 [syn. of *rubenticollis*]; Doguet, 1994: 235 [syn. of *suturalis*]; Warchałowski, 1995: 204 [ab. of *aeneicollis*]; Gruev & Döberl, 1997: 143 [syn. of *aeneicollis*]; Warchałowski, 1996: 37 [ab. of *aeneicollis*]; Löbl & Smetana, 2010: 522 [syn. of *aeneicollis*]; Warchałowski, 2010: 868 [syn. of *aeneicollis*].

Type and species identification

L. nigricollis was described by Foudras in 1860 (paper published on 14 April 1860). Afterwards the species was considered as synonymous either of *suturalis* (invalid name as explained in Silfverberg, 1977: 74) by several authors (Allard, 1860: 143; Kutschera, 1863: 303-305; Allard, 1866: 391-392; Heikertinger, 1912a: 194; Tomlin & Sharp, 1912: 75-76; Heikertinger, 1930: 1328; Vitale, 1935: 79; Csiki & Heikertinger, 1940: 170; Doguet, 1994: 235; Löbl & Smetana, 2010: 522) or of *aeneicollis* by Gruev & Döberl, 1997: 142 and Warchałowski (1995: 204; 1996: 38; 2003: 443; 2010: 868). According to Warchałowski "*nigricollis*" is just a chromatic form of *L. aeneicollis*, characterized by dark pronotum.

In the same year 1860, Allard described *L. rubenticollis* (1860: 141; work published on 3 May 1860), which was later recognized first as a variety and then synonymized with *suturalis* and *aeneicollis* (see the references above under "*L. rubenticollis*").

L. nigricollis turns out to be the senior (available) name for *suturalis*. Typical locality of the original "*suturalis*" described by Marsham (1802: 201-202) was England, that falls within the *L. nigricollis* range.
L. rubenticollis is here proposed as synonym of *L. nigricollis* (see below under "Synonymies").

2 syntypes (2 ♂♂) of *L. nigricollis*, have been available for study, preserved in Claudius Rey collection housed at MDC, thanks to the courtesy of Harold Labrique. In the past the Foudras collection was housed in the Museum of Lycée Ampère, under the municipality of Lyon. In 1983 this collection was given to the Musée des Confluences but, even before the donation, several Alticitae types, together with many other specimens, disappeared. Luckily, some of these were recently found (by H. Labrique himself, during a check on the conservation state of the collection): 3 boxes indeed, now part of Rey collection but arranged as the Foudras system (insects pinned onto small elderberries pieces) containing many Alticitae specimens including types described by Foudras. Most probably Rey acquired part of the collection (Foudras was his teacher).
Three specimens determined as *L. nigricollis* and mounted by Foudras have been found in one of these boxes [the floor box labels: "*nigricollis* Fd." and "*suturalis* Marsh.", positioned respectively to the left and below the specimens (Fig. 8a), were added later by Rey]. Foudras (as well as Rey) used colour coded small labels instead of locality labels and the correspondence between colours and localities was kept in a book which, unfortunately, got lost (Labrique *in verbis*). A cardboard table drawn up by Rey (Fig. 8b), with colour-locality matching, is still preserved, but not necessarily the two colour codes, by Foudras and by Rey, should be the same (H. Labrique *in verbis*).
Most probably the type locality could be either the surroundings of Lyon or Provence, as in the original description of *L. nigricollis* (Foudras, 1860: 162). Out of these three specimens, two (♂♂)

correspond to *L. nigricollis* and have been considered syntypes. The third (1♀) belong to a different species: *L. nasturtii* (Fabricius 1792).
The two males are pinned respectively with coloured labels: a red one ("ponceau") corresponding to "Bourbonnais (Néris, Vichy)" in the Rey table; a black one ("noir") corresponding to "Provence (Var, Alpes Mar.) etc." in the Rey table. As explained above, there is some doubt on the consistency of the Rey and Foudras colour codes.

The retrieval of two syntypes has allowed designation of a lectotype, as follows:
1♂ labelled: "*Lectotypus* / *Longitarsus nigricollis* (Foudras) / des. Laura Farina 2024 // small red label" (Figs. 6a, b); the other syntype (now a paralectotype, 1♂) labelled: "*Paralectotypus* / *Longitarsus nigricollis* (Foudras) / des. Laura Farina 2024 // small black label".

The lectotype is a winged male, with reddish brown pronotum and lightly darkened epipleure.
The paralectotype is characterized by reduced wings, reddish brown pronotum, lightly darkened epipleure.

Description
[Characters common to the two species (*L. nigricollis* and *aeneicollis*) are omitted]
Habiti of *L. nigricollis* and *L. aeneicollis* are very similar. The main differences are listed and further commented in Table 1.

Body length: ♂♂ (n= 20): 1.98-2.42 mm; ♀♀ (n= 20): 2.14-2.96 mm.
Antennomere ratio (n= 10): 17:10:9:12:14:12:13:13:13:13:17.
Pronotum transverse [(Pw/Pl)m= 1.64] (Fig. 4c).
Elytra moderately convex and elongate [(El/Ew)m = 1.53].
Humeral calli usually developed (macropterous specimens); just on approximately 15% of the examined specimens, weak or absent: these specimens have short or reduced wings (brachypterous or micropterous).
First tarsomere of fore legs weakly or not widened in male [(Ptl/Ptw)m=1.896] (Fig. 11a).
Median lobe of aedeagus (Figs. 9e-h; 10a-d): in lateral view distal 3/4s usually almost straight, bent ventrally at apex, apical tip facing ventrally, sometimes upwards; in ventro-dorsal view slightly elongate, its distal 2/3 slightly tapered and usually weakly broadened at apex with apical tip rather short and prominent [in some specimens, in Figs. 9f (left) and 10d (left), distal 2/3 more tapered and fairly broadened at apex].
Apex of the distal part of the spermatheca at times with an evident more or less developed protuberance. Ductus spermathecae (Figs. 11e, f) forming more than 4 coils.

Morphological data – ♂♂ (n=20): El = 1.49-1.96 mm; (El)m = 1.69 mm; Ew = 1-1.26 mm; (Ew)m = 1.10 mm; Pl = 0.37-0.44 mm; (Pl)m = 0.41 mm; Pw = 0.63-0.72 mm; (Pw)m = 0.67 mm; Tl = 0.66-0.92 mm; (Tl)m = 0.79 mm; Ptl= 0.117-0.152 mm; (Ptl)m= 0.136 mm; Ptw = 0.059-0.082 mm; (Ptw)m= 0.072 mm; El/Ew = 1.33-1.79; (El/Ew)m = 1.54; El/Pl = 3.60-4.42; (El/Pl)m = 4.09; Pw/Pl = 1.53-1.71; (Pw/Pl)m = 1.63; Tl/El = 0.44-0.54; (Tl/El)m = 0.46; Ptl/Ptw = 1.571-2.2; (Ptl/Ptw)m = 1.896.
♀♀ (n=20): El = 1.63-2.31 mm; (El)m = 1.82 mm; Ew = 1.07-1.42 mm; (Ew)m = 1.19 mm; Pl = 0.40-0.51 mm; (Pl)m = 0.44 mm; Pw = 0.68-0.84 mm; (Pw)m = 0.73 mm; Tl = 0.71-0.96 mm;

(Tl)m = 0.83 mm; El/Ew = 1.37-1.58; (El/Ew)m = 1.53; El/Pl = 3.73-4.57; (El/Pl)m = 4.11; Pw/Pl = 1.55-1.83; (Pw/Pl)m = 1.66; Tl/El = 0.38-0.53; (Tl/El)m = 0.45.

Distribution

L. nigricollis is widely distributed in the Palaearctic region, from Portugal to central-western Asia and North Africa (Fig. 1).

According to the material studied the countries where *L. nigricollis* is present are:

Europe: Albania, Austria, Bosnia-Herzegovina, Croatia, Czech Republic, France, Germany, Greece, Hungary, Italy, Montenegro, Portugal, Rumania, Russia, Serbia, Slovakia, Spain.

Asia: Afghanistan?, Azerbaijan?, Armenia?, Georgia?, Iran?, Tajikistan?, Turkmenistan, Turkey, Uzbekistan? (? = explained below under "Problematic specimens").

Africa: Algeria, Libya, Morocco, Tunisia.

The study of additional material will certainly extend the list.

Notes

Dark morph (altitudinal form) of *L. nigricollis*

A dark morph of *L. nigricollis* can be found, rather commonly, in peninsular Italy, in the Apennines (Fig. 4a), and in the Greek Peloponnese, on Mounts Erimanthos. This form shows dark habitus and undeveloped humeral calli and their characteristics can be summarized as follows:

1. dorsal colour either dark brown with only humeral calli and elytral apex yellow or yellowish-brown with darkened and rather wide sutural stripe and dark epipleura.
2. humeral calli absent or very scarcely developed (brachypterous or micropterous specimens) in 86% of the specimens studied.
3. male first protarsomere wider than in the typical *L. nigricollis* [(n=10): (Ptl/Ptw)m=1.653].

That these features might be correlated with altitude was already hypothesized by Furth (1980a: 129), Biondi (1984: 384) and is confirmed here.

In the material studied the altitudinal form of *L. nigricollis* has been found in the following localities, all at altitudes over 700 m:

Italy: Umbria: Costacciaro; Monti Sibillini, Forca Canapine; Lazio: Rieti, Monte Giano (Fig. 4a), Loc. Prati di Cogno; Filettino; Abruzzo: Aquila, Pescocostanzo; Prati di Tivo; Gran Sasso, Campo Imperatore; Lama dei Peligni; Maiella, Campo di Giove; Maiella, Macchia di Secina; Prati di Tivo; Passo San Leonardo; dintorni Roccaraso; Maiella, M.te Sirente; Molise: Campitello Matese; Altipiano Matese, Miletto; Campania: M.ti Picentini, Bagnoli Irpino, Lago Laceno; Monti del Matese, Monte Pranzaturo; Sila, Lago Ampollino; Sila, Croce Magara; Sila, Camigliatello; Sila Piccola.

Greece: Pélopponnèse: Ahaïa, Erimanthos, Kalentzi.

Synonymy with *L. rubenticollis* (Allard 1860)

Longitarsus rubenticollis (Allard 1860) = *Longitarsus nigricollis* (Foudras 1860)

As explained above, *nigricollis* is the valid name because the Foudras paper appeared approximately one month earlier than the Allard one.

This synonymy, already proposed by Doguet, 1994: 235, Warchałowski (1995: 204; 1996: 37), Gruev & Döberl (1997: 142-143), Löbl & Smetana (2010: 522) although different names were used, is confirmed here, after the study of one syntype of *L. rubenticollis* (Allard) (1♂!) housed at MNHN: "Edough / Mai 1858 / Leprieur // Ex. Musaeo [sic!] / E. Allard / 1899 // Muséum Paris /

ex. Coll. / R. Oberthür / Coll. Allard // Syntype // Syntype *Teinodactyla rubenticollis* Allard, 1860" (Figs. 7a, b kindly provided by Dr. Christophe Rivier). On dissection and examination of the aedeagus, there is no doubt that this specimen belongs to *L. nigricollis*.

L. rubenticollis (*Teinodactyla rubenticollis* Allard 1860) was described by Allard (1860: 89, 118; 1866: 392-393) from specimens collected in May, on Edough mountain in Algeria. Several subsequent authors reported different opinions about its taxonomic position:

Weise (1893: 967) and Heikertinger (1912: 194) considered *L. rubenticollis* a variety of *L. suturalis* (characterized by "*capite prothoraceque ferrugineis*").

Warchałowski (1995: 204-205; 1996: 37, 39), Gruev & Döberl (1997: 142-143) and Löbl & Smetana (2010: 522) proposed the synonymy *rubenticollis=aeneicollis*.

Paulino de Oliveira (1893: 376) [*Longitarsus*], Peyerimhoff [*Thyamis*] (1915: 45), Porta [*Longitarsus*] (1934: 358, "distributed in Venezia Giulia, Tuscany, Puglia, Calabria") and Jolivet (1967: 352) considered *rubenticollis* a good species.

Heikertinger (1930: 1328) and Lopatin (1963: 365) considered *L. rubenticollis* a subspecies of *L. suturalis*.

Furthermore, Portevin (1934: 303-304) and more recently Biondi (1984: 384), Doguet (1994: 236), Čížek & Doguet (2008: 112) suggested that *L. rubenticollis* could have been considered just a chromatic form of *L. suturalis*.

In the material studied here, both *L. nigricollis* and *L. aeneicollis* can, at times, show the typical character of *L. rubenticollis* (reddish pronotum), usually with specimens from the Mediterranean area and from central-western Asia. Further syntypes were certainly part of the Allard material used for the original description, but now maybe lost. Their possible retrieval might raise doubts on the typical series homogeneity because, in Algeria, both *L. aeneicollis* and *L. nigricollis* (very similar species) are sympatric.

Synonymy with *L. cribripennis* (Abeille 1909)

Longitarsus cribripennis (Abeille 1909) = *Longitarsus nigricollis* (Foudras 1860)

This synonymy was already proposed by Doguet, 1994: 235, Warchałowski (1995: 204; 1996: 37), Gruev & Döberl (1997: 142-143), Löbl & Smetana (2010: 522) although different names were used. Heikertinger (1930: 1328) proposed the synonymy *L. cribripennis = L. rubenticollis*, probably because both taxa were described from Algeria.

L. cribripennis (*Thyamis cribripennis* Abeille 1909) was described from specimens from Algeria (Téniet-el-Haad) (1909: 79-81). No syntypes have been found at MNHN, where the Abeille collection is housed (Horn *et al.*, 1990: 13).

The synonymy *Longitarsus nigricollis* (Foudras 1860) = *Longitarsus cribripennis* (Abeille 1909) is here accepted, because in the material studied from Algeria *L. nigricollis* seems more common than *L. aeneicollis*. However, some doubt remains because in Algeria the two species are sympatric and the characteristics of *L. cribripennis* (bright pronotum, pronotum and elytra with strong punctation) can occur sometimes in both species, due to morphological variability.

