Revision of the western Palaearctic *Mesoleptus* (Hymenoptera: Ichneumonidae)

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Abstract. The western Palaearctic species of the genus *Mesoleptus* Gravenhorst 1829 are redescribed and keys are given for their identification. Also a key for the identification of the three stilpnine genera (*Atractodes*, *Mesoleptus*, and *Stilpnus*) is given and the biology of the genus is discussed shortly. The following species are described as new: *Mesoleptus hispanicus* n. sp., *M. sawoniewiczzi* n. sp. and *M. tunisiensis* n. sp. The male of *Mesoleptus tobiassi* Jonaitis is described for the first time. New combinations is *M. incessor* (Haliday). New synonyms number 143 and 34 lectotypes are chosen.

Résumé. Révision des *Mesoleptus* (Hymenoptera : Ichneumonidae) ouest-paléarctiques. Les espèces ouest-paléarctiques du genre *Mesoleptus* Gravenhorst 1829 sont redécrites et des clefs d'identification sont présentées, de même qu'une clef des trois genre de stilpnines *Atractodes*, *Mesoleptus* et *Stilpnus*. Leur biologie est brièvement discutée. Les espèces nouvelles suivantes sont décrites : *Mesoleptus hispanicus* n. sp., *M. sawoniewiczzi* n. sp. et *M. tunisiensis* n. sp. Le mâle de *Mesoleptus tobiassi* Jonaitis est décrit pour la première fois. Une nouvelle combinaison est proposée pour *M. incessor* (Haliday). 143 nouveaux synonymes sont indiqués et 34 lectotypes sont désignés.

Keywords: Parasitoids, taxonomy, Cryptinae, Phygadeuontini.

By far the largest family of parasitoid wasps is Ichneumonidae. Gauld (2002) proposed that the global species richness of the family Ichneumonidae might well exceed 100,000. This makes the family one of the least known insect groups of the world and at least partly explains why the family has had such a complex nomenclatural history (Fitton & Gauld 1976).

The most species rich of the ichneumonid subfamilies is Cryptinae (= Gelinae or Phygadeuontinae), which is cosmopolitan in distribution. Townes (1969) divided the Cryptinae into three tribes (Echthrinae = Aptesini = Hemigasterini, Gelini = Phygadeuontini and Mesostenini = Cryptini) of mainly idiobiont ectoparasitoids (Hanson & Gauld 1995). Townes (1970) further divided the original tribe Gelini into fourteen subtribes, which he recognized were partly artificial but were of some practical use. One of these subtribes is Stilpnina which includes three genera, *Atractodes* Gravenhorst, *Stilpnus* Gravenhorst and *Mesoleptus* Gravenhorst.

Stilpnina is a relatively species rich subtribe occurring mainly in the Holarctic Region, although there are some species also in the cooler and moister

parts of e.g. the Neotropics, Taiwan and Central Africa (Townes 1970). The species of the subtribe develop as koinobiont endoparasitoids emerging from the last preimaginal stage of host (Townes 1970; Gauld 1988) in a remarkably different way to most of the subfamily Cryptinae, which are predominantly idiobiont ectoparasitoids.

During the last three decades the taxonomy of the stilpnines has taken major steps onwards due to the revisions of western Palaearctic species of *Atractodes* and *Stilpnus* undertaken by Jussila (1979; 1983; 1987; 1988; 1994; 1999; 2001). Only *Mesoleptus* has remained unrevised until this day. This fact clearly prevents the use of *Mesoleptus* e.g. in studies dealing with evolutionary biology or biological control.

Förster (1876) described most of the *Mesoleptus* species in a great revisionary work. Unfortunately, he, like other taxonomists of the nineteenth century, was not aware of the high amount of intraspecific variation within many groups of the parasitoid Hymenoptera. This created a huge mess of nomenclatural chaos, which characterizes many ichneumonid subfamilies. Consequently, most of the Förster's stilpnine species have had to be synonymized in Jussila's revisions and in the present work. These revisionary works resolve a considerable amount of nomenclatural chaos characterizing many ichneumonid subfamilies.

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The main aim of the present work is to revise the western Palearctic species of the genus *Mesoleptus*. This needs to be completed before thorough evolutionary studies on the subtribe Stilpnina may be conducted. The authors of the present work are already working with a phylogenetic study of the whole subtribe Stilpnina which will culminate the 30 years study of the subtribe. This work will also include the few tropical species of the subtribe and the possible new species of *Mesoleptus* discovered by Dr. Chris Williams (National University of Ireland) as a parasitoid of *Tetanocera* spp. (Diptera: Sciomyzidae).

Material and methods

During the present study, all available type specimens and a large number of other specimens have been studied in order to get a good grip of the intra- and interspecific variation of the genus. The present study concentrates on the species occurring in the Western Palearctic region (west of the Ural Mountains). The specimens studied by the authors were borrowed from or deposited in the following European and North American collections of Hymenoptera:

AB, Department of Applied Biology, University of Helsinki, Finland; BMNH, The Natural History Museum, London, Great Britain; CEUA, Entomological Collection, University of Alicante, CIBIO, Spain; EL, Department of Entomology, University of Lund, Sweden; EL, Institutum Entomologicum, Hokkaido University, Sapporo, Japan; EU, Evolutionsmuseet, Zoologi, University of Uppsala, Sweden; FM, Finnish Museum of Natural History, Zoological Museum, Helsinki, Finland; IES, coll. Ilari E. Sääksjärvi, Naantali, Finland; ML, Museum of the Zoological Institute, Academy of Sciences, St. Petrograd, Russia; MV, Museum of the Zoological Institute, Vilna; ND, National Museum of Ireland, Dublin, Ireland; NR, Naturhistoriska Riksmuseet, Stockholm, Sweden; RJ, coll. Reijo Jussila, Paattinen, Finland; TC, American Entomological Institute, Townes collection, Gainesville, USA; TM, coll. Kiss, Természettudományi, Múzeum Állattár, Budapest, Hungary; ZM, Zoologische Sammlung des Bayerischen Staates, Munich, Germany; ZH, Natural History Museum, University of Helsinki, Finland; ZT, Zoological Museum, University of Turku, Finland; UW, Museum Zoologiczne Uniwersytetu Wrocławskiego, Poland.

All observations were made with the Euromex ZT-45 stereomicroscope usually at magnification of 45X. Three separate illuminators were used: incident and transmitted illumination of the microscope and cold-light illuminator with two-fibre optic light conductors. All measurements were made by using the Euromex measuring eyepiece SWF 10X/20 with micrometer 10 mm in one hundred divisions at magnification of 45X (for all other measurements except the length of the forewing) and 10X (when measuring the length of the forewing). Scanning electron microscopy was used extensively during the study. The SEM-images were taken using Hitachi S-3000N (in low vacuum mode) and JEOL JSM 840 in the University of Alicante, Spain.

Terminology and species criteria

The morphological terminology adopted in this work is mainly those of Townes (1969) and Gauld (1991). Various

measurements and indices have been used in descriptions. Length and breadth are always the maximum values obtained. The length of the forewing is the length from the apex of the tegula to the apex of the forewing. This measurement has been used to describe the size of the whole specimen as it may be measured with great accuracy (Gauld & Fitton 1987). The thickness of the flagellomeres was measured from the median of each flagellomere. The width of the clypeus is the length from the right clypeal fovea to the left clypeal fovea. Only those features of the males, which are different from those of the females, are described in the text.

It is very important to try to base the identification of *Mesoleptus* species on more than one character and the identifications should always be checked with the descriptions of the species. As in many other groups of parasitoid Hymenoptera, the intraspecific variation within Stilpnina is very high. This makes the identification of the species extremely difficult in many cases. It is particularly hard to find reliable characters, which would be constant within the species.

The males are in many cases more difficult to identify reliably in comparison to females. In this study, we found that the number and shape of the male's tyloids are usually very clear and easy characters to study. They are used widely in some other groups, for example *Ichneumon* (see Hilpert 1995).

The number and length-to-width ratios of the flagellomeres, the form and sculpture of the median area of the propodeum and the compression of the metasoma vary a lot. Different specimens may have dried a bit differently in comparison with other specimens. Drying affects the compression of the metasoma and in this way its length-to-width ratio. Some characters are different in the small and big specimens of the same species. For example, small specimens are usually not as strongly sculptured as big specimens; the number of the flagellomeres is usually higher in the big specimens; and small specimens may have only one clear bulla in their forewings also in those species where big specimens have two bullae. Wahl (1989) noted that oily specimens are usually darker and often exhibit irregular fuscous areas on the normally brownish red portions of the metasoma. This is also true in the case of *Mesoleptus*. These things should be taken carefully into account when studying the species of the *Mesoleptus*.

Key to genera of the subtribe Stilpnina (modified from Townes 1970)

1. Metasoma depressed. Lateral crease separating epipleurum of the 2nd tergite absent. Clypeus flat *Stilpnus*
- Metasoma depressed or compressed. Lateral crease separating epipleurum of the 2nd tergite present, extending from base to at least middle of the tergite. Clypeus moderately convex **2**
2. 1st tergite straight from base to a little behind spiracle. Lateral crease separating epipleurum of the 2nd tergite present, extending from base to apex of the tergite. Propodeum sometimes elongated towards the median part of the hind coxa. Metasoma of female depressed. *Mesoleptus*

- 1st tergite decurved near spiracle. Lateral crease separating epipleurum of the 2nd tergite present, extending from base to middle of the tergite. Propodeum not elongated towards the median part of the hind coxa. Metasoma of female compressed *Atractodes*

Genus *Mesoleptus* Gravenhorst 1829

Mesoleptus Gravenhorst 1829: 3.

Type species: *Ichneumon laevigatus* Gravenhorst, designated by Curtis 1837.

Exolytus Holmgren 1858: 328.

Type species: *Ichneumon laevigatus* Gravenhorst. Monobasic.

Diagnosis. Fore wing length 2.9 to 7.0 mm. Propodeum sometimes elongated towards the median part of the hind coxa. Apex of the area supermedia of propodeum blunt. 1st tergite straight from base to a little behind spiracle. 2nd tergite with a long lateral crease separating epipleurum. Lateral crease of 2nd tergite extending from base to apex of the tergite. Metasoma of female depressed. Ovipositor short, projecting only slightly beyond the apex of the metasoma (fig. 1).