Problematic specimens

1. A study of the material housed at HNHM, MHNP and ZMB shows that in some localities (Afghanistan, Armenia, Azerbaijan, Georgia, Iran, Tajikistan, Uzbekistan), there are populations in which females show typical *L. nigricollis* characters [namely ductus spermathecae with several

coils (Fig. 4e)], but the males are anomalous being characterized by an elongated and almost narrow aedeagus (Fig. 4d) which is weakly curved in lateral view and by a clearly widened protarsomere.
As a further difference, 70% of the specimens from these localities have a mainly reddish pronotum (on average only 25% of *L. nigricollis*, in the material studied, shows this feature).
These population samples might well belong to the species *L. nigricollis*, the males being atypical. Further studies, however, will help to clarify the real taxonomic position of these populations; therefore, for the time being it seems wise to avoid reporting localities and other related information on them.

2. An anomalous situation was found studying several specimens from Batna, Algeria, housed at MHNP. The labels report just the locality with no further information. Within this population there are 26 specimens of *L. nigricollis* (23 ♂♂ and 3 ♀♀) and 29 specimens of *L. aeneicollis* (29 ♀♀). The reasons for such imbalance are not easily hypothesized. Maybe a different phenology (namely a different monthly sex distribution in the two species), but, unfortunately, the collection period is not reported on labels.
Further hypotheses can be easily advanced, for instance a *Wolbachia* parasite infection in *L. aeneicollis* (Kajtoch & Kotásková, 2018: 1-31) that might cause dramatic effects on its hosts, such as killing males and/or possible parthenogenesis induction. More studies, and more material available, would be necessary to better understand such imbalance.

Comparative description

As previously mentioned, based on external characters, *L. aeneicollis* and *L. nigricollis* are homogeneous and cannot always be distinguished with certainty. Their habiti are similar: shape oval and elongate, rather convex, elytral sides sub-parallel; elytra yellow or yellowish-brown, sutural stripe dark, sometimes epipleura slightly darker; pronotum brown with bronze reflections, sometimes reddish. *L. aeneicollis* has usually reduced or absent humeral calli (more frequently than *L. nigricollis*) and males can be identified by the shape of the protarsomere, as detailed in Table 1. Collecting localities can not always be a useful clue for determination. The species are perfectly identifiable on sexual characters. The comparative morphological analysis supplied below (Tab. 1) should be reliable because it is based on the study of a large number of specimens, from many localities.

Ecological notes on *L. aeneicollis* and *L. nigricollis*

Literature assignments of host plants to either *L. nigricollis* and *L. aeneicollis* is thought to be somewhat unreliable given the similarity between these two species.
Having said that, most probably the host plant of both species belong to the Boraginaceae [Biondi, 1990: 151-152: “The citation by Porta, 1934 on Scrophulariaceae of the genus *Verbascum* is probably to be attributed to *L. atricillus* (Linnaeus)”; Biondi, 1990a: 349; Biondi & Di Casoli, 1996: 183; Biondi & Laurenzi, 1997: 486; Gruev & Tomov, 1998: 87; Biondi & De Nardis, 2001: 39; Warchałowski, 2003: 443; Čížek , 2006: 30; Čížek & Doguet, 2008: 112; Warchałowski, 2010: 868].
According to Biondi (1996: 16), Ocejo & Gurrea (1995: 61), Petitpierre (1999: 104) and Salvi *et al.* (2019: 104, 107, 110) both species might be polyphagous on Asteraceae, Boraginaceae, Lamiaceae, Plantaginaceae, Scrophularicaeae.

More specifically, some authors reported: *Lithospermum officinale* L. (Heikertinger, 1912a: 194; Portevin, 1934: 303-304; Müller, 1949-1953: 524; Haberman, 1962: 106; Jolivet, 1967: 351; Nonveiller, 1984: 296; Döberl, 1994: 107-108; Biondi, 1996: 16; Warchałowski, 1996 : 39; Brelih *et al.*, 2003: 111); *Symphytum officinale* L. (Jolivet, 1967: 351; Biondi, 1996: 16); *Verbascum* L. (Porta, 1934: 357); *Carduus* L. [Bastazo & Vela, 1985: 160-161 (Figs. 56-58, 67), in this latter case, from the illustrations of *aedeagus* and spermatheca, the authors refer to *L. nigricollis*; Biondi, 1996: 16], *Senecio leucanthemifolius* Poir., *S. viscosus* L., *Phlomis brevilabris* Ehrenb. ex. Boiss. (Biondi, 1996: 16).
The form *rubenticollis* is associated with *Senecio leucanthemifolius* [Peyerhimoff, 1915: 45: "in Algerie, au Maroc (Larache) et en Tunisie", in a note the author suggests that T*einodactyla rubenticollis* and *Teinodactyla suturalis* may be different species, or at least *rubenticollis* may be a subspecies, since the different host plant].

***Longitarsus atricillus* (Linnaeus 1761, *sensu* Gyllenhal 1813) (Figs. 2e, f)**
Chrysomela atricilla Linnaeus 1761: 166, nr. 537. *Loc. typ.*: ?Sweden.
Koch, 1803: 86-88 [*Haltica*]; Gyllenhal, 1813: 540-542; Stephens, 1831: 309 [*Thyamis*]; Zetterstedt, 1840: 223; Maehler, 1850: 7-8 [*Longitarsus*]; Foudras, 1860: 164-166 [*Teinodactyla*]; Allard, 1860: 108-110; Waterhouse, 1862: 23; Kutschera, 1864: 33-35, 279-280 [*Longitarsus*]; Allard, 1866: 302, 329-331 [*Thyamis*]; Redtenbacher, 1874: 505 [*Longitarsus*]; Weise, 1893: 968-969; Oertzen, 1886: 290; Bedel, 1889-1901: 191, 310 [*Thyamis*]; Paulino de Oliveira, 1893: 376 [*Longitarsus*]; Stierlin, 1898-1900: 618; Buysson, 1908: 12; Heikertinger, 1912a: 191-192; Tomlin & Sharp, 1912: 74-75; Peyerimhoff, 1915: 45 [*Thyamis*]; Kolbe, 1920: 404 [*Longitarsus*]; Maulik, 1926: 333-334; Gridelli, 1930: 362; Heikertinger, 1930: 1328; Vitale, 1932: 38; Porta, 1934: 358; Portevin, 1934: 301 [*Thyamis*]; Vitale, 1935: 79 [*Longitarsus*]; Sainte-Claire Deville, 1937: 368; Csiki & Heikertinger, 1940: 111-112; Seabra, 1943: 107; Müller, 1949-1953: 524; Worndle, 1950: 322; Warchałowski, 1960: 122; Haberman, 1962: 27-28, 85, 90, 107; Kaszab, 1962: 3; Mohr, 1962a: 74-75, 97; Konnerth-Ionescu, 1963: 256; Mohr, 1965: 703, 714; Pūtele, 1965: 7, 10; Jolivet, 1967: 352; Kevan, 1967: 95, 101; Warchałowski, 1967: 61; Shapiro, 1969: 279-280, 282; Pūtele, 1971: 189; Warchałowski, 1973: 673; Warchlaowski, 1974: 522; Peez & Kahlen, 1977: 425; Warchałowski, 1978: 6; Gruev, 1979: 130; Shute, 1980: 444; Erber & Mengel, 1981: 52; Borowiec, 1984: 205; Nonveiller, 1984: 296, 320; Borowiec, 1987: 201, 204; Gruev *et al.*, 1987: 236; Biondi, 1990: 136; Biondi, 1990b: 167; Gruev, 1990: 324; Bourdonné, 1992: 279; Gürlich, 1992: 50; Bastazo *et al.*, 1993: 54; Beenen & Winkelman, 1993: 13; Gruev *et al.*, 1993: 99; Döberl, 1994: 108; Doguet, 1994: 233-235; Doguet 1994a: 438; Biondi *et al.*, 1995: 16; Döberl, 1995: 52; Warchałowski, 1995: 216-217; Biondi, 1996: 17; Biondi & Di Casoli, 1996: 183; Rozner, 1996: 256; Tomov *et al.*, 1996: 342; Vig, 1996: 122; Biondi & Laurenzi, 1997: 487; Gruev & Döberl, 1997: 150; Heinig & Schöller, 1997: 478; Petitpierre, 1997: 278; Biondi & De Nardis, 1998: 39; Gruev & Tomov, 1998: 88; Petitpierre & Gomez-Zurita, 1998: 19; Fritzlar, 1999: 75; Vives, 2000: 16; Geiser, 2001: 466; Baselga & Novoa, 2002: 65; Gruev, 2002: 27; Gruev, 2002a: 56; Vig, 2002: 118; Baselga & Novoa, 2003: 124; Brelih *et al.*, 2003: 111-112; Warchałowski, 2003: 442; Biondi, 2005: data on CD Rom; Gruev & Döberl, 2005: 76; Čížek , 2006: 30, 31, Fig. 99; Čížek & Doguet, 2008: 107, Fig. 197, 115; Löbl & Smetana, 2010: 523; Warchałowski, 2010: 867-868; Baviera & Biondi, 2015: 16; Salvi et al., 2019: 104, 107, 110; Biondi, 2021: data on checklist of the Italian Fauna, Version 1.0 [https://www.lifewatchitaly.eu/en/initiatives/checklist-fauna-italia-en/checklist/; last access on April, 16th 2024].

= *Haltica suturalis* Duftschmid 1825 [synonymyzed by Heikertinger, 1930: 1328]
= *Teinodactyla fuscicollis* Foudras 1860 [synonymyzed by Allard, 1860: 109, 143]
Kutschera, 1864: 33 [*Longitarsus*]; Bedel, 1889-1901: 310 [*Thyamis*]; Buysson, 1908: 12 [*Longitarsus*]; Heikertinger, 1930: 1328; Portevin, 1934: 301 [*Thyamis*]; Sainte-Claire Deville, 1937: 368 [*Longitarsus*]
= *Longitarsus atricillus* var. *declivis* Weise 1893 [synonymyzed by Heikertinger, 1930: 1328]
Kolbe, 1920: 404 (mut. *declivis* Ws.) [*Longitarsus*]; Portevin, 1934: 301 [*Thyamis*]; Müller, 1949-1953: 535 (f. *declivis*) [*Longitarsus*]; Warchałowski, 1995: 216
= *Longitarsus atricillus* var. *similis* Weise 1893 [synonymyzed by Heikertinger, 1930: 1328]
Heikertinger, 1912a: 191 [*Longitarsus*]; Portevin, 1934: 301 [*Thyamis*]; Mohr, 1962a: 74 [*Longitarsus*]; Mohr, 1965: 714 (f. *similis*); Biondi, 1984: 384; Döberl, 1994: 108; Warchałowski, 1996: 38, 59; Gruev & Döberl, 1997: 150; Gruev & Döberl, 2005: 76.

Type and species identification

There is general agreement on the Gyllenhal interpretation (1813: 540-542) of this taxon: after Kutschera (1864: 33) and Heikertinger (1930: 1328; Csiki & Heikertinger, 1940: 111) all subsequent authors considered it to be valid. I confirm that, in the Gyllenhal collection (UUZM), several specimens of *L. atricillus* have been retrieved (their photographs have been made available thanks to the courtesy of Hans Mejlon) and belong to this species. The problem is that the type specimen housed in the Linnaeus collection, under the name *Chrysomela atricilla*, is a different species, probably a *Psylliodes affinis* (Paykull 1799), as was first reported by Waterhouse (1862: 23) and confirmed by Doguet (1994: 233). Good photographs of this specimen can be found online (https://linnean-online.org/view/collection/insects/Chrysomela.html, last view May, 21st 2024): it appears in rather poor condition, directly pinned and with some damage from mould.
Maulik (1926: 333-334) unfortunately designated *Chysomela atricilla* Linnaeus as type species of genus *Longitarsus* by subsequent, correct designation [Löbl & Smetana (2010: 522); Bouchard *et al.* (2024: 301)]. As Doguet (1994: 233; 1994a: 438) pointed out, taking into account the Maulik designation would threaten the name *Longitarsus*, thus causing nomenclatural instability.
For the time being and for the scope of this paper, it seems wise to follow the Doguet suggestion to ignore the problem and the Gyllenhal, 1913 meaning of *Longitarsus atricillus* is here taken as valid. However, to fix the problem, an application should be addressed to the International Commission of Zoological Nomenclature to designate a neotype.

Description

Characters shared by the species of the group are omitted, here and in the following descriptions.
Body length: ♂♂ (n= 10): 2.17-2.66 mm; ♀♀ (n= 10): 2.07-3.06 mm.
Shape ovate-elongate, convex, elytral sides rounded (Figs. 2e, f). Elytra yellow or yellowish-brown, scutellum brown and variably narrow dark suture; sometimes elytral sides lightly dark; head brown, usually darker than the body with mouth parts always dark brown; pronotum brown, usually darker than elytra, with weak metallic reflections, in some specimens reddish or reddish-brown. Pronotum basal margin usually dark brown. In some specimens pronotum and elytra evenly coloured, yellow or yellowish-brown. Venter dark. Legs yellow, hind femora brown; two last tarsomeres and claws lightly darkened. Antennae basally yellow, then progressively darkened from 5°-6° antennomeres.