Biology of *Mesoleptus*. *Mesoleptus* species have been reported as parasitoids of the dipteran families Sarcophagidae (He *et al.* 1996), Sciomyzidae (Ashmead 1901; Foote *et al.* 1960; Sedivy 1965; Carlson 1979), Calliphoridae (Minamikawa 1969; He *et al.* 1996) and Antomyiidae (He *et al.* 1996), of the hymenopteran families of Diprionidae (Györfi 1943) and Tenthredinidae (Meyer 1927; Wiackowski 1959) and lepidopteran families of Tortricidae (Ratzeburg 1852) and Lasiocampidae (Kolomiets 1962). *Mesoleptus* species are attracted to light (Hellén 1953; Bogush 1962) and are reported to overwinter as adults (Rasnitsyn 1964).

It is very important to take into account that many published host records may be based on misidentifications of the host species, parasitoid

species or both of them (Shaw 1997). This may be especially true in the case *Mesoleptus* as the species of it are relatively difficult to identify and the taxonomy of the genus has been extremely complicated.

In this paper we report the species *Mesoleptus laticinctus* (Walker) parasitizing *Sarcophaga* spp. (Diptera: Sarcophagidae) feeding on *Otala punctata* (Müller 1774) (Mollusca: Gastropoda) in Alicante, Spain (Rojo *et al.*, unpublished data). Dr. Chris Williams (National University of Ireland, Galway) has reared *Mesoleptus pronus* (Förster) from *Tetanocera* spp. (Diptera: Sciomyzidae). One of the *Mesoleptus* specimens reared by Dr. Williams in Ireland might represent a new species, but this needs to be assured in the future when more specimens are available for the study.

Key to the species of *Mesoleptus* of the western Palearctic region

1. Vein M+Cu of hind wing strongly reduced (fig. 2) 2
- Vein M+Cu fully pigmented 10
2. Head cubic (fig. 3A, 4). Mesosoma shallow and elongated (fig. 3B). *sawoniewicz* sp. n.
- Head not cubic. Mesosoma normal 3
3. Vein 2m-cu of forewing with two bullae and/or metasoma largely black 4
- Vein 2m-cu with one bulla and metasoma largely orange 5
4. Metasoma largely orange (except for black 1st tergite and apex). Legs mostly orange, except sometimes fuscous on coxae, trochantera and trochantelli. Clypeus slightly convex, separated from face by a low groove *congener* (Förster)
- Metasoma black except for orange base of 3rd tergite (often also 2nd tergite). Legs mostly dark brown to black. Clypeus distinctly convex, separated from face by distinct groove (fig. 5) *tunisiensis* sp. n.
5. Females 6
- Males 8
6. First flagellomere long (length to thickness ratio 5.3–6.0) *pronus* (Förster)
- First flagellomere shorter (length to thickness ratio 2.8–4.2) 7
7. Propodeum elongated towards the basal third of hind coxa (fig. 6). Flagellum slender in the second apical third, 10th segment 1.3–1.8 as long as wide. Postpetiole usually wider than long (index ratio 0.7–1.0) *distinctus* (Förster)
- Propodeum not elongated towards the basal third of hind coxa (fig. 7). Flagellum swelled in the second apical third, 10th segment 1.0–1.2 as long as wide. Postpetiole usually longer than wide in the apex (index ratio 1.0–1.3) *devotus* (Förster)

Figure 1
Ovipositor of female *Mesoleptus vigilatorius*, lateral.

8. First flagellomere long (length to thickness ratio 4.3–6.0). Postpetiole 1.4–1.9 times as long as wide ***pronus* (Förster)**
- First flagellomere shorter (length to thickness ratio 3.2–4.0). Postpetiole shorter, about 0.7–1.4 times as long as wide **9**
9. Flagellar tyloids short and high (teeth-like) (fig. 8A,B). Propodeum elongated towards the basal third of hind coxa (fig. 6). Postpetiole usually 1.3–1.4 as long as wide ***distinctus* (Förster)**
- Tyloids long and shallow (fig. 8C). Propodeum not elongated towards the basal third of hind coxa (fig. 7). Postpetiole shorter, usually 0.7–0.9 times as long as wide ***devotus* (Förster)**
10. Metasoma long and depressed. Second tergite very long, its length-to-width ratio 3.7 in female and 2.6–4.4 in male (fig. 9A,B) ***tobiasi* Jonaitis**
- Metasoma usually compressed. Second tergite shorter, at most twice as long as wide (fig. 9C,D) **11**
11. Frons and vertex polished and smooth (fig. 10A), sometimes slightly punctured. First metasomal tergite with distinct lateral carinae (fig. 10B) ***vigilatorius* (Förster)**

Figures 2, 4–7
2, hind wing of female *Mesoleptus devotus*; 4, head of female *Mesoleptus sawoniewiczii* n. sp., dorsal; 5, head of female *Mesoleptus tunisiensis* n. sp., anterior; 6, propodeum and first tergite of female *Mesoleptus pronus*, dorsal; 7, propodeum and first tergite of female *Mesoleptus devotus*, dorsal.

- Frons usually punctured. First metasomal tergite without distinct lateral carinae **12**
12. Males **13**
- Females **16**
13. Vein 2m-cu with 2 bullae **14**
- Vein 2m-cu with 1 bulla **15**
14. Flagellum with at least 4 tyloids, usually 3 long and 1 short (fig. 11A) ***laevigatus* (Gravenhorst)**
- Flagellum with only 2 long tyloids (fig. 11B,C) ***hispanicus* sp. n.**
15. Tyloids short and high (teeth-like) (fig. 12B). Median area of propodeum usually transversely striate and parallel sided (fig. 13B) ***laticinctus* (Walker)**
- Tyloids long and shallow (fig. 12C,D). Median area of propodeum usually transversely strigose and centrally widened, often widely smooth (fig. 13D) ***incessor* (Haliday)**
16. Antennae weakly club-shaped (thickness of 20th flagellomere about 1.15–1.25 x that of 1st flagellomere) (fig. 14A,B) **17**
- Antenna not club-shaped (thickness of 20th flagellomere at most 1.0 x that of 1st flagellomere) **18**
17. Vein 2m-cu with 1 bulla. Basal flagellar segments thick, 1st flagellomere 2.3–3.3, 2nd 2.0–2.3 as long as wide (fig. 14A) ***solitarius* (Förster)**
- Vein 2m-cu with 2 bullae. Basal flagellar segments thin, 1st flagellomere about 3.6, 2nd 2.8 times as long as wide (fig. 14B) ***hispanicus* sp. n.**
18. Vein 2m-cu with 2 bullae. 1st flagellomere clearly broadened apically (fig. 15) ***laevigatus* (Gravenhorst)**
- Vein 2m-cu with 1 bulla. 1st flagellomere not distinctly broadened apically **19**
19. Area superomedia of propodeum parallel sided (fig. 13A) ***laticinctus* (Walker)**
- Area superomedia of propodeum centrally widened, often widely smooth (fig. 13C) ***incessor* (Haliday)**

Species of *Mesoleptus* of the western Palaearctic region

Mesoleptus congener (Förster 1876)

Exolytus congener Förster 1876: 58 and 96, ♀; lectotype ♀, hereby designated, and paralectotype ♀: Switzerland (ZM). 2 paralectotypes ♀♀ and one paralectotype ♂: Austria, Tyrol (Telfis) (ZM) belong to *Mesoleptus laevigatus* (Förster) and one paralectotype ♀ (ZM) to the species *M. devotus* (Förster).

Exolytus defectives Förster 1876: 71, ♂; holotype ♂: Germany, Lousberg (ZM); **syn. n.**

Exolytus commixtus Förster 1876: 91, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus requires Förster 1876: 102, ♂; holotype ♂: Germany, Lousberg (ZM); **syn. n.**

Exolytus nosophorus Förster 1876: 103, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus foveolatus Förster 1876: 109, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus delicatus Förster 1876: 114, ♂; holotype ♂: Germany, Lousberg (ZM); **syn. n.**

Mesoleptus congener (Förster) Yu & Horstmann 1997.

Female. Forewing length 3.7–5.0 mm. Head with whitish hairs and polished, only slightly punctured on temple, frons, cheek, face, mandible and malar space, in many specimens frons and face are more punctured than other parts of head, number of punctures varies quite a lot between different specimens; temple not narrowed behind compound eyes; head, from above seen, sub-cubic; temple equally broad; genal carina slightly curved in front of mandible; occipital carina rounded on its median part; malar space coarsely sculptured, $0.8\text{--}0.9 \times$ width of mandible; clypeus only slightly convex, polished and punctured, with its median apical margin somewhat swollen, width about $1.4\text{--}1.7 \times$ length; upper tooth of mandible a little longer and wider than lower tooth; compound eye without hairs; antenna with 20–23 flagellomeres, length-to-thickness ratios: 1st flagellomere 4.0–5.4, 2nd 3.0–4.0, 10th 1.5–1.8 and penultimate 1.2–1.7, 1st antennal flagellomeres usually slightly curved and may be widened apically. Mesosoma sub-cylindrical; mesoscutum polished with some punctures, notaulus reaching about 0.2 the distance to scutellum; mesopleuron polished with some shallow punctures, rough around sternaulus, sternaulus quite deep; propodeum rugulose with distinct carinae, median area a little broader in its median (in some specimens not) part with usually distinct transverse carinulae, length-to-width ratio 2.3–3.7, no clear apophysis or crest, propodeal spiracle quite small, propodeum quite long (extending into median of hind coxae). In forewing vein 3rs-m absent and 2m-cu with two bullae. Hind wing vein M+Cu highly reduced or absent. Length-to-width ratio of hind femur 4.3–5.1; tarsal claws longer than pulvillus, rather thin and sharply curved. Metasoma moderately long, in lateral view rather blunt apically, seen from above compressed from tergite 2 to apex; apex of tergite 1, in lateral view, quite strongly curved, length-to-width ratio of postpetiole 0.8–1.2, tergite 1 shiny, dorsolateral carinae quite strong; tergite 2 polished with very few punctures, its length-to-width ratio 1.0–1.4; the last tergites and hypopygium with very few punctures. Black; brown to dark brown on antenna (antennae not always brown, sometimes yellow or orange or partly dark and partly yellowish), compound eye, spiracle, coxae yellow-black, trochantera and trochantelli yellow-black, tarsal segments in many specimens; orange to yellowish on palpi, mandible except for brown teeth, tegula (sometimes brown) legs (see coxae,

trochantera and trochantelli above), metasoma except for black tergite 1 (proximal part sometimes orange), tergite 2 sometimes with brown blots and brown last tergites.