Frontal tubercles slightly separated from frons by weak frontal furrows. Frontal ridge prominent, with bright surface.
Antennomere ratio (n= 5): 18:12:10:13:13:12:13:13:14:13:17.
Pronotum transverse [(Pw/Pl)m= 1.64], convex, wider basally (Fig. 4b); surface very weakly microgranulated, sometimes reticulated; usually punctation strong in the middle and then shallow on the sides, in some specimens weakly punctate; four setae (one per corner): the erect setae as long as the last antennomere or slightly longer [(Sl)m = 0.21 mm].
Elytra moderately bright, convexe and elongate [(El/Ew)m = 1.46], sides rather rounded, separately rounded apically; generally broadest slightly before the middle. Surface more or less microgranulated, sometimes reticulated, irregularly punctate, more strongly punctate than pronotum, slightly punctate on sides and very slightly or not punctate at apex. Sometimes punctures showing traces of alignment close to the sutural stripe more or less extended at the elytra basal half. In some specimens the elytra surface smooth with weak evidence of microgranulation or reticulation. Humeral calli usually weak or absent (brachypterous or micropterous specimens), but sometimes developed (macropterous specimens) on approximately 22% of the specimens studied (among them females are 76%).
First tarsomere of fore legs widened in male [(Ptl/Ptw)m= 1.675].
Median lobe of aedeagus (Fig. 10e): in lateral view distal 3/4 usually almost straight, bent ventrally at apex, apical tip facing ventrally; in ventro-dorsal view slightly elongate, its distal 2/3 slightly tapered and usually fairly broadened at apex with apical tip rather short and prominent.
Apex of the distal part of the spermatheca often with an evident protuberance (50% of the specimens studied), sometimes slightly developed or absent. Ductus spermathecae (Fig. 11g) with 3 or more coils.

Morphological data. – ♂♂ (n=10): El = 1.63-1.98 mm; (El)m = 1.75 mm; Ew = 1.07-1.35 mm; (Ew)m = 1.19 mm; Pl = 0.42-0.51 mm; (Pl)m = 0.47 mm; Pw = 0.72-0.86 mm; (Pw)m = 0.78 mm; Tl = 0.68-0.82 mm; (Tl)m = 0.79 mm; Ptl= 0.105-0.176 mm; (Ptl)m= 0.148 mm; Ptw = 0.064-0.105 mm; (Ptw)m= 0.089 mm; El/Ew = 1.31-1.57; (El/Ew)m = 1.47; El/Pl = 3.58-4; (El/Pl)m = 3.71; Pw/Pl = 1.59-1.72; (Pw/Pl)m = 1.65; Tl/El = 0.37-0.48; (Tl/El)m = 0.43; Ptl/Ptw = 1.467-1.857; (Ptl/Ptw)m = 1.675.
♀♀ (n=10): El = 1.49-2.26 mm; (El)m = 1.90 mm; Ew = 1.03-1.61 mm; (Ew)m = 1.31 mm; Pl = 0.41-0.58 mm; (Pl)m = 0.50 mm; Pw = 0.70-0.93 mm; (Pw)m = 0.82 mm; Tl = 0.79-1.12 mm; (Tl)m = 0.92 mm; El/Ew = 1.35-1.56; (El/Ew)m = 1.45; El/Pl = 3.45-4.10; (El/Pl)m = 3.80; Pw/Pl = 1.57-1.71; (Pw/Pl)m = 1.64; Tl/El = 0.43-0.48; (Tl/El)m = 0.45.

Distribution

L. atricillus is widespread in Europe, north Africa and western-central Asia.
Gruev & Döberl (1997: 150; 2005: 76) report the following regions:
Europe: Albania, Austria, Azerbaijan (Great Caucasus, Gobustan, Absheron), Belgium, Bosnia-Herzegovina, Bulgaria, Byelorussia, Carpathian Basin, Croatia, Czechia, Daghestan, Denmark, England (included Scotland), Estonia, Finland, France, Germany, Greece (Ionian Islands), Hungary, Italy (included Sardinia and Sicily), Latvia, Lithuania, Luxembourg, Moldavia, Montenegro, Netherlands, Norway (South), Poland, Portugal, Rumania, Russia (included Karelia), Serbia, Slovakia, Slovenia, Spain (included Baleares), Sweden, Switzerland, Ukraine.

Asia: Azerbaijan (Little Caucasus, Nagorni, Karabakh), Cyprus, Iran, Russia (East Siberia; Magadan Distr.), Transcaspia, Turkey, Turkmenistan, Uzbekistan.
North-Africa: Algeria, Libya, Morocco, Tunisia.

Notes

Dark morph of *L. atricillus*

Until now, the rare, dark form of *L. atricillus* described by Weise (1893: 968) as *L. atricillus* var. *similis* ("*Capite prothoraceque aeneo-nigris, margine laterali elytrorum saepe infuscato vel nigro*") has been misunderstood (in my opinion) with the *L. nigricollis* dark morph (altitudinal form) discussed above.

It is fair to say that Weise also noticed the similarity with *L. nigricollis* (by him named *suturalis*): "The darkest variety (var. *similis*) looks like *suturalis*: head and pronotum are black, shining with a bronze colour; sutural stripe, epipleures and pronotum margin are dark" [Die dunkelste Abänderung (var. *similis*) gleicht der *suturalis*, indem Kopf und Halsschild Schwarz, erzfarbig glänzend, und auf den Fld. ausser dem Nahtsaume noch die Epipleuren und ein Saum darüber dunkel gefärbt sind].

The similarity between *L. atricillus* var. *similis* and *L.nigricollis* (= *suturalis*) has been also discussed by several authors:

Heikertinger (1912a: 191), discussed the similarity between *L. atricillus* var. *similis* and *L. suturalis* (namely *nigricollis*) and wrote: "a. *similis* Wse. is similar to *L. suturalis* in colour" (a. *similis* Wse. in der Färbung an *suturalis* manhnend).

Mohr (1962: 74) reported: "the ab. *similis* of *L. atricillus* is similar to this species (referring to "*suturalis*"): it's dark, bronze-coloured, shiny and on the elytra, sutural stripe, epipleura and pronotal margins are darkly coloured. In general, however, it can be distinguished from *L. suturalis* by humeral calli weakly developed" (Ähnlich wie diese Art wird die ab. *similis* von *L. atricillus*, indem Kopf und Halsschild schwarz, erzfarbig, glänzend und auf den Flügeldecken ausser dem Nahtsaum noch die Epipleuren und ein Saum darüber dunkel gefärbt sind. Im allgemeinen aber durch die sehr abgerundeten Schultern und kleine, schwache Schulterbeulen zu unterscheiden).

Mohr (1965: 714) reported that specimens collected from Albania belong to the form *similis*, he gave a short description of this form's typical charactercs and pointed out that this form is very similar to *L. suturalis* [Die Albanischen Tiere gehören durchweg der Form *similis* Weise an, die verdunkelte Epipleuren und angedunkelten Seitenrand der Flügeldecken besitzen. Diese Form ist leicht mit *Longitarsus suturalis* (Marsh.) zu verwechseln].

Biondi (1984: 384) reports the attribution of the *L. suturalis* (namely *nigricollis*) Apennine form to *L. atricillus* var. *similis*.

Döberl (1994: 108) compares *L. atricillus* ab. *similis* to *L. suturalis* for brown colour [Hier ("*suturalis*") auch *atricillus* ab. *similis* Wse. mit ebenfalls gebräuntem Fld. S. Rd. vergleichen!].

Other authors have (wrongly) considered *L. atricillus* var. *similis* Weise, 1893 as the dark form of *L. nigricollis*:

Warchałowski (1995: 204; 1996: 38), proposed the synonymy between *L. aeneicollis* ab. *nigricollis* =*L. atricillus* var. *similis* Weise, 1893 [both forms being characterized by "Pronotum almost or entirely dark" (Halsschild fast schwarz oder schwarz)];

Gruev & Döberl (1997: 143; 2005: 76) synonymized *L. aeneicollis* (Faldermann, 1837) (considered by them to be a synonym of *L. nigricollis*) with *L. atricillus* var. *similis* Weise, 1893.

In the present study *L. atricillus* var. *similis* is considered as the dark form with undeveloped humeral calli of *L. atricillus*. Please note that this interpretation (at least formally) conforms with the Weise's original description (1893: 968), a position apparently accepted by Porta, 1934: 358; Müller, 1949-1953: 524; Portevin, 1934: 301; Warchałowski (1996: 59; 2003: 442; 2010: 868). In the original description Weise did not report the var. *similis* typical locality, but most probably he studied mainly specimens from Central Europe.

Unfortunately, the type of *L. atricillus* var. *similis* has not been found in the Weise collection (ZMB) as kindly reported by Joachim Willers, but some other *L. atricillus* var. *similis* specimens from this collection are available and seen by me [6 specimens from: Weimar, Berlin (Pankow) and Tunis; pictures kindly sent by Ivo Jurisch]. Furthermore, in the material studied, one dark specimen (1♀) of *L. atricillus* from Germany was found, a possible topotype labelled: "Mark: Kalkbge" (MHNB-Heik). All these specimens perfectly conform with the var. *similis* Weise description (dark pronotum with metallic reflections, yellowish-brown elytra, darkened epipleures and dark, rather wide sutural stripe).

It should be noted that analysys of DNA barcoding shows genetic distance (although limited) between *L. nigricollis* (including the appennine form) and *L. atricillus* [Salvi *et al.*, 2019: 110; boldsystems.org/index.php/Public_SearchTerms?query="Longitarsus%20aeneicollis" (last access April 9th, 2024)].

As a result, the synonymy L. *atricillus* var. *similis* Weise 1893 = L. *atricillus* (Linnaeus 1761) is here confirmed.

Ecological notes on *L. atricillus*

L. atricillus is a polyphagous species: it was observed on Fabaceae, Lamiaceae, Asteraceae, Ranunculaceae and Scrophulariaceae (Pūtele, 1965: 7; Biondi, 1990: 136; Biondi, 1996: 17; Biondi & Di Casoli, 1996: 183; Biondi & Laurenzi, 1997: 487; Biondi & De Nardis, 1998: 39; Gruev & Tomov, 1998: 88; Baviera & Biondi, 2015: 16). It was observed especially on *Medicago* L., *Onobrychis viciifolia* Scopoli = *Onobrychis sativa* Lam., *Trifolium* L., *Mentha* L., *Achillea* L., *Ranunculus* L. (Tomlin & Sharp. 1912: 75; Nonveiller, 1984: 296; Döberl, 1994: 108; Biondi, 1996: 17; Brelih *et al.*, 2003: 111-112; Čížek , 2006: 30; Čížek & Doguet, 2008: 115). In Algeria, many specimens were observed on *Ranunculus macrophyllus* Desfontaine (Peyerimhoff, 1915: 45).

***Longitarsus apicalis* (Beck 1817) (Figs. 3a, b)**

Haltica apicalis Beck 1817: 18. Loc. typ.: Germany: Bavaria.

Allard, 1860 [*Teinodactyla*]: 88, 102-103; Kutschera, 1862: 104 [*Longitarsus*]; Allard, 1866: 299, 311-312 [*Thyamis*]; Redtenbacher, 1874: 505 [*Longitarsus*]; Weise, 1888: 948-950; Bedel, 1889-1901: 316, 402 [*Thyamis*]; Stierlin, 1898: 618 [*Longitarsus*]; Heikertinger, 1912a: 196-197; Kolbe, 1920: 404; Heikertinger, 1930: 1329; Portevin, 1934: 306 [*Thyamis*]; Sainte-Claire Deville, 1937: 367 [*Longitarsus*]; Ciski & Heikertinger, 1940: 110-111; Müller, 1949-1953: 536; Worndle, 1950: 322; Warchałowski, 1960: 123; Haberman, 1962: 85, 91, 109-110; Kaszab, 1962: 3; Mohr, 1962a: 61-62, 99-101; Konnerth-Ionescu, 1963: 256; Mohr, 1965: 703, 714-715; Pūtele, 1965: 9-10; Mohr, 1966: 223; Shapiro, 1969: 280, 282; Warchałowski, 1969: 520-521; Fischer, 1970: 133; Warchałowski, 1974: 522; Leonardi, 1975: 9; Peez & Kahlen, 1977: 425; Warchałowski, 1978: 6, 50; Gruev, 1979: 131; Fogato & Leonardi, 1980: 48; Erber & Mengel, 1981: 56; Nonveiller, 1984: 296, 320; Borowiec, 1987: 201, 204; Gruev, 1987: 55-56, Fig. 4; Biondi, 1990: 36; Gruev, 1990: 323-324; Bastazo *et al.*, 1993: 54; Gruev *et al.*, 1993: 99; Doguet, 1994: 184-186; Biondi *et al.*,

1995: 16; Döberl, 1995: 52; Garcia-Ocejo & Gurrea, 1995: 60; Warchałowski, 1995: 214-216; Biondi, 1996: 16-17; Tomov *et al.*, 1996: 342; Warchałowski, 1996: 52-55; Gruev & Döberl, 1997: 149; Gruev & Tomov, 1998: 88; Petipierre & Gomez-Zurita, 1998: 19; Fritzlar, 1999: 75; Vives, 2000: 17; Kapp, 2001: 63; Geiser, 2001: 466; Gruev, 2002: 27; Gruev, 2002a: 59; Vig, 2002: 118; Brelih *et al.*, 2003: 115; Warchałowski, 2003: 412; Biondi, 2005: data on CD Rom; Gruev & Döberl, 2005: 75; Čížek, 2006: 32, Fig. 104, 33; Čížek & Doguet, 2008: 87, 108, Fig. 202; Löbl & Smetana, 2010: 523; Warchałowski, 2010: 865; Fritzlar, 2011: 257; Biondi, 2021: data on checklist of the Italian Fauna, Version 1.0 [https://www.lifewatchitaly.eu/en/initiatives/checklist-fauna-italia-en/checklist/; last access on April, 16th 2024].

= *Haltica analis* Duftschmid 1825 [synonymyzed by Allard, 1860: 102]
Foudras, 1860: 144-146 [*Teinodactyla*]; Kutschera, 1862: 224 [*Longitarsus*]; Redtenbacher, 1874: 505; Weise, 1888: 948; Heikertinger, 1912a: 197; Heikertinger, 1930: 1329

= *Haltica praticola* Shalberg 1834 [synonymyzed by Kutschera, 1862: 225]
Foudras, 1860: 144 [*Teinodactyla*]; Weise, 1888: 948 [*Longitarsus*]

= *Haltica fischeri* Zetterstedt 1840 [synonymyzed by Allard, 1860: 102 (*Teinodactyla*)]
Kutschera, 1862: 225 [*Longitarsus*]; Weise, 1888: 948; Heikertinger, 1930: 1329

= *Longitarsus apicalis* var. *quadrimaculatus* Weise 1888 [synonymyzed by Heikertinger, 1930: 1329 (f. *quadrimaculatus*)]
Heikertinger, 1912a: 197; Portevin, 1934: 301 [*Thyamis*] (ab. *quadrimaculatus*)

= *Longitarsus apicalis* f. *borealis* Kolbe 1920 [synonymyzed by Heikertinger, 1930: 1329]
Warchałowski, 1996: 54 (=var. c Weise, 1888: 948)

Type and species identification

The collection of Joseph Maximilian Beck is lost, probably destroyed (Cuccodoro & Löbl, 1997: 1361). Inquiries sent to several museums and institutions got no results at all.

The need of a name bearing type for *L. apicalis* – due to the similarities between the species of the *L. atricillus* group – led to the decision to designate a neotype for this species.

Beck based his description on material from Bavaria, that is why a male labelled "Oberbayern / Umgeb. Starnberg / 13.X.1924 Stocklein // Würmtal // Sammlung Stöcklein" (Fig. 3a), deposited in MHNB-Heik is here designated as neotype, and is accordingly labelled.

Distribution

L. apicalis is distributed in northern and central Europe.

Gruev & Döberl (1997: 149; 2005: 75) report the following regions:

Europe: Albania, Austria, Belgium, Bosnia-Herzegovina, Bulgaria, Byelorussia, Carpathian Basin, Croatia, Czechia, Daghestan, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Italy (North), Lapland, Latvia, Liechtenstein, Montenegro, Norway, Poland, Rumania, Russia (included Karelia), Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine.

Asia: Russia (Siberia: West Siberia, Sayan Mts., Mid Siberia, Irkutsk District).

Description

Body length: ♂♂ (n= 10): 2.45-2.94 mm; ♀♀ (n= 10): 2.40-3.33 mm.

Shape oval or subelliptic, elongate, rather convex, elytral sides rather rounded (Figs. 3a, b). Dorsum generally black or dark brown, with weak bronze reflections (in some specimens more evident), apex of elytra yellowish or yellowish-brown more or less extended (rarely also humeral calli paler:

var. *quadrimaculatus* Weise 1888); sutural stripe and pronotum margin black; head dark brown; pronotum black or dark brown with more or less evident bronze reflections, sometimes darker than elytra; epipleura as dark as elytra, sometimes paler; scutellum black or dark brown. Venter black or dark brown. Legs yellow, hind femora brown in apical half. Antennae yellowish or yellowish brown, sometimes progressively darkened from 4°-6° antennomeres.
Frontal tubercles separate from frons by weak frontal furrows. Frontal ridge prominent, with surface smooth and shiny. Some strong punctures near the eyes.
Antennomere ratio (n= 5): 20:12:11:15:17:15:15:16:16:16:20.
Pronotum transverse [(Pw/Pl)m= 1.59], convex, wider at about basal 2/5; surface bright, microgranulated, punctation with rather strong punctures; four setae (one per corner) in undamaged specimens: the erect *setae* as long as last antennomere [(Sl)m= 0.22 mm].
Elytra moderately convex and elongate [(El/Ew)m = 1.50], sides rather rounded, separately rounded apically; generally broadest slightly before the middle. Surface more or less microgranulated, rarely reticulated, more strongly punctate than pronotum, very slightly punctate or sometimes smooth at apex and at epipleura. Punctation usually irregular, punctures at times showing traces of alignment beside the sutural stripe, more or less extended to basal half. Humeral calli usually weakly or not developed (brachypterous or micropterous specimens), but developed at times, on approximately 9% of the examined specimens (macropterous specimens, f. *borealis* Kolbe 1920).
First tarsomere of fore legs widened in male [(Ptl/Ptw)m=1.698].
Aedeagus median lobe (Fig. 10f): in ventral view sometimes with slight transversal wrinkles at the bottom.
Ductus spermathecae (Fig. 11h) with a large number of coils.

Morphological data. – ♂♂ (n=10): El = 1.72-2.10 mm; (El)m = 1.98 mm; Ew = 1.21-1.42 mm; (Ew)m = 1.33 mm; Pl = 0.49-0.61 mm; (Pl)m = 0.55 mm; Pw = 0.75-0.91 mm; (Pw)m = 0.86 mm; Tl = 0.82-1.12 mm; (Tl)m = 0.93 mm; Ptl= 0.164-0.187 mm; (Ptl)m= 0.178 mm; Ptw = 0.094-0.117 mm; (Ptw)m= 0.105 mm; El/Ew = 1.38-1.54; (El/Ew)m = 1.48; El/Pl = 3.35-4.10; (El/Pl)m = 3.58; Pw/Pl = 1.47-1.74; (Pw/Pl)m = 1.56; Tl/El = 0.45-0.53; (Tl/El)m = 0.47; Ptl/Ptw = 1.5-1.875; (Ptl/Ptw)m = 1.698.
♀♀ (n=10): El = 1.65-1.94 mm; (El)m = 1.76 mm; Ew = 1.14-1.37 mm; (Ew)m = 1.16 mm; Pl = 0.42-0.51 mm; (Pl)m = 0.45 mm; Pw = 0.70-0.82 mm; (Pw)m = 0.72 mm; Tl = 0.75-0.92 mm; (Tl)m = 0.82 mm; El/Ew = 1.33-1.59; (El/Ew)m = 1.52; El/Pl = 3.64-4.33; (El/Pl)m = 3.96; Pw/Pl = 1.50-1.72; (Pw/Pl)m = 1.63; Tl/El = 0.42-0.48; (Tl/El)m = 0.46.

Ecological notes on *L. apicalis*
L. apicalis is a polyphagous species; according to several authors living preferentially in hilly and mountainous places (Warchałowski, 1974: 522; Gruev & Tomov, 1998: 88; Geiser, 2001: 466; Vig, 2002: 118). It was observed on Boraginaceae, Asteraceae (*Scorzoneroides autumnalis* (L.) Moench = *Leontodon autumnalis* L., *Cirsium* Miller, *Carduus* L.), Ranunculaceae (*Thalictrum* L., *Ranunculus* L., *Ranunculus montanus* Willd.), Fabaceae (*Lotus corniculatus* L.), Lamiaceae (*Prunella* L.) (Mohr, 1966: 223; Fogato & Leonardi, 1980: 48; Nonveiller, 1984: 296, 329; Biondi, 1990: 36; Biondi, 1996: 16-17; Warchałowski, 1996: 54; Gruev & Tomov, 1998: 88; Brelih *et al.*, 2003: 115; Čížek , 2006: 33; Čížek & Doguet, 2008: 87).

***Longitarsus danieli* Mohr 1962 (Figs. 3c, d)**

L. danieli Mohr 1962: 321-323. Loc. typ.: Asturia (Peña Labra).

Warchałowski, 1969: 520-521; Warchałowski, 1996: 6, 90; Biondi, 1984: 383; Biondi, 1990b: 167-168; Bastazo *et al.*, 1993: 55; Garcia-Ocejo & Gurrea, 1995: 60; Bastazo, 1997: 129-132; Gruev & Döberl, 1997: 162; Petitpierre & Gomez-Zurita, 1998: 19; Warchałowski, 2003: 412; Gruev & Döberl, 2005: 82; Löbl & Smetana, 2010: 524; Warchałowski, 2010: 865.

Type species and identification

The type (1♂) is housed at ZSM. As discussed below, *L. danieli* might, in the future, turn out to be a junior synonym of *L. bedelii* Uhagón, 1887.

Distribution

L. danieli is known of Spain (Gruev & Döberl, 1997: 162; Gruev & Döberl, 2005: 82) and northern Portugal (new record).

Description

Body length: ♂♂ (n= 10): 1.95-2.64 mm; ♀♀ (n= 4): 2.17-2.56 mm.

Shape ovate-elongate, elytral sides rather rounded or sub-parallel (Figs. 3c, d). Dorsum black or dark brown, with weak bronze reflection (in some specimens more evident), apex of the elytra paler (yellowish or yellowish-brown), sometimes uniformly dark. In some specimens two additional paler spots more or less broadened at humeral calli. Sometimes pronotum slightly paler than elytra. Some specimens light brown with yellow apex of elytra and humeral calli. Rarely entirely yellowish. In paler specimens scutellum, elytral stripe and pronotal margin always black or dark brown. Venter black or dark brown. Legs yellow or yellowish-brown, hind femora darker in apical half. Antennae basally yellow, then progressively darkened from 5° antennomere.

Frontal tubercles separated from frons by very weak frontal furrows. Frontal ridge prominent with surface smooth, sometimes with imperceptible punctation. Some more or less strong punctures near eyes.

Last five antennomeres a little enlarged. Antennomere ratio (n= 5): 17:10:9:10:12:11:12:11:12:11:16.

Pronotum transverse [(Pw/Pl)m= 1.56], convex, maximum width approximately in the middle; surface more or less microgranulated, sometimes reticulated, with quite strong punctation, on the lateral sides weak or absent; most probably four setae, one per corner (all specimens studied are rather worn and only in one case, one seta, not complete, is detectable on posterior angle of pronotum).

Elytra moderately convex and elongate [(El/Ew)m = 1.50], sides somewhat rounded or sub-parallel, separately rounded apically; generally broadest slightly before middle. Surface bright, more or less microgranulated, sometimes with traces of reticulation, more strongly punctate than pronotum, very slightly punctate or not punctate at apex and at epipleura; punctures showing traces of alignment beside sutural stripe, more or less extended in basal half of elytra. Humeral calli scarcely or not developed (brachypterous or micropterous specimens).

First male protarsomere slightly or clearly wider than in female [(Ptl/Ptw)m=1.680].

Median lobe of *aedeagus* in Fig. 10g.

Apex of distal part of the spermatheca with an evident protuberance. Ductus spermathecae (Fig. 11i) with trace of a coil or with a slight ripple.

Morphological data. – ♂♂ (n=10): El = 1.34-1.85 mm; (El)m = 1.54 mm; Ew = 0.91-1.18 mm; (Ew)m = 1.04 mm; Pl = 0.36-0.51 mm; (Pl)m = 0.45 mm; Pw = 0.63-0.79 mm; (Pw)m = 0.72 mm; Tl = 0.58-0.79 mm; (Tl)m = 0.71 mm; Ptl= 0.105-0.129 mm; (Ptl)m= 0.112 mm; Ptw = 0.070-0.082 mm; (Ptw)m= 0.074 mm; El/Ew = 1.34-1.59; (El/Ew)m = 1.48; El/Pl = 3.05-4.19; (El/Pl)m = 3.46; Pw/Pl = 1.50-1.97; (Pw/Pl)m = 1.61; Tl/El = 0.43-0.51; (Tl/El)m = 0.46; Ptl/Ptw = 1.667-1.833; (Ptl/Ptw)m = 1.8.
♀♀ (n=4): El = 1.47-1.77 mm; (El)m = 1.64 mm; Ew = 0.96-1.18 mm; (Ew)m = 1.07 mm; Pl = 0.44-0.51 mm; (Pl)m = 0.48 mm; Pw = 0.66-0.78 mm; (Pw)m = 0.72 mm; Tl = 0.68-0.77 mm; (Tl)m = 0.73 mm; El/Ew = 1.41-1.58; (El/Ew)m = 1.53; El/Pl = 3.23-3.55; (El/Pl)m = 3.39; Pw/Pl = 1.50-1.55; (Pw/Pl)m = 1.52; Tl/El = 0.43-0.46; (Tl/El)m = 0.45.

Notes

Historical

1887 – *L. bedelii* was described by Uhagón (1887: 399-401) from a single specimen, probably male, from Malpica de España. The same author reported the similarity between *L. bedelii* and *L. holsaticus* (Linnaeus 1758) despite a colour difference (pronotum darker in *holsaticus* and light spot on the elytra larger in *bedelii*).
1893 – Weise reported the similarity between *L. bedelii* and *L. holsaticus* (but the light spot on the elytra is larger in *bedelii*). He wrote also that *L. bedelii* is as bright as *L. fulgens* (Foudras 1860).
1962 – Mohr described *L. danieli* (1962: 321-323) from a single male specimen from Asturias, Peña Labra. He reported the similarity between *L. bedelii* and *L. danieli*.
1969 – Warchałowski (1969: 520-521) proposed the synonymy *L. danieli=L. apicalis* (adding that the type of *L. danieli*, a small specimen, could belong to *L. apicalis* var. *quadrimaculatus* Weise 1888).
1990 – Biondi (1990: 168) reconsidered *L. danieli* as good species, based on the study of females in which the ductus spermathecae is simple, without coils. In Biondi's opinion, *L. danieli* is similar to *L. idilphilus* (1990: 167).
1996 – Warchałowski (1996: 6) reported *bedelii* as *nomen dubium*.
1997 – Bastazo, in her doctoral thesis, proposed the synonymy *L. danieli* Mohr 1962= *L. bedelii* (Uhagón 1887), but the thesis was not published.
1998 – Petitpierre & Gomez-Zurita (1998: 19) reported the synonymy *L. bedelii = L. danieli* citing the thesis of Bastazo.
2020 – Analyses of DNA barcoding (Salvi *et al.*, 2020: 14) proved that *L. bedelii* and *L. atricillus*, despite morphological differences of elytra colouration and female genitalia, don't show any distinguishable phylogenetic structure that allows them to be separated. But these authors suggest to further investigate this.