Male. Resembles female, but the following characters are different: Forewing length 3.6–5.5 mm. Malar space coarsely sculptured, $0.6\text{--}0.7 \times$ width of mandible; width of clypeus $1.4\text{--}1.7 \times$ length; antenna with 21–24 flagellomeres, length-to-thickness ratios: 1st flagellomere 3.6–4.0, 2nd 2.5–3.3, 10th 1.1–1.8 and penultimate 1.3–2.0, tyloids on flagellomeres 9–11, usually there are 3 long and shallow tyloids, 1st and/or 3rd tyloid is usually clearly shorter than second. Length-to-width ratio of median area of propodeum 2.3–2.9. Length-to-width ratio of hind femur 4.3–4.8. Metasoma moderately long, in lateral view rather sharp apically; length-to-width ratio of postpetiole 1.0–1.3; length-to-width ratio of 2nd tergite 1.0–1.3.

Material examined. A total of 40 ♂♂ and 47 ♀♀ from Austria, Denmark, Finland, France (Corsica), Germany, Great Britain, Ireland, Italy, Poland, Russia, Sweden, and Switzerland.

Mesoleptus devotus (Förster 1876)

Exolytus devotus Förster 1876: 50 and 76, ♂♀; lectotype ♀, hereby designated, and 3 paralectotypes ♂♂: Germany, Aachen (ZM).

Exolytus fulvipes Förster 1876: 50, ♀; holotype ♀: Germany, Cologne (ZM); **syn. n.**

Exolytus congener Förster 1876: 58 and 96, ♂♀; lectotype ♀, hereby designated, and paralectotypes ♀ and ♂: Switzerland (ZM); one paralectotype ♀: without label (ZM); **syn. n.**

Exolytus contrarius Förster 1876: 70, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus declinans Förster 1876: 71, ♂; holotype ♀: Germany, Aachen (ZM); **syn. n.**

Exolytus sollicitus Förster 1876: 72, ♂; holotype ♂: Germany, Cologne (ZM); **syn. n.**

Exolytus aequilatus Förster 1876: 72, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus secretus Förster 1876: 73, ♂; lectotype ♂, hereby designated, and two paralectotype ♂♂: Germany, Aachen and without label (ZM); **syn. n.**

Exolytus unitus Förster 1876: 74, ♂; holotype ♂: Germany, Lousberg (ZM); **syn. n.**

Figure 3
Mesoleptus sawoniewiczii n. sp. A, female face, anterior; B, female head and mesosoma, lateral.

Exolytus consortius Förster 1876: (50 and) 74, ♀ ♂ (♀ incorrect, must be ♂); paralectotype ♂ (p. 50): Germany, Aachen (ZM). The lectotype ♂ (p. 74) belongs to *Mesoleptus pronus* (Förster).

Exolytus consortius Förster 1876: (50 and) 74, ♀ ♂ (♀ incorrect, must be ♂); lectotype ♂ (p. 74): Germany, Aachen (ZM), hereby designated; **syn. n.** The paralectotype ♂ (p. 50) belongs to *Mesoleptus devotus* (Förster).

Figure 8
Male tyloids. **A, B**, *Mesoleptus distinctus*; **C**, *M. devotus*.

Exolytus labilis Foester 1876: 75, ♂; lectotype ♂: Germany, Aachen (ZM), hereby designated; paralectotype ♂: Germany, Boppard (ZM); **syn. n.**

Exolytus infestus Förster 1876: 75, ♂; holotype ♂: Germany, Cologne (ZM); **syn. n.**

Exolytus incolumis Förster 1876: 81, ♂; lectotype ♂, hereby designated, and paralectotype ♂ in the same needle: Germany, Boppard (ZM); **syn. n.**

Exolytus quadrituberculatus Förster 1876: 98, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus leptodomus Förster 1876: 98, ♂; holotype ♂: Germany, Cologne (ZM); **syn. n.**

Exolytus circumspectus Förster 1876: 99, ♂; holotype ♂: Germany, Lousberg (ZM); **syn. n.**

Exolytus nefastus Förster 1876: 100, ♂; holotype ♂: label lost (ZM); **syn. n.**

Exolytus exiguus Förster 1876: 100, ♂; holotype ♂: Germany, Soers (ZM); **syn. n.**

Exolytus infirmus Förster 1876: 101, ♂; holotype ♂: Germany, Soers (ZM); **syn. n.**

Exolytus elaphrus Förster 1876: 102, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus optabilis Förster 1876: 103, ♂; holotype ♂: Germany, Lousberg (ZM); **syn. n.**

Exolytus biosteres Förster 1876: 104, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus futilis Förster 1876: 104, ♂; lectotype ♂: Germany, Boppard (ZM), hereby designated; three paralectotypes ♂♂: Germany, Aachen and Cologne (ZM); **syn. n.**

Exolytus internecivus Förster 1876: 107, ♂; lectotype ♂, hereby designated, and two paralectotypes ♂♂: Germany, Lousberg (ZM); **syn. n.**

Exolytus ineditus Förster 1876: 108, ♂; lectotype ♂: Germany, Aachen (ZM), hereby designated; **syn. n.** One paralectotype ♂ belongs to *Mesoleptus pronus* (Förster) and one paralectotype ♂ to *M. distinctus* (Förster).

Exolytus diminutus Förster 1876: 108, ♂; holotype ♂: Switzerland (ZM); **syn. n.**

Exolytus nitidulus Förster 1876: 110, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Mesoleptus devotus (Förster) Yu & Horstmann 1997.

Female. Forewing length 3.5–5.1 mm. Head with whitish hairs and polished, only slightly punctured on temple, frons, cheek, face, mandible and malar space, frons and face are more punctured than other parts of head; temple not narrowed behind compound eyes; head, from above seen, sub-cubic; temple equally broad; genal carina slightly curved in front of mandible; occipital carina rounded on its median part; malar space coarsely sculptured, 0.8–1.0 × width of mandible; clypeus only slightly convex, polished and punctured, with its median apical margin somewhat swollen, width about 1.6–1.7 × length; upper tooth of mandible a little longer and wider than lower tooth; compound eye without hairs; antenna with 20–22 flagellomeres, length-to-thickness ratios: 1st flagellomere 3.3–3.6, 2nd 2.4–3.0, 10th 1.0–1.2 and penultimate 1.2–1.6, antennae more or less club-shaped, 1st antennal flagellomere usually slightly curved. Mesosoma sub-cylindrical; mesoscutum polished with punctures, notaulus reaching about 0.2 the distance to scutellum; mesopleuron polished with some shallow punctures, rough around sternaulus, sternaulus quite deep; propodeum rugulose with distinct carinae, median area a little broader in its median part with only some distinct transverse carinulae mainly on proximal part of median area (mainly polished), length-to-width ratio 1.8–2.3, no clear apophysis or crest, propodeal spiracle quite small, propodeum quite short

(not extending into median of hind coxae) (fig. 7). In forewing vein 3rs-m absent and 2m-cu with one bulla. Hind wing vein M+Cu highly reduced or absent (fig. 2). Length-to-width ratio of hind femur 3.9–4.6; tarsal claws longer than pulvillus, rather thin and sharply curved. Metasoma moderately long, in lateral view rather blunt apically, seen from above, compressed from tergite 2 to apex; apex of tergite 1, in lateral view, quite strongly curved, length-to-width ratio of postpetiole 0.7–1.0, tergite 1 shiny, dorsolateral carinae quite strong; tergite 2 polished with very few punctures, its length-to-width ratio 0.9–1.1; the last tergites and hypopygium with very few punctures.

Black; brown to dark brown on antenna (antenna not always brown, sometimes yellow or orange or partly dark and partly yellowish), compound eye and spiracle; orange to yellowish on palpi, mandible except for brown teeth, legs (also coxae), metasoma except for black tergite 1 and brown last tergites.

Male. Resembles female, but the following characters are different: Forewing length 3.8–5.8 mm. Malar space coarsely sculptured, 0.7–0.9 × width of mandible; width of clypeus about 1.6–1.8 × length; antenna with 22–25 flagellomeres, length-to-thickness ratios: 1st flagellomere 3.2–4.0, 2nd 2.4–2.8, 10th 1.3–1.6 and penultimate 1.3–1.8, tyloids on flagellomeres 9–11, usually there are 3 long and shallow tyloids, 1st or 3rd tyloids are usually clearly shorter than the others, all them with secretory pores (fig. 8C). Propodeum rugulose with distinct carinae, median area a little broader in its median part with distinct transverse carinulae, mainly on proximal part of median area (much more transverse carinae than in females), length-to-width ratio 2.0–2.3. In forewing, vein 3rs-m absent and 2m-cu with one bulla. Length-to-width ratio of hind femur 3.6–4.7. Metasoma moderately long, in lateral view rather sharp apically, seen from above compressed from tergite 2 to apex; apex of tergite 1, in lateral view, quite strongly curved, length-to-width ratio of postpetiolus 0.7–0.9, tergite 1 shiny, dorso-lateral carinae strong; tergite 2 polished with very few punctures, its length-to-width ratio 1.1–1.6.

Black; brown to dark brown on antenna (antenna usually partly brown and partly yellowish), compound eye and spiracle; orange to yellowish on palpi, mandible except for brown teeth, legs (also coxae, hind coxae may be sometimes brown), metasoma except for black tergite 1, brown last tergites and sometimes there are two brown blots in tergite 2.

Material examined. A total of 101 ♂♂ and 65 ♀♀ from Czech Republic, Denmark, Finland, Germany, Great Britain, Italy, Poland, Russia, Sweden, Switzerland.

Mesoleptus distinctus (Förster 1876)

Exolytus distinctus Förster 1876: 51, ♀; lectotype ♀: Germany, Aachen (ZM), hereby designated; paralectotype ♀: without label (ZM).

Exolytus levis Förster 1876: 55, 106, 109, ♀♂; paralectotype male: Switzerland, the other paralectotype ♂ in the same needle belongs to *Mesoleptus pronus* (Förster) (ZM); lectotype ♂ belongs to *M. pronus* (Förster) (ZM); syntype ♀ lost.

Exolytus tenellus Förster 1876: 57, ♀; holotype ♀: Germany, Aachen (ZM), **syn. n.**

Exolytus filiventris Förster 1876: 63, ♀; holotype ♀: Germany, Aachen (ZM), **syn. n.**

Exolytus adversarius Förster 1876: 68, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus exstinctus Förster 1876: 81, ♂; paralectotype ♂: Germany, Aachen (ZM); an other ♂ (the lectotype) belongs to *Mesoleptus pronus* (Förster) (ZM).