Doubtful species:

***Longitarsus bedelii* Uhagón 1887**

Thyamis bedelii Uhagón 1887: 399-401. Loc. typ.: España, Dehesa de Malpica.
Weise, 1893: 1018; Heikertinger, 1930: 1329; Csiki & Heikertinger, 1940: 114; Mohr, 1962: 323; Warchałowski, 1996: 6; Bastazo, 1997: 129-132; Gruev & Döberl, 1997: 152; Petitpierre & Gomez-Zurita, 1998: 19; Baselga & Novoa, 2002: 65; Baselga & Novoa, 2003: 124; Gruev & Döberl, 1997: 78; Löbl & Smetana, 2010: 523; Warchałowski, 2010: 865.

Type species and identification
Type probably lost [Bastazo *in verbis*, based on research in the collection Oberthür (Horn et al., 1990: 400) at MNHN]. The taxon is considered doubtful because it was never again observed after description and might turn out to be the senior synonym of *L. danieli*.

Distribution
L. bedelii has been described from Spain.

Notes
As explained above, Bastazo (1997: 132) proposed the synonymy *L. danieli* Mohr 1962 = *L. bedelii* (Uhagón 1837) in her doctoral thesis, unfortunately unpublished. But Bastazo (*in verbis*) was not absolutely sure of this synonymy because the species seems very rare and the type of *L. bedelii* is unavailable (apparently disappeared at MNHN). She decided not to publish the synonymy awaiting further specimens (preferably topotypes) to study.
After studying the history and the original description of both *L. bedelii* and *L. danieli*, I could agree with Bastazo that the two species have many characters in common. Given the absence of the *L. bedelii* type, it is advisable for the moment, to follow the Warchałowski (1996: 6) approach and consider *L. bedelii* as a doubtful taxon.

***Longitarsus idilphilus* Biondi 1984 (Figs. 3e, f)**
L. idilphilus Biondi 1984: 379-393. Loc. typ.: Morocco, Tetouan (Rif., Bab.Besen, Ketama).
Warchałowski, 1996: 126-127; Gruev & Döberl, 1997: 176-177; Warchałowski, 2003; Gruev & Döberl, 2005: 88; Löbl & Smetana, 2010: 526; Warchałowski, 2010: 868.

Type species and identification
The type (1♀) is housed at MBCA.

Distribution
L. idilphilus has been found in Morocco only (Gruev & Döberl, 1997: 176-177; Gruev & Döberl, 2005: 88).

Description
Body length: ♂♂ (n= 4): 2.17-2.31 mm; ♀♀ (n= 10): 2.26-2.61 mm.
Shape ovate-elongate, elytral sides rather rounded or sub-parallel (Figs. 3e, f). Dorsum black or dark brown with weak bronze reflection, elytral apex lighter (yellowish or yellowish-brown). In some specimens two further lighter spots more or less broadened at humeral calli. Sometimes pronotum slightly paler than elytra: in this case elytral apex and humeral calli have the same colour of pronotum. In some specimens elytra yellowish brown or brown with: elytral apex and humeral calli yellow, pronotum reddish. Rarely entirely yellowish. In the paler specimens at least scutellum, suture and pronotum margin always black or dark brown. Venter black or dark brown. Legs yellow

or yellowish-brown, apical half of hind femora brown. Antennae basally yellow, then progressively darkened from 4°-5° antennomere.
Frontal tubercles separate from frons by very weak frontal furrows. Frontal ridge prominent, with smooth surface. Some more or less strong points beside the eyes.
Antennomere ratio (n= 5): 17:11:10:11:14:12:13:12:12:12:18.
Pronotum transverse [(Pw/Pl)m= 1.58], convex, maximum width approximately at the basal 1/3; sides rather rounded; surface more or less microgranulated with rather strong punctation, on lateral sides weak or absent; most probably four setae, one per corner (specimens studied are rather worn and only in two cases one seta, in one specimen of them almost complete as long as last antennomere, detectable on posterior angle of pronotum; Sl = 0.19).
Elytra convex and elongate [(El/Ew)m = 1.46], sides somewhat rounded or sub-parallel, separately rounded apically; generally broadest about in the middle. Surface more or less microgranulate, sometimes with traces of reticulation, slightly more strongly punctate than pronotum, very slightly punctate or not punctate at apex and at epipleura; irregular punctation or traces of alignment. Humeral calli not or scarcely developed (brachypterous or micropterous specimens).
First male protarsomere not or slightly wider than in female [(Ptl/Ptw)m=1.824].
Median lobe of aedeagus in Fig. 10h.
Apex of the distal part of the spermatheca with an evident protuberance. Ductus spermathecae (Fig. 11j) sometimes with trace of a coil or with at least one almost complete coil.

Morphological data. – ♂♂ (n=4): El = 1.47-1.61 mm; (El)m = 1.54 mm; Ew = 1.03-1.07 mm; (Ew)m = 1.05 mm; Pl = 0.47-0.50 mm; (Pl)m = 0.46 mm; Pw = 0.72-0.75 mm; (Pw)m = 0.73 mm; Tl = 0.65-0.72 mm; (Tl)m = 0.70 mm; Ptl= 0.117-0.140 mm; (Ptl)m= 0.129 mm; Ptw = 0.064-0.070 mm; (Ptw)m= 0.069 mm; El/Ew = 1.37-1.52; (El/Ew)m = 1.47; El/Pl = 2.93-3.94; (El/Pl)m = 3.35; Pw/Pl = 1.44-1.82; (Pw/Pl)m = 1.58; Tl/El = 0.42-0.49; (Tl/El)m = 0.45; Ptl/Ptw = 1.667-1.833; (Ptl/Ptw)m = 1.743.
♀♀ (n=10): El = 1.56-1.86 mm; (El)m = 1.68 mm; Ew = 1.05-1.21 mm; (Ew)m = 1.16 mm; Pl = 0.44-0.51 mm; (Pl)m = 0.48 mm; Pw = 0.72-0.82 mm; (Pw)m = 0.77 mm; Tl = 0.70-0.86 mm; (Tl)m = 0.76 mm; El/Ew = 1.37-1.54; (El/Ew)m = 1.46; El/Pl = 3.19-3.76; (El/Pl)m = 3.49; Pw/Pl = 1.48-1.63; (Pw/Pl)m = 1.59; Tl/El = 0.43-0.47; (Tl/El)m = 0.45.

***Longitarsus atlanticus* Döberl 2002 (Fig. 12a)**
L. atlanticus Döberl 2002: 243-245. Loc. typ.: Morocco, Moyen Atlas, Azrou, 1800 m.
Gruev & Döberl, 2005: 76.

Type species and identification
Döberl described the species from 4 males (one type and 3 paratypes), collected in the mountains of the Moroccan Middle Atlas. Döberl collection and his library are bequeathed to Mr. Ulf Arnold in Berlin (Geiser & Schmitt, 2017: 3). The type (1♂) is most probably housed in this collection.
In Döberl opinion *L. atlanticus* is close to *L. languidus* Kutschera 1863 with which it shares a very similar habitus, even if he reported several morphological differences between the two species (Döberl, 2002: 243).
However I consider this species belonging to the group of *L. atricillus* due to many similarities involving the habitus and the shape of genitalia [opinion shared also by Dr. M. Biondi, who first pointed out these similarities (*in verbis*)].

Distribution

L. atlanticus has been found in Morocco only (Middle Atlas Mountains) (Gruev & Döberl, 2005: 76).

Description

The description in the current work is based on one specimen only, a paratype kindly provided by Michael Geiser (BMNH-War) and on the morphological data supplied by Dr. M. Biondi [based on 2 specimens in MBCA, given by Serge Doguet to Maurizio Biondi in 2004 (Figs. 12a-c)].

Body length: ♂♂ (n= 2): 2.23-2.38 mm; ♀♀ (n= 1): 2.70 mm.
Shape ovate-elongate, elytral sides somewhat rounded (Fig. 12a). Dorsum with elytral partly black, basal margin brown, with weak bronze reflection. Elytral apex, humeral calli and epipleura yellowish. Pronotum brown as basal margin of elytra. Underside black. Legs yellowish, apical half of hind femora black with weak bronze reflections and basal part brown. Antennae basally yellow, then progressively darkened from 5° antennomere.
Frontal tubercles separated from frons by weak frontal furrows. Frontal ridge rather prominent. Some more or less strong punctures beside the eyes.
Antennomere ratio: 17:11:10:10:12:12:13:13:13:13:18.
Pronotum transverse [(Pw/Pl)m= 1.60], convex, maximum width approximately at the basal 1/3; sides rather rounded; surface very slightly microgranulated, rather smooth with shallow punctation, on the lateral sides weak or absent.
Elytra convex and elongate [(El/Ew)m = 1.40], sides rather rounded, separately rounded apically; generally broadest slightly before the middle. Surface more or less microgranulated, sometimes with traces of reticulation, slightly stronger punctation than pronotum, very slightly punctate or not punctate at apex and at epipleura; irregular punctation. Humeral calli scarcely developed (brachypterous specimen).
Male last sternite with a weak longitudinal impression.
First male protarsomere rather wide (Ptl/Ptw = 1.714).
Median lobe of aedeagus in Fig. 12b.
Ductus spermathecae (Fig. 12c) forming several coils.
Morphological data. – ♂♂ (n=2): El = 1.70 mm; Ew = 1.20; Pl = 0.47-0.53; (Pl)m = 0.50; Pw = 0.77-0,83; (Pw)m = 0.80; Tl = 0.76 mm; Ptl= 0.140; Ptw = 0.082; El/Ew = 1.42-1.44; (El/Ew)m = 1.43; El/Pl = 3.24-3.60; (El/Pl)m = 3.42; Pw/Pl = 1.57-1.65; (Pw/Pl)m = 1.61; Tl/El = 0.45; Ptl/Ptw = 1.714.
♀ (n=1): El = 1.95 mm; Ew = 1.43; Pl = 0,58; Pw = 0,91; El/Ew = 1.37; El/Pl = 3.39; Pw/Pl = 1.59.

Key to species

The following key is based on the essential distinctive characters of the species belonging to *L. atricillus* group. *L. atlanticus* is included in the key, even if I studied personally only one specimen (1♂) and the pictures kindly sent by Dr. M. Biondi [1♂: habitus and median lobe of aedeagus (Fig. 12a-b) and 1♀: spermatheca (Fig. 12c)].

1. Form oval or subelliptic, elongate (Figs. 3a-b). Usually larger species [♂♂: 2.45-2.94 mm, (body length)m: 2.75 mm; st. dev.: 0.128; ♀♀: 2.40-3.33 mm, (body length)m: 3.10 mm; st. dev.: 0.162].

Colour always uniformly black, dark brown or brown, elytral apex more or less widely paler; rarely also humeral calli paler. Aedeagus as in Fig. 10f (in ventral view sometimes with slight transversal wrinkles at the bottom). Ductus spermathecae with a large number of coils (Fig. 11h). Distributed in northern and central Europe (mountainous regions)
.....…….....…*L. apicalis* (Beck)

1'. Form ovate-elongate (Figs. 2a-f, 3c-f). On average smaller species [♂♂: 1.95-2.66 mm, (body length)m: 2.27 mm; st. dev.: 0.139; ♀♀: 2.07-3.06 mm, (body length)m: 2.44 mm; st. dev.: 0.187]. Elytra yellowish or yellowish-brown with pronotum brown or reddish and dark suture, otherwise dorsum dark brown, humeral calli and apex of elytra paler. Aedeagus as in Figs. 9a-d or 9e-h,10a-e, 10g, h, 12b. Ductus spermathecae with a variable number of coils (Figs. 11c-g, 12c) or uncoiled (Figs. 11i, j) …….....…….2

2. Median lobe of *aedeagus* in ventral view elongate and narrow at about its mid point, its distal 3/4 curved ventrally in lateral view (Figs. 9a-d); ductus spermathecae with a reduced number of coils (2 to 4) (Figs. 11c, d). Mainly distributed in eastern Europe and western Asia
……*L. aeneicollis* (Faldermann)

2'. Median lobe of aedeagus in ventral view less elongate, rather straight, its distal 2/3 slightly tapered, in lateral view almost straight and bent ventrally at the apex (Figs. 9e-h; 10a-e, g-h; 12b); ductus spermathecae entangled by several coils (more than 3) (Figs. 11e-g; 12c) or uncoiled (Figs. 11i-j). Distributed in Europe, north Africa or western-central Asia
.....……..….....3

3. On average larger species [♂♂: 2.17-2.66 mm, (body length)m: 2.39 mm; st. dev.: 0.173; ♀♀: 2.07-3.06 mm, (body length)m: 2.55 mm; st. dev.: 0.306], pronotum maximum width at its base (Fig. 4b), strongly punctate. Elytra convex, rounded at the sides, broadest slightly before middle (Figs. 2e, f). Humeral calli usually weak or absent. Apex of the distal part of the spermatheca often with an evident protuberance, ductus with 3 or more coils (Fig. 11g). Distributed in Europe, north Africa and western-central Asia…….....*L. atricillus* (Linnaeus)

3'. On average smaller species [♂♂: 1.95-2.65 mm, (body length)m: 2.25 mm; st. dev.: 0.122; ♀♀: 2.14-2.96 mm, (body length)m: 2.42 mm; st. dev.: 0,153], pronotum maximum width at around basal 2/5 or approximately in the middle (Fig. 4c), weakly or rather strongly punctate. Elytra less convex, sides sub-parallel up their basal half, maximum width in the middle or slightly before middle, then more rounded towards the apex (Figs. 2c-d). Humeral calli well or weakly developed, sometimes absent. Apex of the distal part of the spermatheca usually without a protuberance, sometimes more or less developed, ductus complicated by numerous coils (Figs. 11e-f, 12c) or uncoiled (Figs. 11i-j)…….....…….4

4. On average pronotum more convex [(Pw/Pl)= 1.53-1.83; (Pw/Pl)m= 1.64; st. dev. = 0.069]; body more elongate [(El/Ew)=1.33-1.64; (El/Ew)m= 1.53; st. dev. = 0.072]. First male protarsomere not or slightly widened (Fig. 11a). Humeral calli usually well developed. Colour yellowish or yellowish-brown with pronotum brown or reddish, dark suture. Species including altitudinal forms (Apennines and Greek Peloponnese) (Fig. 4a) dark brown with yellowish humeral calli and elytral

apex, humeral calli scarcely or not developed. Median lobe of aedeagus less elongate [(Al/El)= 0.40-0.55 mm; (Al/El)m = 0.48; st. dev.=0.048]. Ductus spermathecae entangled by numerous coils (Figs. 11e,f). Distributed in Europe, north Africa and western-central Asia
.....*L. nigricollis* (Foudras)

4'. Pronotum less convex [Pw/Pl)=1.44-1.97; (Pw/Pl)m= 1.59; st. dev. = 0.102]; body on average less elongate [(El/Ew)= 1.34-1.58 mm; (El/Ew)m = 1.47; st. dev. = 0.074]. First male protarsomere widened or scarcely widened. Humeral calli scarcely or not developed. Colour usually dark brown or brownish with humeral calli and apex of elytra paler, rarely yellowish-brown with dark suture (Figs. 3c-f). Median lobe of aedeagus more elongate [(Al/El)=0.48-0.57 mm; (Al/El)m = 0.53; st.dev.= 0.030]. Ductus spermathecae uncoiled (Figs. 11i, j) or with a large number of coils (Fig. 12c). Distributed in western Europe (Portugal and Spain) or Morocco
.....5

5. Ductus spermathecae forming numerous coils (Fig. 12c). Described from Morocco (Middle Atlas Mountains)..... *L. atlanticus* Döberl

5' Ductus spermathecae uncoiled or only with traces of coils (Figs. 11i-j). Species described from Spain and Portugal or Morocco (Northern mountains of Morocco and High Atlas Mountains)
.....6

6. Less slender, pronotum maximum width approximately in the middle, stronger elytral punctation; larger antennomeres; first male protarsomere widened [(Ptl/Ptw)= 1.429-1.833; (Ptl/Ptw)m=1.680; st. dev. = 0.117]. Ductus spermathecae with trace of a coil or with a slight ripple (Fig. 11i). Distributed in Spain and Portugal
.....*L. danieli* Mohr

6'. More slender species, pronotum maximum width in basal 1/3, less strong elytral punctation; thinner antennomeres; first male protarsomere weakly or not widened [(Ptl/Ptw)= 1.714-1.917; (Ptl/Ptw)m=1.824; st. dev. = 0.083]. Ductus spermathecae sometimes with trace of a coil or with at least one almost complete coil (Fig. 11j). Described from Morocco
.....*L. idilphilus* Biondi

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Supporting Information

List of material examined in the *Longitarsus atricillus* species group.

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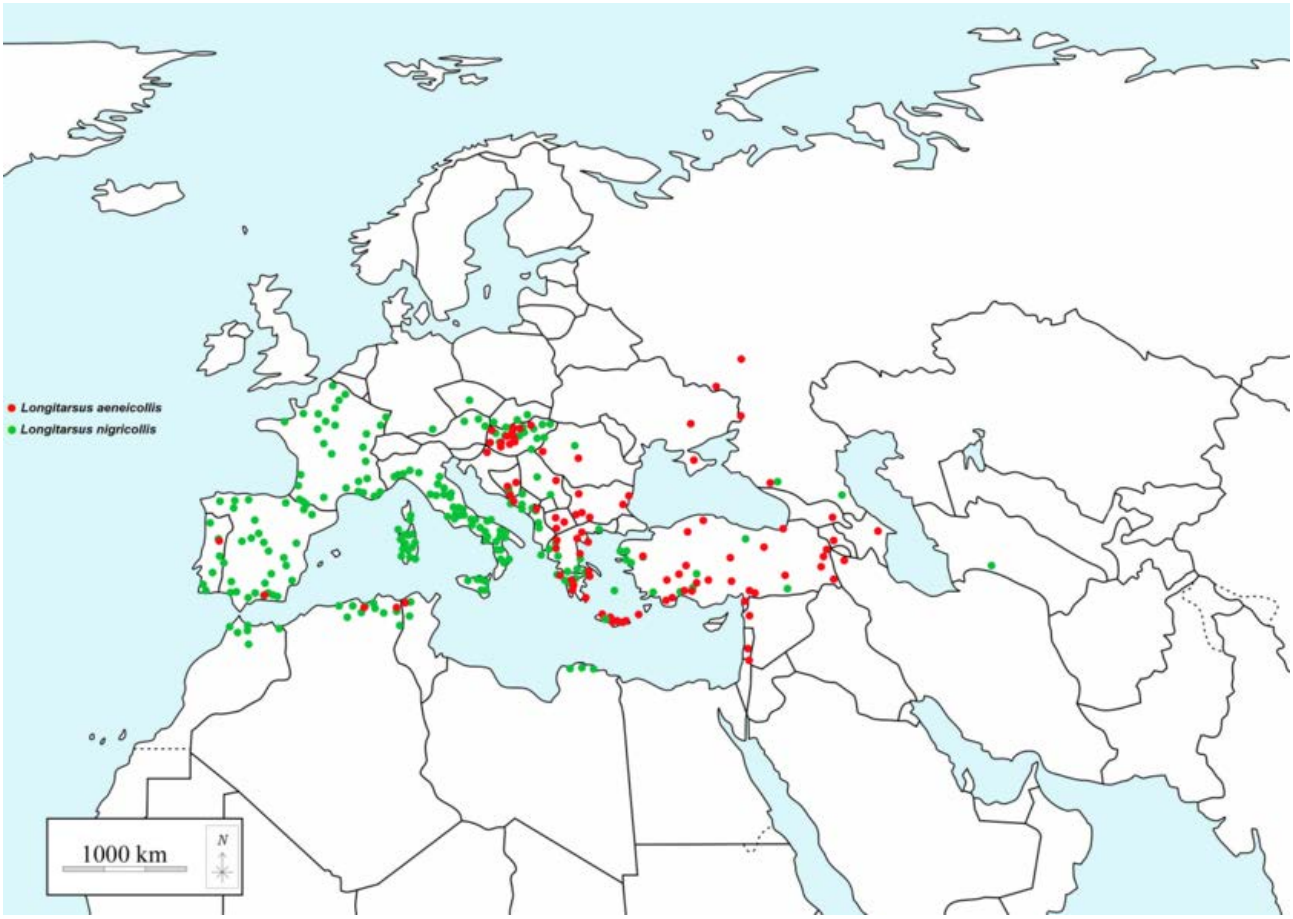

Fig. 1 – Palaearctic distribution of *L. aeneicollis* and *L. nigricollis* based on the material studied. Some dots include more adjacent localities. The distribution of the problematic population of *L. nigricollis* (as explained in the text) is not reported on the map. / Distribuzione paleartica di *L. aeneicollis* e di *L. nigricollis* sulla base del materiale studiato. Alcuni punti includono più località adiacenti. Le località di distribuzione delle popolazioni di *L. nigricollis* considerate problematiche (come spiegato nel testo) non sono riportate nella mappa. Blank map modified from / Cartina modificata da: https://d-maps.com

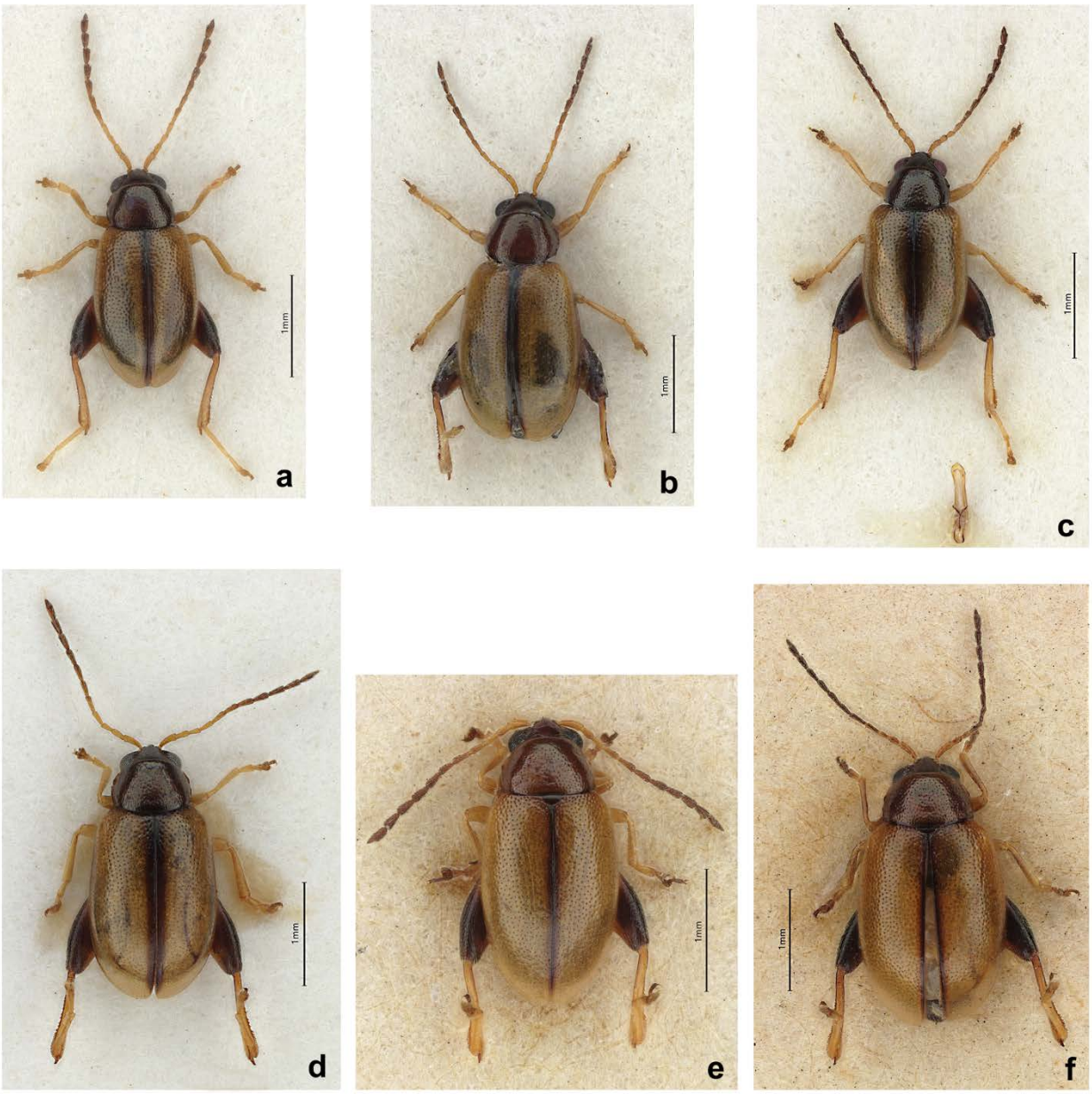

Fig. 2 – a) *L. aeneicollis* ♂. Manavgat. b) *L. aeneicollis* ♀. Sitia. c) *L. nigricollis* ♂. Xanthi. d) *L. nigricollis* ♀. Atiki. e) *L. atricillus* ♂. Pfarrkirchen. f) *L. atricillus* ♀. Friedland.

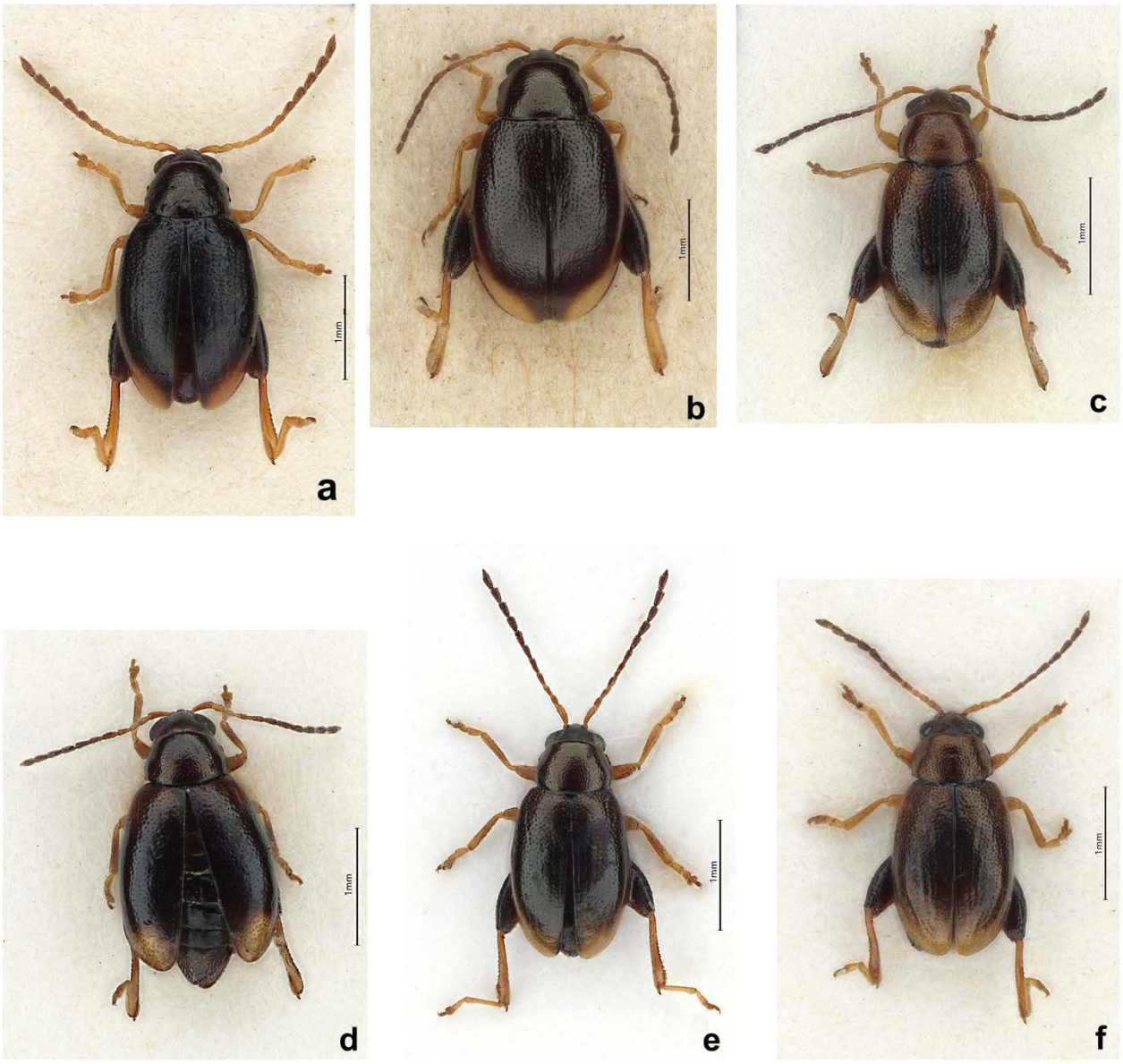

Fig. 3 – a) *L. apicalis* ♂. Starnberg: Neotype. b) *L. apicalis* ♀. Ferlach. c) *L. danieli* ♂. San Lorenzo de El Escorial. d) *L. danieli* ♀. San Lorenzo de El Escorial. e) *L. idilphilus* ♂. Rif. f) *L. idilphilus* ♀. Rif.