Exolytus glabriculus Förster 1876: 87, ♂; lectotype ♂, hereby designated, and paralectotype ♂: Germany, Lousberg, (ZM); **syn. n.**

Exolytus vacuus Förster 1876: 88, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus volutabilis Förster 1876: 101, ♂; holotype ♂: Germany, Lousberg (ZM), **syn. n.**

Exolytus bizonulus Förster 1876: 105, ♂; lectotype ♂, hereby designated, and paralectotype ♂: Germany, Aachen (ZM); ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus ineditus Förster 1876: 108: ♂; one paralectotype ♂: Germany, Aachen (ZM). The lectotype ♂ and one paralectotype ♂ belong to *Mesoleptus devotus* (Förster) and one paralectotype ♂ to *M. pronus* (Förster).

Exolytus trepidus Förster 1876: 110, ♂: Germany, Aachen (ZM), **syn. n.**

Atractodes flavipes Thomson 1884: 1021, ♂♀; syntypes ♂♀: Sweden, Päsio (= Päljö) in Skåne (EL); lectotype ♀: Päljö, hereby designated; **syn. n.**

Mesoleptus distinctus (Förster) Yu & Horstmann 1997.

Female. Forewing length 3.5–4.9 mm. Head with whitish hairs and polished, only slightly punctured on temple, frons, cheek, face, mandible and malar space, frons and face are clearly more punctured than other parts of head; temple not narrowed behind compound eyes; head, from above seen, sub-cubic; temple equally broad; genal carina slightly curved in front of mandible; occipital carina rounded on its median part; malar space coarsely sculptured, 0.6–0.9 × width of mandible; clypeus only slightly convex, polished and punctured, with its median apical margin somewhat swollen, width about 1.5–1.8 × length; upper tooth of mandible a little longer and wider than lower tooth; compound eye without hairs; antenna with 19–22 flagellomeres, length-to-thickness ratios: 1st flagellomere 2.8–4.2, 2nd 2.8–3.3, 10th 1.3–1.8 and penultimate 1.2–1.5, antennae more or less club-shaped, 1st antennal flagellomeres usually slightly widened apically. Mesosoma sub-cylindrical; mesoscutum polished with punctures, notaulus reaching about 0.2 distance to scutellum; mesopleuron polished with some shallow punctures, rough around sternaulus, sternaulus quite deep; propodeum rugulose with distinct carinae, median area a little broader in its median part and usually with distinct transverse carinulae mainly on proximal and median part of median area (at most, polished only on apical part), length-to-width ratio 1.9–2.0, no clear apophysis or crest, propodeal spiracle quite small, propodeum quite long (extending distinctly into median of hind coxae). In forewing, vein 3rs-m absent and 2m-cu with one bulla. Hind wing vein M+Cu highly reduced or absent. Length-to-width ratio of hind femur 4.4–4.8; tarsal claws longer than pulvillus, rather thin and sharply curved. Metasoma moderately long, in lateral view rather blunt apically, seen from above compressed from tergite 2 to apex; apex of tergite 1, in lateral view, quite strongly curved, length-to-width ratio of postpetiolus 1.0–1.3, tergite 1 shiny, dorsolateral carinae quite strong; tergite 2 polished with very few punctures, its length-to-width ratio 1.1–1.4; last tergites and hypopygium with very few punctures.

Black; brown to dark brown on antenna (some specimens), compound eye, spiracle, in some specimens tergite 1 with brown areas; orange to yellowish on antenna (some specimens), palpi, mandible except for brown teeth, legs (also coxae), metasoma except for black tergite 1 and brown last tergites.

Male. Resembles female, but the following characters are

different: Forewing length 2.9–4.3 mm. Head with whitish hairs and polished, only slightly punctured on temple, frons, cheek, face, mandible and malar space, face (and frons in some specimens) is clearly more punctured than other parts of head; malar space coarsely sculptured, $0.6\text{--}0.8 \times$ width of mandible; width of clypeus $1.5\text{--}2.0 \times$ length; antenna with 20–23 flagellomeres, length-to-thickness ratios: 1st flagellomere 3.7–4.0, 2nd 2.5–3.4, 10th 1.3–1.8 and penultimate 1.3–1.7, antenna not club-shaped, 1st antennal flagellomere in some specimens slightly widened apically, tyloids on flagellomeres 9–11, median one is longest, at least one tyloid teeth-like (sometimes all) (fig. 8A,B) Length-to-width ratio of median area of propodeum 2.4–2.7. Length-to-width ratio of hind femur 4.2–5.0. Metasoma moderately long, in lateral view, rather sharp apically; length-to-width ratio of postpetiolus 1.3–1.4, tergite 1 shiny, dorsolateral carinae quite strong or absent; length-to-width ratio of tergite 2 1.4–1.9.

Black; brown to dark brown on antenna (most specimens), compound eye, spiracle, hind tibiae and tarsi (most specimens), most tergites (however, some specimens with same coloration as females); orange to yellowish on antenna (some specimens), palpi, mandible except for brown teeth, legs (also coxae, see above).

Material examined. A total of 127 ♂♂ and 134 ♀♀ from Austria, Finland, Great Britain, Italy, Poland, Russia and Sweden.

Mesoleptus hispanicus Jussila, Sääksjärvi & Bordera n. sp.

Holotype female. Forewing length about 4.3 mm. Head with whitish hairs and polished, punctured on temple, frons, cheek, face, mandible and malar space; temple very little narrowed behind compound eyes; head, from above seen, sub-cubic; temple equally broad; genal carina slightly curved in front of mandible; occipital carina rounded on its median part; malar space coarsely sculptured, about $0.8 \times$ width of mandible; clypeus slightly convex, polished, with its median apical margin somewhat swollen, width about $1.4 \times$ length; upper tooth of mandible a little longer and wider than lower tooth; compound eye without hairs; antenna with 22 flagellomeres, length-to-thickness ratios: 1st flagellomere about 3.6, 2nd 2.8, 10th 1.3 and penultimate about 1.2, basal flagellomeres are clearly widened apically (fig. 14B). Mesosoma sub-cylindrical; mesoscutum polished with punctures, notaulus reaching about 0.2 the distance to scutellum; mesopleuron polished with some

Figure 9
Second tergite, dorsal. A, *Mesoleptus tobiassi*, female; B, *M. tobiassi*, male; C, *M. laevigatus*, female; D, *M. laevigatus*, male.

punctures, slightly rough around the caudal part of sternaulus; propodeum rugulose with distinct carinae, median area with straight sides, with distinct transverse carinulae, length-to-width ratio about 3.5, no clear apophysis or crest, propodeal spiracle quite small. In forewing, vein 3rs-m absent and 2m-cu with two bullae. Length-to-width ratio of hind femur about 4.2; tarsal claws a little longer than pulvillus, rather thin and sharply curved. Metasoma moderately long, in lateral view rather blunt apically, seen from above compressed from tergite 2 to apex; apex of tergite 1, in lateral view, almost straight, length-to-width ratio of postpetiole about 1.2, tergite 1 shiny, carinae weak or absent; tergite 2 polished with very few punctures, its length-to-width ratio about 1.4; the last tergites and hypopygium with very few punctures.

Black; brown to dark brown on antenna, compound eye, tegula, spiracle, and tarsi of hind leg; orange to yellowish on palpi, mandible except for blackish teeth, apical half of fore femur, tibiae, tarsi (except for hind tarsi, see above), and 2nd tergite and basal half of tergite 3 of metasoma.

The paratype females exactly resemble the holotype but all femora and tibiae can be light. Forewing length various, from 3.6 to 4.3 mm.

Male. Forewing length 4.0–4.3 mm. Head, mesosoma and tergites of metasoma resemble those of the female. Antenna with 23 flagellomeres, 2 long tyloids, length-to-thickness ratios: 1st flagellomere 3.0–3.1, 2nd 2.8–2.9, 10th 1.35–1.4 and penultimate about 1.3. Length of postpetiole about 1.3 and of 2nd metasomal tergite 1.9–2.1 its width.

The coloration resembles that of the female.

M. hispanicus may easily be recognised from *M. laevigatus* by the club-shaped antennae of the female and the only two tyloids of the male (fig. 11B,C).

Material examined. Holotype ♀ (ZT), 1 paratype ♀ and 3 paratype ♂♂: Spain, El Saler in Valencia, Malaise trap, Coordinates: 39°22'42"N, 0°19'42"W, 5–11.XI.1991, S. Bordera leg. (ZT); 2 paratypes ♀♀: Spain, Valencia, Chelva, Mas de Caballero, Malaise Trap, Coordinates: 39°39'07"N, 1°05'47"W, 5–19.XI.1994, Bordera leg. (CEUA and ZT); 4 ♀♀ and 17 ♂♂: from El Saler (Malaise trap) 19.IX–9.12.1991, Bordera leg. (CEUA).

Etymology. “*hispanicus*” means in Latin “from Spain”

Mesoleptus incessor (Haliday 1838), comb. n.

Atractodes incessor Haliday 1838: 118, ♀; lectotype ♀: British Isles, by fixation of Morley 1913 (ND).

Atractodes scrutator Haliday 1838: 118, ♀; lectotype ♀: Ireland, by fixation of Morley 1913 (ND); **syn. n.**

Exolytus incertus Förster 1876: 50, ♀♂; lectotype ♀, hereby designated, and one paralectotype ♀ and one paralectotype ♂: Germany, Aachen (ZM). **syn. n.**

Exolytus speculum Förster 1876: 52, ♀; holotype ♀: Germany, Lousberg (ZM); **syn. n.**

Exolytus agilis Förster 1876: 53, ♀; holotype ♀: Germany, Aachen (ZM); **syn. n.**

Exolytus adaequator Förster 1876: 53, ♀; holotype ♀: Germany, Aachen (ZM); **syn. n.**

Exolytus intermedius Förster 1876: 54, ♀; lectotype ♀, Germany, Soers (ZM), hereby designated, and one paralectotype ♀: labelled “Mg. tab.” (ZM); **syn. n.**

Exolytus agnatus Förster 1876: 57, ♀; holotype ♀: Mediterranean France (ZM); **syn. n.**

Exolytus annexus Förster 1876: 58, ♀; holotype ♀: Germany, Aachen (ZM); **syn. n.**

Exolytus invalidus Förster 1876: 59, ♀; holotype ♀: Germany, Aachen (ZM); **syn. n.**

Exolytus punctiger Förster 1876: 60, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus anguinus Förster 1876: 62, ♀; holotype ♀: Switzerland (ZM); **syn. n.**

Exolytus concinnus Förster 1876: 64, ♀; holotype ♀: Germany, Lousberg (ZM); **syn. n.**

Exolytus segregatus Förster 1876: 66, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus infligens Förster 1876: 67, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus occultus Förster 1876: 67, ♂; lectotype ♂, hereby designated, and 2 paralectotypes ♂♂: Germany, Lousberg (ZM). 2 paralectotypes ♂♂ belong to *Mesoleptus laticinctus* (Walker).

Exolytus gravabilis Förster 1876: 68, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus sobrius Förster 1876: 85, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Figure 10
Mesoleptus vigilatorius. **A**, female head, dorsal; **B**, female first tergite, lateral.

Exolytus retractus Förster 1876: 88, ♂; lectotype ♂: Germany, Lousberg (ZM), hereby designated; paralectotype ♂: Germany, Soers (ZM); **syn. n.**
Exolytus oligomerus Förster 1876: 88, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**
Exolytus derasus Förster 1876: 89, ♂; holotype ♂: Germany, Campfer in Oberengadin (ZM); **syn. n.**

Figure 11
 Male tyloids. A, *Mesoleptus laevigatus*; B,C, *M. hispanicus* n. sp.

Exolytus genitor Förster 1876: 90, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**
Exolytus ambiguus Förster 1876: 92, ♂; holotype ♂: Germany, Lousberg (ZM); **syn. n.**
Exolytus raptor Förster 1876: 94, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**
Exolytus blandus Förster 1876: 95, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**
Exolytus subsulcatus Förster 1876: 111, ♂; holotype ♂: Germany, Lousberg (ZM); **syn. n.**
Exolytus brevis Förster 1876: 113, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**
Exolytus neglectus Förster 1876: 115, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**
Exolytus despectus Förster 1876: 116, ♂; lectotype ♂, hereby designated, and 3 paralectotypes ♂♂: Germany, Aachen (ZM); **syn. n.**
Atractodes filicornis Förster 1884: 1020, ♀; syntypes ♀; Sweden, Arrie in Skåne (EL). Another syntype specimen belongs to *Mesoleptus angustulus* (Förster). More exactly, see Fitton 1982.
Atractodes petiolaris Thomson 1884: 1020, ♀; lectotype ♀: Sweden, Skåne, Råby near Lund, designation of Aubert 1966: 130 (EL). **syn. n.**
Atractodes marginatus Thomson 1884: 1020, ♀; lectotype ♀: Sweden, Göteborg, designation of Aubert 1966: 130 (EL); **syn. n.**
Atractodes incesor (Förster) Yu & Horstmann 1997.

Female. Forewing length 4.5–7.0 mm. Head with whitish hairs and polished, punctured on temple, frons, cheek, face, mandible and malar space; temple not narrowed behind compound eyes; head, from above seen, sub-cubic; temple equally broad; genal carina slightly curved in front of mandible; occipital carina rounded on its median part; malar space coarsely sculptured, 0.6–0.7 × width of mandible; clypeus only slightly convex, polished and punctured, with its median apical margin somewhat swollen, width about 1.5–2.7 × length; upper tooth of mandible clearly longer and wider than lower tooth; compound eye without hairs; antenna with 21–25 flagellomeres, length-to-thickness ratios: 1st flagellomere 2.5–4.5, 2nd 2.0–3.6, 10th 1.2–2.2 and penultimate 1.2–1.8, basal flagellomeres not clearly widened apically. Mesosoma sub-cylindrical; mesoscutum polished with punctures, notaulus reaching about 0.2 the distance to scutellum; mesopleuron polished with some shallow punctures, slightly rough around the caudal part of sternaulus, sternaulus quite deep; propodeum rugulose with distinct carinae, median area a little broader in its median part, strigose with distinct transverse carinulae, number of transverse carinulae varies a lot (may be even almost polished), usually proximal part of median area with more carinulae than distal area, in many specimens polished area is triangular, length-to-width ratio of median area 1.8–3.1, no clear apophysis or crest, propodeal spiracle quite small. In forewing vein 3rs-m absent and 2m-cu with one bulla. Length-to-width ratio of hind femur 3.8–4.7; tarsal claws longer than pulvillus, rather thin and sharply curved. Metasoma moderately long, in lateral view, rather blunt apically, seen from above compressed from tergite 2 to apex; apex of tergite 1, in lateral view, straight or slightly curved, length-to-width ratio of postpetiolus 1.2–1.3, tergite 1 shiny, carinae weak or usually absent; tergite 2 long and polished with very few punctures, its length-to-width ratio 1.1–1.7; the last tergites and hypopygium with very few punctures.

Black; brown to dark brown on antenna, compound eye, sometimes notch in the supraclypeal area, tegula, spiracle, coxae (orange-black, usually dark), trochantera (may be yellow-orange), trochantelli (may be yellow-orange), tarsi of the hind leg; orange to yellowish on palpi, mandible except for brown

teeth, femora (may be brown), tibiae, tarsi (except for hind tarsi, see above), metasoma except for black tergite 1 (the proximal part usually orange and sometimes postpetiolus brown-orange) and brown last tergites.

Male. Resembles female, but the following characters are different: Forewing length 4.5–6.5 mm. Malar space $0.5\text{--}0.7 \times$ width of mandible; width of clypeus $1.6\text{--}1.9 \times$ length; antenna with 22–26 flagellomeres, length-to-thickness ratios: 1st flagellomere 2.2–4.2, 2nd 2.1–3.8, 10th 1.2–2.0 and penultimate 1.2–1.8, tyloids on flagellomeres 9–12(13), usually there are 1 short, 2 long and 1 short tyloids, but variation is high, there may also be 1 short, 3 long and 1 short or 4 long and 1 short tyloids (fig. 12C,D). Length-to-width ratio of median area of propodeum 2.1–2.5. Length-to-width ratio of hind femur 3.9–4.8. Metasoma moderately long, in lateral view rather sharp apically; length-to-width ratio of postpetiolus 1.0–1.5; length-to-width ratio of 2nd tergite 1.2–1.6.

Tergite 2 of metasoma may have brown areas.

Material examined. A total of 162 ♂♂ and 183 ♀♀ from Austria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Great Britain, Greece, Hungary, Ireland, Italy, Poland, Russia, Spain, Sweden, Switzerland, Turkey and Ukraine.

Mesoleptus laevigatus (Gravenhorst 1820)

Ichneumon laevigatus Gravenhorst 1820: 371, ♂♀; syntypes: Italy, Piedmont (UW) (Townes *et al.* 1965: 148).

Ichneumon transversor Thunberg 1822: 268, ♂; holotype ♂: Sweden (EU); **syn. n.**

Mesoleptus laevigatus, Gravenhorst 1829a: 687 and 1829b: 111 (Townes *et al.* 1965: 148).

Atractodes (Exolytus) laevigatus (Gravenhorst) Holmgren 1858: 328.

Exolytus monticola Förster 1876: 52, ♀; holotype ♀: Germany, Campfer in Oberengadin (ZM); **syn. n.**

Exolytus aequalis Förster 1876: 55, ♀; holotype ♀: Germany, Montjoie (ZM); **syn. n.**

Exolytus dichrocerus Förster 1876: 56, ♀; holotype ♀: England (ZM); **syn. n.**

Exolytus congener Förster 1876: 58, 96, ♂♀; 2 paralectotypes ♀♀ and one paralectotype ♂: Austria, Tyrol (Telfis) (ZM). The other ♀♀ (the lectotype and one paralectotype) belong to the species *Mesoleptus congener* (Förster) and one paralectotype ♀ to the species *M. devotus* (Förster).

Exolytus velus Förster 1876: 65, ♀; holotype ♀: Germany, Aachen (ZM); **syn. n.**

Exolytus spoliator Förster 1876: 66, ♂; holotype ♂: Austria, Tyrol (ZM); **syn. n.**

Exolytus taeniolatus Förster 1876: 66, ♂; lectotype, hereby designated, and paralectotype ♂: Germany, St. Moritz in Oberengadin (ZM); **syn. n.**

Figure 12
Male tyloids. A, B, *Mesoleptus laticinctus*; C, D, *M. inessor*.

Figure 13
Propodeum, dorsal-dorsolateral. **A**, *Mesoleptus laticinctus*, female; **B**, *M. laticinctus*, male; **C**, *M. incessor*, female; **D**, *M. incessor*, male.

Figure 14
Antennae, lateral. **A**, *Mesoleptus solitarius*, female; **B**, *M. hispanicus* n. sp., female.

Exolytus pontresinensis Förster 1876: 79, ♂; holotype ♂: Germany, Pontresina in Oberengadin (ZM); **syn. n.**

Exolytus cooperator Förster 1876: 80, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus egregius Förster 1876: 81, ♂; holotype ♂: without label (UW).

Exolytus molestus Förster 1876: 82, ♂; holotype ♂: Germany, Pontresina in Oberengadin (ZM); **syn. n.**

Exolytus tribulator Förster 1876: 86, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus complacens Förster 1876: 89, ♂; lectotype ♂: Germany, Aachen, hereby designated; paralectotype ♂: France, Paris (ZM); **syn. n.**

Exolytus tenuiventris Förster 1876: 92, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus perditorius Förster 1876: 95, ♂; holotype ♂: Southern France (ZM); **syn. n.**

Exolytus propugnator Förster 1876: 111, ♂; holotype ♂: Germany, Montjoie "am Fuss des hohen Veen" (ZM); **syn. n.**

Exolytus binocular Förster 1876: 113, ♂; holotype ♂: Germany, Montjoie "am Fuss des hohen Veen" (ZM); **syn. n.**

Exolytus peregrinus Förster 1876: 114, ♂; lectotype ♂, hereby designated, and paralectotype ♂: Germany, Pontresina in Oberengadin (ZM); **syn. n.**

Exolytus laevigatus (Gravenhorst) Schmiedeknecht 1904-1906: 984.

Exolytus transsylvanicus Kiss 1924: 76, ♂; holotype ♂: Hungaria, Ispánmező (TMA); **syn. n.**

Mesoleptus laevigatus (Förster) Yu & Horstmann 1997.