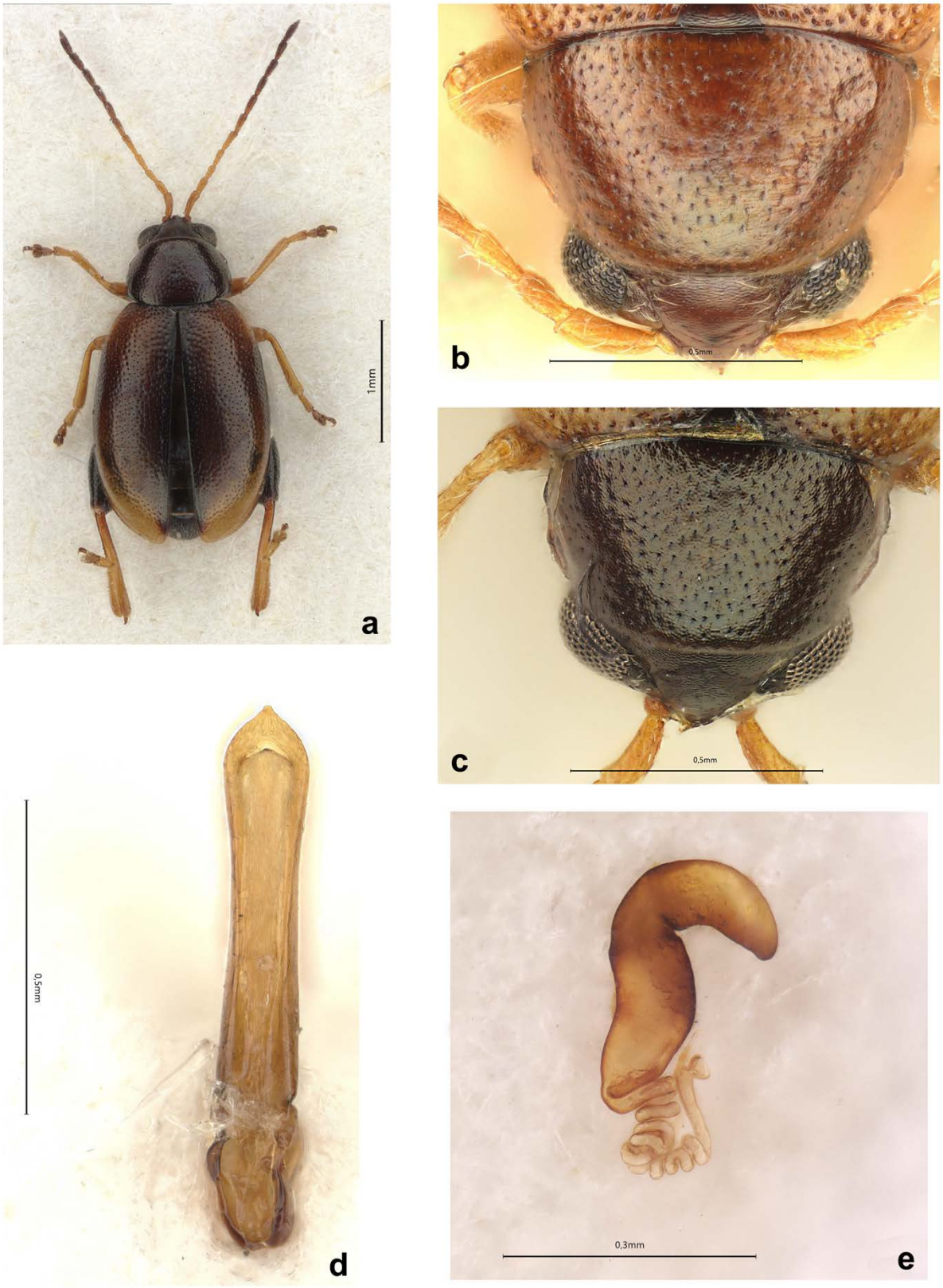

Fig. 4 – a) *L. nigricollis*. Appennine, Monte Giano, Prata di Cagno 1390 m (Rieti). b) *L. atricillus*: pronotum. Pfarrkirchen. c) *L. nigricollis*: pronotum. Epire. d) *L. nigricollis*? Iran: median lobe of aedeagus / lobo mediano dell'edeago. e) *L. nigricollis*? Iran: spermatheca / spermateca.

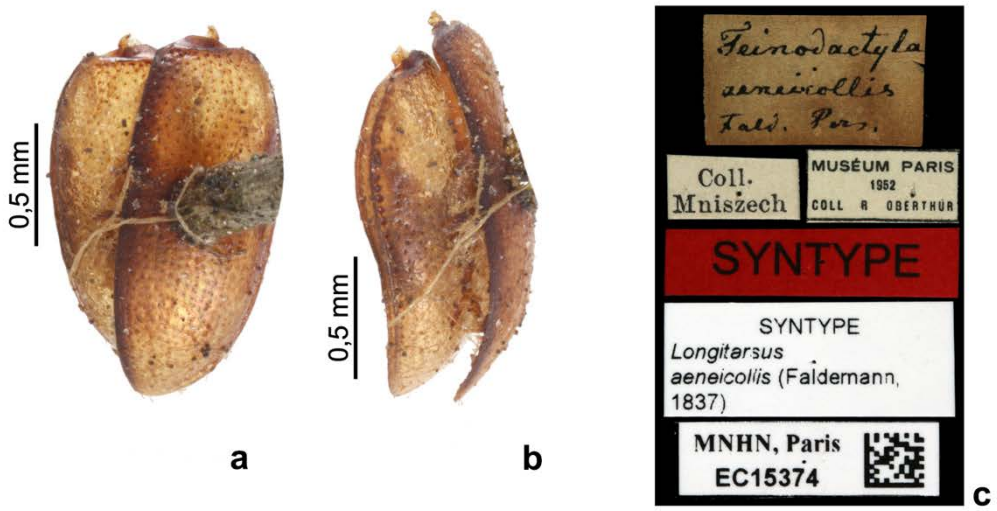

Fig. 5 – a) *L. aeneicollis*. Pers: lectotype / lectotipo. Dorsal view / visione dorsale. b) *L. aeneicollis*. Pers: lectotype / lectotipo. Lateral view / visione laterale. c) Lectoype *L. aeneicollis* label / Etichetta del lectotipo di *L. aeneicollis*. (Photos 5a-c / Foto 5a-c: C. Rivier)

Fig. 6 – a) *L. nigricollis*. France: lectotype / Francia: lectotipo. b) *L. nigricollis*, lectotype: median lobe of aedeagus / lectotipo: lobo mediano dell'edeago. Lectotype body length / lunghezza del corpo del lectotipo: 2,1 mm. Median lobe of aedeagus length / lunghezza del lobo mediano dell'edeago: 0,8 mm. (Photos 6a-b / Foto 6a-b: H. Labrique)

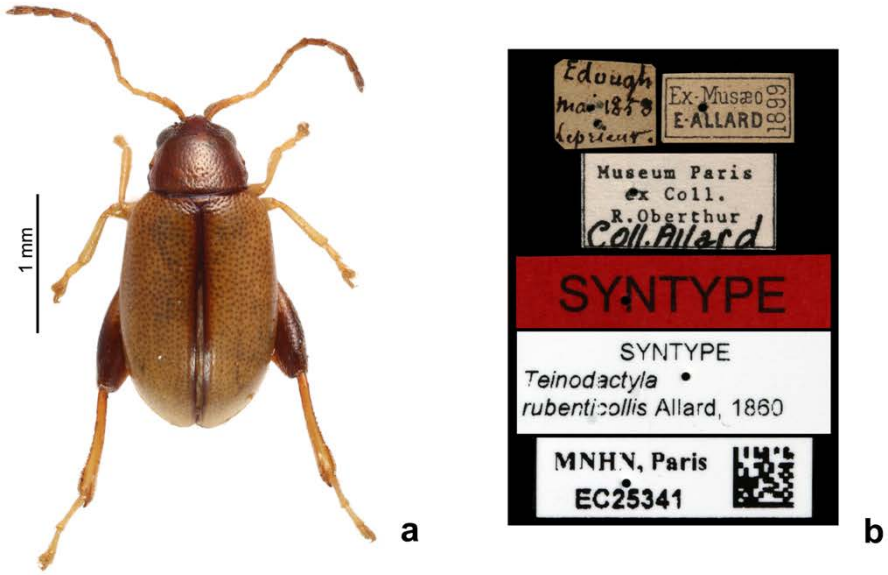

Fig. 7 – a) *T. rubenticollis*. Edough: syntype / sintipo. b) *S*yntype *L. rubenticollis* label / etichetta del sintipo di *L. rubenticollis*. (Photos 7a-b / Foto 7a-b: C. Rivier)

Fig. 8 – a) *L. nigricollis* specimens mounted by Foudras onto small elderberries piece / esemplari di *L. nigricollis* spillati da Foudras su midollo di sambuco (MDC). b) Hardcover table drawn up by C. Rey, with colour-locality matching / tabella realizzata da C. Rey con codici colore-località (MDC).

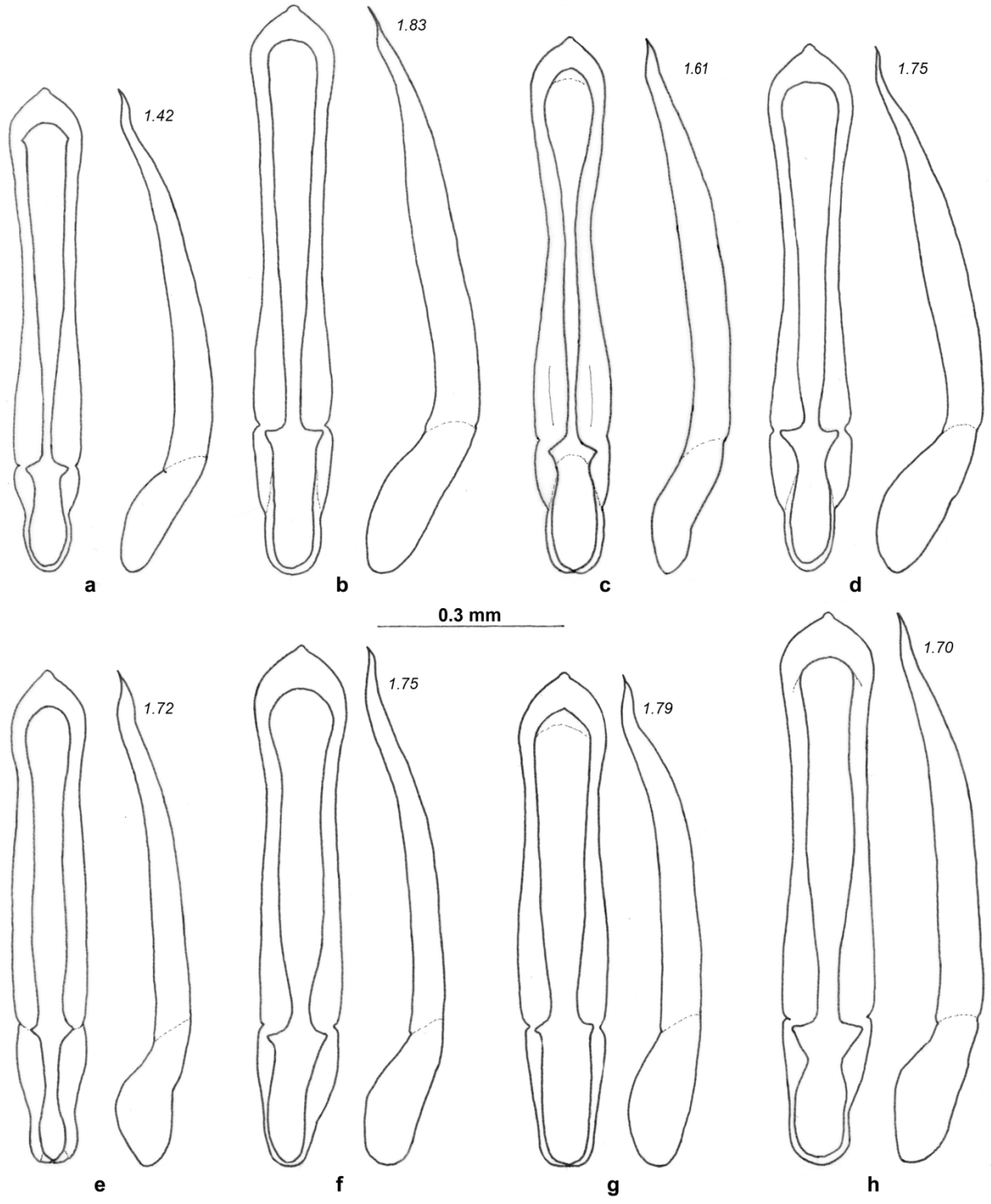

Fig. 9 – Median lobe of aedeagi in ventral (left) and lateral (right) views. Upper row: *L. aeneicollis* from: a) Ideon Antron. b) Altinyaka. c) Kephallinia. d) Algeria. Lower row: *L. nigricollis* from: e) Piedralaves. f) Piedralaves. g) Serra de Estrela. h) Campitello Matese. Here and in the ensuing groups of figures, the relative elytral lengths are shown to the top right of each couple of drawings. / Lobo mediano dell'edeago in visione ventrale (sinistra) e laterale (destra). Riga superiore: *L. aeneicollis* da: a) Ideon Antron. b) Altinyaka. c) Kephallinia. d) Algeria. Riga inferiore: *L. nigricollis* da: e) Piedralaves. f) Piedralaves. g) Serra de Estrela. h) Campitello Matese. Qui e nei seguenti gruppi di figure, le relative lunghezze elitrali sono indicate in alto a destra di ogni coppia di disegni.