Female. Forewing length 5.0–6.9 mm. Head with whitish hairs and polished, punctured on temple, frons, cheek, face, mandible and malar space; temple not narrowed behind compound eyes; head, from above seen, sub-cubic; temple equally broad; genal carina slightly curved in front of mandible; occipital carina rounded on its median part; malar space coarsely sculptured, $0.55\text{--}0.7 \times$ width of mandible; clypeus only slightly convex, polished and punctured, with its median apical margin somewhat swollen, width $1.6\text{--}1.8 \times$ length; upper tooth of mandible little longer and wider than lower tooth; compound eye without hairs; antenna with 22–26 flagellomeres, length-to-thickness ratios: 1st flagellomere 2.4–3.2 (fig. 15A), 2nd 2.2–2.6, 10th 1.2–1.5 and penultimate 1.2–1.4, first flagellomeres are clearly widened apically. Mesosoma sub-cylindrical; mesoscutum polished with punctures, notaulus reaching about 0.2 the distance to scutellum; mesopleuron polished with some shallow punctures, slightly rough around the caudal part of sternaulus; propodeum rugulose with distinct carinae, median area a little broader in its median part with $\pm$ distinct transverse carinulae, number of transverse carinulae varies a lot (may be even polished), length-to-width ratio 1.5–1.9, no clear apophysis or crest are present, propodeal spiracle quite small. In forewing vein 3_{rs-m} absent and 2_{m-cu} with almost always two bullae, in small specimens only one bulla is clearly present. Length-to-width ratio of hind femur 3.5–3.9; tarsal claws longer than pulvillus, rather thin and sharply curved. Metasoma moderately long, in lateral view rather blunt apically, seen from above compressed from segment 2 to apex; apex of segment 1, in lateral view, curved, length-to-width ratio of postpetiolus 0.8–1.1, tergite 1 shiny, carinae weak or usually absent; tergite 2 polished with very few punctures, its length-to-width ratio 1.0–1.2, almost always near 1.0 (fig. 9C); last tergites and hypopygium with very few punctures.

Black; brown to dark brown on antenna, compound eye, tegula, spiracle, coxae, trochantera, trochantelli, tarsi of the hind legs; orange to yellowish on palpi, mandible except for brown teeth, femora, tibiae, tarsi (except for hind tarsi, see above) and metasoma except for black tergite 1 and brown last segments.

Figure 15
First flagellomeres of female *Mesoleptus laevigatus*.

Male. Resembles female, but the following characters are different: Forewing length 4.5–6.9 mm. Malar space $0.45\text{--}0.7 \times$ width of mandible; clypeus width about $1.6\text{--}1.9 \times$ length; antenna with 25–30 flagellomeres, length-to-thickness ratios: 1st flagellomere 2.8–3.5, 2nd 2.3–2.8, 10th 1.4–1.7 and penultimate 1.3–1.7, tyloids on flagellomeres 9–15, most usually there are 3 long and 1 a bit shorter tyloid (fig. 11A), but sometimes there may be 4 long and 1–2 short tyloids or 1 short, 3 long and 1 short tyloids, all them with secretory pores; propodeum rugulose with distinct carinae, median area a little broader in its median part, length-to-width ratio 1.7–2.2; length-to-width ratio of hind femur 3.9–4.4; apex of segment 1 of metasoma, in lateral view, slightly curved, length-to-width ratio of postpetiolus 0.9–1.2; tergite 2 polished with very few punctures, its length-to-width ratio 1.1–1.5 (fig. 9D).

Black; brown to dark brown on antenna (sometimes light brown), compound eye, tegula, spiracle, coxae (sometimes light brown), trochantera, trochantelli, tarsi of the hind legs; orange to yellowish on palpi, mandible except for brown teeth, femora, tibiae, tarsi (except for hind tarsi, see above), metasoma except for black tergite 1, and brown last segments.

Material examined. A total of 460 ♂♂ and 255 ♀♀ from Austria, Czech Republic, Estonia, Finland, France, Germany, Great Britain, Hungary, Italy, Poland, Russia, Sweden, Switzerland and Ukraine. *Mesoleptus laevigatus* is the most common species of this genus in the western Palearctic Region.

Mesoleptus laticinctus (Walker 1874)

Mesosternus laticinctus Walker 1874: 303, ♂; holotype ♂: Japan (BL).

Exolytus ruficoxatus Förster 1876: 50, ♀; holotype ♀: Austria, Tyrol Alps (ZM); **syn. n.**

Exolytus angustulus Förster 1876: 52, ♀; holotype ♀: Switzerland (ZM); **syn. n.**

Exolytus humilis Förster 1876: 53 and 106, ♀ ♂; lectotype ♀: without label, hereby designated (ZM) paralectotype ♂: Germany, Lousberg (ZM); **syn. n.**

Exolytus gallicus Förster 1876: 53, ♀; holotype ♀: Mediterranean France (ZM); **syn. n.**

Exolytus nigricornis Förster 1876: 60, ♀; holotype ♀: Germany, Eiffel in Montjoie (ZM); **syn. n.**

Exolytus unipunctus Förster 1876: 60, ♀; holotype ♀: Germany, Aachen (ZM); **syn. n.**

Exolytus insidiator Förster 1876: 60, ♀; holotype ♀: Austria, Tyrol (by Telfs) (ZM); **syn. n.**

Exolytus tripunctus Förster 1876: 62, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus comptus Förster 1876: 63, ♀; holotype ♀: Mediterranean France (ZM); **syn. n.**

Exolytus elegantulus Förster 1876: 64, ♀; holotype ♀: Germany, Lousberg (ZM); **syn. n.**

Exolytus aggressorius Förster 1876: 65, ♂; holotype ♂: Germany, Hannover (ZM); **syn. n.**

Exolytus fallax Förster 1876: 66, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus extirpator Förster 1876: 67, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus occultus Förster 1876: 67, ♂; 2 paralectotypes ♂♂: Germany, Aachen and Lousberg; the lectotype and 2 paralectotypes ♂♂ belong to *Mesoleptus incertus* (Förster).

Exolytus remotus Förster 1876: ♂; lectotype ♂, hereby designated, and paralectotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus similatorius Förster 1876: 69, ♂; holotype ♂: Southern France (ZM); **syn. n.**

Exolytus propinquus Förster 1876: 69, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus pravus Förster 1876: 69, ♂; holotype ♂: label missing (ZM); **syn. n.**

Exolytus callidus Förster 1876: 70, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus quietus Förster 1876: 78 ♂; holotype ♂: Switzerland, Basel (ZM); **syn. n.**

Exolytus carinatus Förster 1876: 78, ♂; holotype ♂: Mediterranean France (ZM); **syn. n.**

Exolytus onerosus Förster 1876: 79, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus purus Förster 1876: 80, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus confusus Förster 1876: 80, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus invidiosus Förster 1876: 83, ♂; holotype ♂: Germany, Cologne (ZM); **syn. n.**

Exolytus curiosus Förster 1876: 84, ♂; lectotype ♂, hereby designated, and paralectotype ♂: Germany, Lousberg (ZM); **syn. n.**

Exolytus percussor Förster 1876: 85, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus exhaustorius Förster 1876: 87, ♂; holotype ♂: Aachen (ZM); **syn. n.**

Exolytus hospitans Förster 1876: 90, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus renitens Förster 1876: 91, ♂; holotype ♂: "Notzb" (ZM); **syn. n.**

Exolytus jucundus Förster 1876: 92, ♂; holotype ♂: Germany, Lousberg (ZM); **syn. n.**

Exolytus gratus Förster 1876: 93, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus cursitans Förster 1876: 93, ♂; lectotype ♂, hereby designated: Germany, Lousberg (ZM). The paralectotype ♂ belongs to *Mesoleptus laticinctus* (Walker).

Exolytus arrogans Förster 1876: 105, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus nemophilus Förster 1876: 109, ♂; paralectotype ♂: Germany, Lousberg (ZM). The lectotype ♂ belongs to *Mesoleptus pronus* (Förster).

Exolytus erugatus Förster 1876: 111, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus subrugosus Förster 1876: 112, ♂; holotype ♂: Germany, Lousberg (ZM); **syn. n.**

Exolytus singularis Förster 1876: 112, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus homologus Förster 1876: 115, ♂; holotype ♂: Germany, Lousberg (ZM); **syn. n.**

Exolytus flexibilis Förster 1876: 116, ♀; holotype ♀: Germany, Aachen (ZM); **syn. n.**

Exolytus mesomeristus Förster 1876: 117, ♂; lectotype ♂: Germany, Aachen (ZM), hereby designated. Paralectotype ♂: without label (ZM); **syn. n.**

Atractodes filicornis Thomson 1884: 1020, ♀; syntype ♀: Sweden, Arrie in Skåne (EL). **syn. n.** Another studied specimen from Thomson's collection belongs to *Mesoleptus incessor* (Haliday). More exactly, see Fitton 1982.

Heteroschnus pedestris Matsumura 1912, ♀; holotype ♀: Japan (ES).

Exolytus slavonicus Kiss 1924, ♂; holotype ♂: Hungary, Lipik (TM); **syn. n.**

Exolytus laevigatus Gravenhorst var. *nigripennis* Kiss 1924 ♂; holotype ♂: Hungary, Droszmözi (TM); **syn. n.**

Mesoleptus laticinctus (Walker) Yu & Horstmann 1997.

Female. Forewing length 4.1–6.6 mm. Head with whitish hairs and polished, punctured on temple, frons, cheek, face, mandible and malar space; temple not narrowed behind compound eyes; head, from above seen, sub-cubic; temple equally broad; genal carina slightly curved in front of mandible; occipital carina rounded on its median part; malar space coarsely sculptured, $0.5\text{--}0.7 \times$ width of mandible; clypeus only slightly convex, polished and punctured, with its median apical margin somewhat swollen, width about $1.5\text{--}1.9 \times$ length; upper tooth of mandible clearly longer and wider than lower tooth; compound eye without hairs; antenna with 19–26 flagellomeres, length-to-thickness ratios: 1st flagellomere 3.2–4.0, 2nd 2.7–3.5, 10th 1.3–2.0 and penultimate 1.3–1.6, first flagellomeres not clearly widened apically. Mesosoma sub-cylindrical; mesoscutum polished with punctures, notaulus reaching about 0.2 the distance to scutellum; mesopleuron polished with some shallow punctures, slightly rough around the caudal part of sternaulus, sternaulus quite deep; propodeum rugulose with distinct carinae, median area a little broader in its median part, striate with distinct transverse carinulae, transverse carinulae very strong, median area almost without polished areas (however, there can be a little polished area in distal part of median area), length-to-width ratio of median area 2.1–2.9 (fig. 13A), no clear apophysis or crest are present, propodeal spiracle quite small. In forewing vein 3rs-m absent and 2m-cu with one bulla. Length-to-width ratio of hind femur 3.9–4.8; tarsal claws longer than pulvillus, rather thin and sharply curved. Metasoma moderately long, in lateral view rather blunt apically, seen from above compressed from segment 2 to apex; apex of segment 1, in

lateral view, slightly curved, length-to-width ratio of postpetiolus 0.8–1.4, tergite 1 shiny, carinae weak or usually absent; tergite 2 polished with very few punctures, its length-to-width ratio 1.0–1.7; the last tergites and hypopygium with very few punctures.

Black; brown to dark brown on antenna, compound eye, tegula, spiracle, coxae, trochantera, trochantelli, tarsi of the hind legs; orange to yellowish on palpi, mandible (except for brown teeth and brown proximal part), femora (hind femora may have brown distal area), tibiae, tarsi (except for hind tarsi, see above) and metasoma (except for black tergite 1 and brown last segments). Sometimes are also orange or yellow-orange, coxae, trochantera, trochantelli, tarsi of the hind legs and proximal part of tergite 1.

Male. Resembles female, but the following characters are different: Forewing length 3.5–6.5 mm. Malar space 0.5–0.6 × width of mandible; width of clypeus 1.5–1.8 × length; antenna with 21–24 flagellomeres, length-to-thickness ratios of antennal flagellomeres: 1st flagellomere 3.0–3.6, 2nd 2.4–3.4, 10th 1.3–1.6, tyloids on flagellomeres 9–11, there are 3–4 short and quite teeth-like tyloids (fig. 12A,B); in some specimens there is also 1 very short 1st or 4th tyloid. Length-to-width ratio of median area of propodeum 1.6–2.9. Length-to-width ratio of hind femur 4.1–5.5. Metasoma moderately long, in lateral view rather sharp apically, length-to-width ratio of postpetiolus 1.0–1.5, tergite 1 shiny, carinae weak or absent; tergite 2 polished with very few punctures, its length-to-width ratio 1.2–1.9.

Coxae black to orange. In some specimens hind femora, tibiae and tarsi are brownish. 2nd tergite of metasoma may have brown areas. In general, males are in many cases darker than females.

Material examined. A total of 374 ♂♂ and 381 ♀♀ from Austria, Czech Republic, Denmark, Estonia, Finland, France, Germany, Great Britain, Greece, Hungary, Italy, Japan, Poland, Russia, Spain, Sweden, Switzerland, Taiwan and Ukraine.

Mesoleptus pronus (Förster 1876)

Exolytus pronus Förster 1876: 51 and 71: ♀ ♂; lectotype ♀, hereby designated, and 2 paralectotypes ♂♂: Germany, Aachen (ZM).

Exolytus levis Förster 1876: 55, 106 and 109, ♀ ♂; lectotype ♂: Switzerland (ZM), hereby designated; **syn. n.** The paralectotype specimens belong to *Mesoleptus distinctus* (Förster). The female specimen lost.

Exolytus trifoveolatus Förster 1876: ♀; lectotype ♀, hereby designated: Germany, Aachen (ZM), and paralectotype ♀: Germany, Lousberg (ZM); **syn. n.**

Exolytus attenuatus Förster 1876: 64: ♀; holotype ♀: Germany, Aachen (ZM); **syn. n.**

Exolytus consortius Förster 1876: (50 and) 74, ♀ ♂ (♀ incorrect, must be ♂); lectotype ♂ (p. 74): Germany, Aachen (ZM), hereby designated; **syn. n.** The paralectotype ♂ (p. 50) belongs to *Mesoleptus devotus* (Förster).

Exolytus juvenilis Förster 1876: 75, ♂; lectotype ♂, hereby designated, and the paralectotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus debiliatus Förster 1876: 76, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus definitus Förster 1876: 76, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus vilis Förster 1876: 79, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus extinctus Förster 1876: 81: ♂; lectotype ♂: Germany, Aachen (ZM), hereby designated; **syn. n.** The paralectotype ♂ belongs to *Mesoleptus distinctus* (Förster).

Exolytus obscurus Förster 1876: 107, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Exolytus ineditus Förster 1876: 108, ♂; one paralectotype ♂: Germany, Aachen (ZM). The lectotype ♂ and one paralectotype ♂ belong to *Mesoleptus devotus* (Förster) and one paralectotype ♂ to *M. distinctus* (Förster).

Exolytus nemophilus Förster 1876: 109, ♂; lectotype ♂: Germany, Aachen (ZM), hereby designated; **syn. n.** One paralectotype ♂ belongs to *Mesoleptus laticinctus* (ZM). The lectotype ♂ (p. 74) and one paralectotype ♂ (p. 50) belong to *Mesoleptus devotus* (Förster).

Exolytus subtilis Förster 1876: 117, ♂; holotype ♂: Germany, Aachen (ZM); **syn. n.**

Mesoleptus pronus (Förster) Yu & Horstmann 1997.

Female. Forewing length 3.7–4.8 mm. Head with whitish hairs and polished, only slightly punctured on temple, frons, cheek, face, mandible and malar space, face is clearly more punctured than other parts of head; temple not narrowed behind compound eyes; head, from above seen, sub-cubic; temple equally broad; genal carina slightly curved in front of mandible; occipital carina rounded on its median part; malar space coarsely sculptured (in some specimens only slightly), 0.9–1.2 × width of mandible; clypeus only slightly convex, polished and punctured, with its median apical margin somewhat swollen, width 1.4–1.7 × length; upper tooth of mandible a little longer and wider than lower tooth; compound eye without hairs; antenna with 21–23 flagellomeres, length-to-thickness ratios: 1st flagellomere 5.3–6.0, 2nd 3.1–3.7, 10th 1.3–1.7 and penultimate 1.0–1.4, antennae more or less club-shaped, 1st antennal flagellomere sometimes little curved. Mesosoma sub-cylindrical; mesoscutum polished with punctures, notaulus reaching about 0.2 the distance to scutellum; mesopleuron polished with some shallow punctures, rough around sternaulus, sternaulus quite deep; propodeum rugulose with distinct carinae, median area little broader in its median part and usually with distinct transverse carinulae at least on proximal part of median area, length-to-width ratio 2.4–2.8, no clear apophysis or crest, propodeal spiracle quite small, propodeum quite long (extending distinctly into median of hind coxae) (fig. 6). Forewing vein 3Rs-m absent and 2m-cu with one bulla. Hind wing vein M+Cu highly reduced or absent. Length-to-width ratio of hind femur 4.7–5.4; tarsal claws longer than pulvillus, rather thin and sharply curved. Metasoma moderately long, in lateral view rather blunt apically, seen from above compressed from segment 2 to apex; apex of segment 1, in lateral view, quite strongly curved, length-to-width ratio of postpetiolus 0.7–0.9, tergite 1 shiny, dorsolateral carinae quite strong; tergite 2 polished with very few punctures, its length-to-width ratio 0.9; the last tergites and hypopygium with very few punctures.

Black; brown to dark brown on antenna (some specimens), compound eye, hind and mid tarsi, spiracle; orange to yellowish on antenna (some specimens, sometimes first segment(s) paler than other segments), palpi, mandible except for brown teeth, legs (also coxae), metasoma, except for black tergite 1 and brown last segments.

Male. Resembles female, but the following characters are different: Forewing length 3.4–5.0 mm. Malar space $0.8 \times$ width of mandible; width of clypeus $1.5\text{--}1.8 \times$ length; antenna with 22–24 flagellomeres, length-to-thickness ratios: 1st flagellomere about 4.3–6.0, 2nd 2.0–3.7, 10th 1.5–2.0 and penultimate 1.3–2.0, antennae not club-shaped, 1st antennal flagellomere sometimes a bit curved, tyloids (3 long and shadow, first and/or third is shorter than others, tyloids not teeth-like) on antennal flagellomeres 9–11. Length-to-width ratio of median area of propodeum 2.2–2.6. Length-to-width ratio of hind femur 4.7–5.8. Apex of metasomal segment 1, in lateral view, quite strongly curved, length-to-width ratio of postpetiolus 1.4–1.9; length-to-width ratio of metasomal segment 2 1.3–1.5. Segment 2 of metasoma sometimes with brown areas.

Material examined. A total of 137 ♂♂ and 131 ♀♀ from Austria, Bulgaria, Denmark, Estonia, Finland, Germany, Great Britain, Italy, Poland, Russia, Sweden and Switzerland.

Mesoleptus sawoniewiczzi Jussila, Sääksjärvi & Bordera n. sp.

Holotype female. Forewing length about 2.9 mm. Head with whitish hairs and polished, punctured on cheek (very few punctures), face, mandible, clypeus and malar space (fig. 3A); temple very little narrowed behind compound eyes; head, from above seen, cubic (fig. 4); temple equally broad; genal carina slightly curved in front of mandible; occipital carina rounded on its median part; malar space coarsely sculptured, about $1.0 \times$ width of mandible; clypeus flat, polished and punctured, with its median apical margin not swollen, width about $1.5 \times$ length; upper tooth of mandible longer and wider than lower tooth; compound eye very small (width of eye-to-width of temple ratio about 0.8) and without hairs; antenna a little club-shaped, with 18 flagellomeres, length-to-thickness ratios: 1st flagellomere about 3.8, 2nd 3.5, 10th 1.7 and penultimate about 1.3, the first flagellomeres are slightly widened apically. Mesosoma strongly elongated, cylindrical (fig. 3B); mesoscutum polished without punctures, notaulus very long, reaching about 0.8 the distance to scutellum; mesopleuron polished with some shallow punctures, slightly rough around the caudal part of sternaulus; propodeum rugulose with distinct carinae, median area not clearly broader in its median part with distinct transverse carinulae, length-to-width ratio about 5.7, no clear apophysis or crest are present, propodeal spiracle quite small. In forewing vein 3rs-m absent and 2m-cu with one bulla, hind wing vein 3m-cu absent. Length-to-width ratio of hind femur about 4.1; tarsal claws longer than pulvillus, rather thin and sharply curved. Metasoma moderately long, in lateral view rather blunt apically, seen from above compressed from segment 2 to apex; apex of segment 1, in lateral view, curved, length-to-width ratio of postpetiolus about 1.3, tergite 1 shiny but not smooth, carinae quite strong; tergite 2 polished with very few punctures, its length-to-width ratio about 1.5; the last tergites and hypopygium with very few punctures.

Black; brown to dark brown on compound eye, stigma of front wing, 2nd tergite of metasoma; orange to yellowish on antenna,

palpi, clypeus, mandible except for brown teeth, tegula, coxae, trochantera, trochantelli, femora, tibiae, tarsi, metasoma except for black tergite 1 and brown 2nd tergite, last segments with a bit brownish colour.