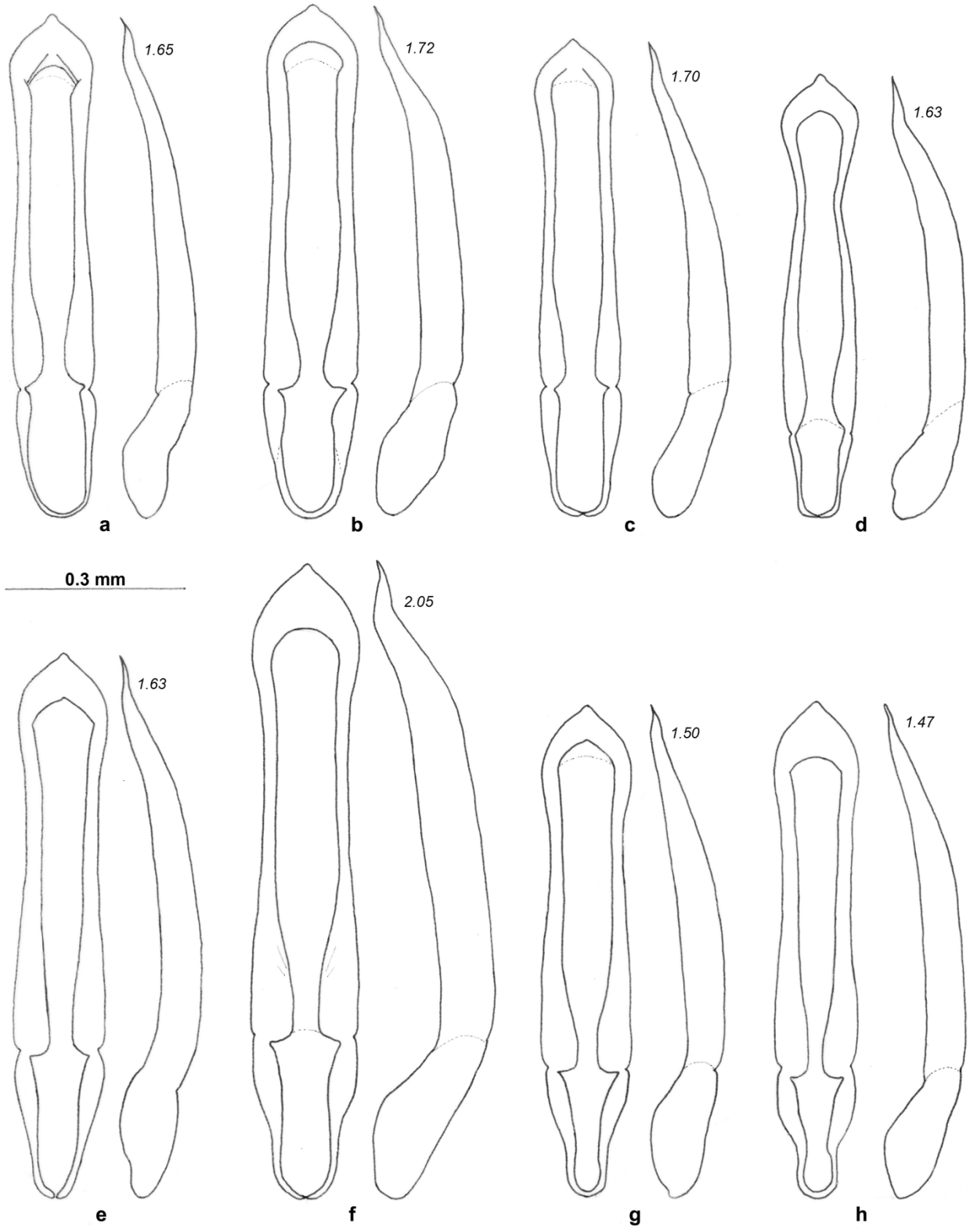

Fig. 10 – Median lobe of aedeagi in ventral (left) and lateral (right) views. Upper row: *L. nigricollis* from: a) Kephalonia. b) Szeged. c) Ras El Ma. d) San Lorenzo de El Escorial. Lower row: e) *L. atricillus*. Alto Atlante. f) *L. apicalis*. Lago di Biandronno. g) *L. danieli*. Orihuela del Tremedal. h) *L. idilphilus*. Oukaïmeden.

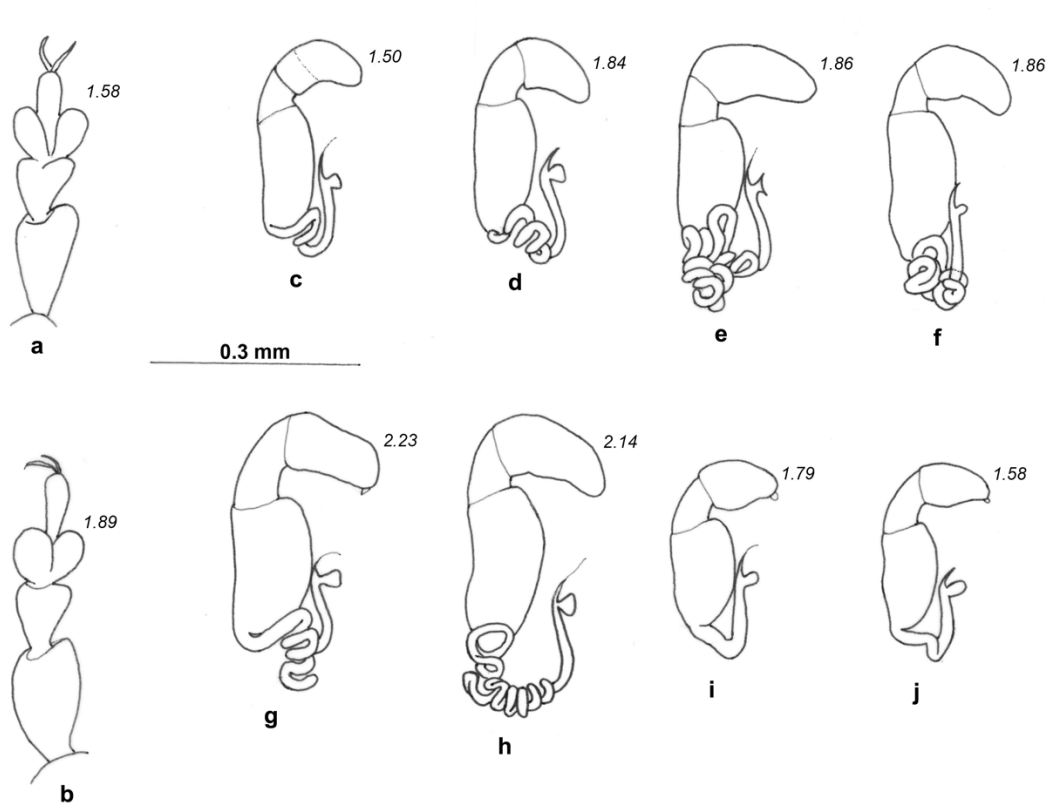

Fig. 11 – a-b) Male first protarsomere. / Primo tarsomero della zampa anteriore del maschio. a) *L. nigricollis*. Kamennyje Mogily. b) *L. aeneicollis*. Pelion. c-j) Spermatheca / Spermateca. c-d) *L. aeneicollis* from: c) Pelion. d) Parnass. e-f) *L. nigricollis* from: e) Mount Enos. f) Piedralaves. g) *L. atricillus*. Buc. h) *L. apicalis*. Perledo. i) *L. danieli*. Orihuela del Tremedal. j) *L. idilphilus*. Oukaïmeden.

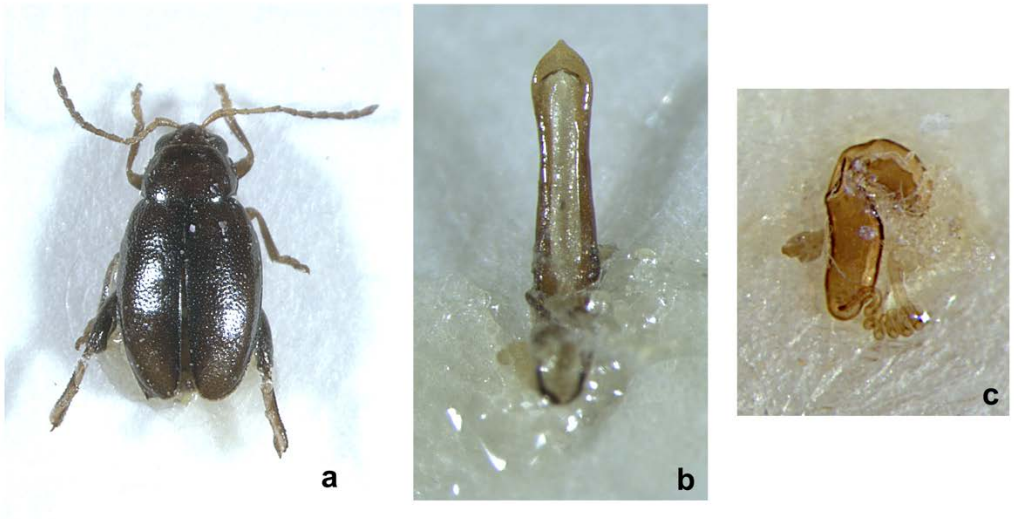

Fig. 12 – *Longitarsus atlanticus*. Moyen Atlas, Timahdite. a) Habitus b) *Aedeagus*. c) *Spermatheca* (Photos / Foto: M. Biondi).

Tab. 1 – Taxonomically discriminanting characters of *L. aeneicollis* and *L. nigricollis*. / Caratteri tassonomici discriminanti di *L. aeneicollis* e *L. nigricollis*.

Character	*L. aeneicollis* (Faldermann 1837)	*L. nigricollis* (Foudras 1860)
Wings	Often humeral calli not or weakly developed [44% of the specimens studied].	Hind wings usually functional, with humeral calli developed [85% of the specimens studied]. Among the specimens with humeral calli not or weakly developed, most of them (63%) belong to the altitudinal form.
Male first protarsomere	Clearly widened [(n=20) Ptl=0.117-0.152 mm; (Ptl)m=0.141 mm; Ptw=0.070-0.094 mm; (Ptw)m=0.084 mm; Ptl/Ptw=1.429-1.857; (Ptl/Ptw)m=1.675] (Fig. 11b).	Weakly or not widened [(n=20) Ptl=0.117-0.152 mm; (Ptl)m=0.136 mm; Ptw=0.059-0.082 mm; (Ptw)m=0.072 mm; Ptl/Ptw=1.571-2.2; (Ptl/Ptw)m=1.896] (Fig. 11a).
Spermatheca	Ductus spermathecae usually forms from 2 to 4 coils (Figs. 11c, d).	Ductus spermathecae with a larger number of coils (more than 4) (Figs. 11e, f).
Median lobe of aedeagus	Median lobe of aedeagus (Figs. 9a-d) more elongate [(n=10) Al = 0.792-0.885 mm; (Al)m = 0.857 mm; Aw = 0.116-0.140 mm; (Aw)m = 0.125 mm; (Al/Aw) = 6.333-7.5; (Al/Aw)m = 6.878] and very narrow in its mid-point in ventral view (very thin in some specimens: Fig. 9c), slightly broadened at apex. Distal 3/4s weakly curved in lateral view, apical tip facing ventrally.	Median lobe of aedeagus (Figs. 9e-h; 10a-d) usually less elongate and wider [(n=10) Al = 0.769-0.850 mm; (Al)m = 0.802 mm; Aw = 0.128-0.140 mm; (Aw)m = 0.138 mm; (Al/Aw) = 5.5-6.182; (Al/Aw)m = 5.794]. Comparatively straight, its distal 2/3 slightly tapered in ventral view, weakly broadened at apex. Distal 3/4s usually almost straight in lateral view, then bent ventrally at the apex, apical tip facing ventrally, sometimes upwards. In some specimens from Spain (Piedralaves, Guadarrama, San Lorenzo de El Escorial, Cazorla) the median lobe of aedeagus in ventral view is rather elongate [Fig. 9e (left)] or fairly tapered [Figs. 9f (left), 10d (left)] and in lateral view sometimes weakly curved.