The paratype females resemble strongly the holotype but the antennae can have only 18 flagellomeres and the hind tibiae can be more brownish.

Male. The head, mesosoma and tergites resemble those of the female but the temple is a little more narrowed behind the compound eyes and the antenna is of even thickness; The length-to-thickness ratio of the 1st flagellomere is 3.8–3.9, of the 2nd 3.5–3.6, of the 10th about 1.6 and of the penultimate about 2.0; the flagellum has three long and distinct tyloids.

The colouring resembles greatly that of the female.

Material examined. Holotype ♀: Poland, Topiło at Hajnówka, Coordinates: 52°38'08"N, 23°37'33"E, 1–18.VI.1999, J. Sawoniewicz leg. (RJ); paratypes: 3 ♂♂ and 4 ♀♀ from the same place and at the same time, J. Sawoniewicz leg. (1 ♂ RJ, other specimens UW) and 6 ♂♂ and 7 ♀♀ 1–24.X.2004 from the same place, J. Sawoniewicz leg. (1 ♂ and 4 ♀♀ ZT, other specimens UW); 40 ♂♂ Poland Honczarowska at Białystok 1–15.VII.2004, J. Sawoniewicz leg. (UW); 15 ♂♂ and 2 ♀♀ Poland, Biebrzanski at Białystok 15.VII.–9.IX.2004, J. Sawoniewicz leg. (10 ♂♂ and 2 ♀♀ RJ, other specimens UW); 19 ♂♂ and 12 ♀♀ Poland, Biébrz at Białystok; 1–11.VIII.2007, J. Sawoniewicz leg. (3 ♂♂ and 1 ♀ RJ, other specimens UW); 98 ♂♂ and 32 ♀♀ Poland, Zabunik at Białystok 1–7.IX.2007, J. Sawoniewicz leg. (7 ♂♂ and 5 ♀♀ RJ, other specimens UW); 1 ♂ Poland, Sosnia at Białystok J. Sawoniewicz leg. (UW); 7 ♂♂ and 26 ♀♀ Poland, Sasnia at Białystok 5–15.VII.2004, J. Kupryjanowicz leg. (2 ♂♂ and 9 ♀♀ RJ, other specimens UW); 1 ♀ Poland, Warszawa, Lomna 24.VI.1974, Ekipa leg. (UW).

Etymology. The specific name is given in honour of Dr. Janusz Sawoniewicz who has found nearly all specimens of this species.

Mesoleptus solitarius (Förster 1876)

Exolytus solitarius Förster 1876: 61, ♀; holotype ♀: Germany, Aachen (ZM).

Exolytus subimpresus Förster 1876: 62; holotype ♀: Austria, Tyrol (Teflis) (ZM).

Mesoleptus solitarius (Förster) Yu & Horstmann 1997.

Female. Forewing length 3.4–4.7 mm. Head with whitish hairs and polished, punctured on temple, frons, cheek, face, mandible and malar space; temple not narrowed behind compound eyes; head, from above seen, sub-cubic; temple equally broad; genal carina slightly curved in front of mandible; occipital carina rounded on its median part; malar space coarsely sculptured, $0.65\text{--}0.7 \times$ width of mandible; clypeus only slightly convex, polished and punctured, with its median apical margin somewhat swollen, width $1.4\text{--}1.9 \times$ length; upper tooth of mandible a little longer and wider than lower tooth; compound eye without hairs; antenna with 20–23 flagellomeres (fig. 14A), length-to-thickness ratios: 1st flagellomere 2.3–3.3, 2nd 2.0–2.3, 10th 1.1–1.4 and penultimate 1.1–1.2, basal flagellomeres are clearly widened apically. Mesosoma sub-cylindrical; mesoscutum polished with punctures, notaulus reaching about 0.2 distance to scutellum; mesopleuron polished with some shallow punctures, slightly rough around the caudal part of sternaulus; propodeum

rugulose with distinct carinae, median area a little broader in its median part with distinct transverse carinulae (the number of the transverse carinulae varies a lot and the upper part of the median area can be polished), length-to-width ratio 1.4–2.0, no clear apophysis or crest, propodeal spiracle quite small. In forewing, vein 3rs-m absent and 2m-cu with one bulla. Length-to-width ratio of hind femur 3.8–4.3; tarsal claws longer than pulvillus, rather thin and sharply curved. Metasoma moderately long, in lateral view rather blunt apically, seen from above compressed from segment 2 to apex; apex of segment 1, in lateral view, almost straight, length-to-width ratio of postpetiolus 1.0–1.2, tergite 1 shiny, carinae weak or absent; tergite 2 polished with very few punctures, its length-to-width ratio 1.3–1.5; the last tergites and hypopygium with very few punctures.

Black; brown to blackish on antenna, compound eye, tegula, spiracle, coxae (sometimes black); orange to yellowish on palpi, mandible except for brown or blackish teeth; legs orange but blackish on trochantera and trochantelli (sometimes more orange), and hind tarsi, and usually on apices of hind femur and tibia, too; metasoma orange except for blackish tergite 1 (except for $\pm$ light postpetiole) and last segments.

Male unknown.

Material examined. 3 ♀♀ from Austria, Finland and Germany

Mesoleptus tobiassi Jonaitis 2004

Mesoleptus tobiassi Jonaitis 2004: 24, ♀; holotype ♀: Lithuania, Karmazinai near Vilnius (IE).

Female. Forewing length 4.6 mm. Head with whitish hairs and polished (very polished and with only a few punctures behind compound eyes and temples), punctured on temple, frons, cheek, face, mandible and malar space; temple not narrowed behind compound eyes; head, in lateral view, very flat; temple equally broad; genal carina slightly curved in front of mandible; occipital carina rounded on its median part; malar space coarsely sculptured and quite short, about $0.4 \times$ width of mandible; clypeus only slightly convex, polished and punctured, with its median apical margin somewhat swollen, width about $1.8 \times$ length; upper tooth of mandible little longer and wider than lower tooth; compound eye without hairs; antenna slightly club-shaped, antenna with 23 flagellomeres, length-to-thickness ratios: 1st flagellomere about 3.8, 2nd 3.4, 10th 1.4 and penultimate about 1.1. Mesosoma elongated (quite long and low); mesoscutum polished with punctures, notaulus reaching about 0.14 the distance to scutellum; mesopleuron polished with some shallow punctures, slightly rough around the caudal part of sternaulus; propodeum rugulose, upper part of propodeum distinctly polished and swelled, median area not distinctly broader in its median part and without distinct transverse carinulae (weak transverse carinae only in caudal part of median area), polished, length-to-width ratio about 2.7, no clear apophysis or crest, propodeal spiracle quite small. In forewing, vein 3rs-m absent and 2m-cu with 1 bulla. Length-to-width ratio of hind femur about 4.4; tarsal claws longer than pulvillus, rather thin and sharply curved. Metasoma long, in lateral view rather blunt apically, seen from above depressed from segment 2 to apex; apex of segment 1, in lateral view, slightly curved, length-to-width ratio of postpetiolus about 1.3, tergite 1 shiny, without carinae; tergite 2 polished with very few punctures, its length-to-width ratio about 3.7 (fig. 9A); the last tergites and hypopygium with very few punctures.

Black; brown to dark brown on antenna, compound eye, tegula, spiracle, coxae, trochantera, trochantelli, tarsi of the hind leg; orange to yellowish on palpi, mandible (except for brown teeth), femora, tibiae, tarsi (except for hind tarsi, see above), and metasoma except for black tergite 1 (postpetiolus dark orange) and brown last segments.

Male (until now unknown). The males (8 specimens) closely resemble females, but there is some variation in the following characters: Forewing length 3.5–5.0 mm. Width of clypeus $1.6\text{--}1.9 \times$ length; antenna not club-shaped, antenna with 23–26 flagellomeres, length-to-thickness ratios: 1st flagellomere 3.0–3.7, 2nd 2.4–2.8, 10th 1.2–1.5 and penultimate about 1.3–1.8, tyloids on flagellomeres 9–12, usually 4 very high and short tyloids (teeth-like), in one specimen 5 tyloids on flagellomeres 8–12 and in one specimen 3 tyloids on flagellomeres 10–12 (shape of tyloids is same in all cases). Median area not distinctly broader in its median part and with weak transverse carinae at least in caudal part of median area, but in many specimens there are clear transverse carinae almost in whole median area; 2m-cu with 1 bulla (in one specimen 2m-cu with 2 bullae, [Finland A: Sund, 669:12, 4.VII.1984, R. & R. Jussila leg.]. Length-to-width ratio of hind femur about 4.1–4.8. Metasoma long, in lateral view rather sharp apically, apex of segment 1, in lateral view, slightly curved, length-to-width ratio of postpetiolus about 1.5–1.8; length-to-width ratio of tergite 2 2.6–4.4 (fig. 9B).

Black; brown to dark brown on antenna, usually there are some paler areas in antenna (e.g. near tyloids, some small specimens have almost wholly pale antennae), coxae (may be also almost black), metasoma except for black tergite 1 (postpetiolus sometimes dark orange) and brown last segments.

Material examined. 1 ♀ Finland, A: Geta, Bolstaholm 671:310, lush swamp 5.VII.1984, R. Jussila leg.; 1 ♂ Finland, A: Sund, Skutvik 669:311, beech forest 4.VII.1984, R. Jussila leg.; 2 ♂♂ V: Korppoo, Lökhölm 669:319 24–26.6.2005, R. Jussila leg.; Finland; V: Nousiainen, Tepastus 6734:3237 17–24.VII.2006, R. Jussila leg.; ♀ Finland, U: Espoo 17.VII.1973, V. Karvonen leg. (HG); 3 ♂♂ U: Pernaja 23.VI.1945, 28.VI.1957 and 27.VII.1958, Å. Nordström leg. (ZH); 4 ♂♂ Sweden, Skåne, VI–IX.1969, Bo Svensson leg. (TC); 1 ♂ Russia, "Smolenskoe poozere" National Park, 100 km N Smolensk, Przewalskoe, 29.VII.1993, D. K. Kasparyan leg. (ML); 1 ♀ Russia, Northern Caucasus (Teberda) 13.VII.1976, Kasparyan leg. (ML); 2 ♀♀ Poland, Beskid at Krynica 7.VIII.1989, J. Sawoniewicz leg.; 1 ♀ and 1 ♂ Poland, Swielokrzyski, Nat. Park at Kłolco 9–16.IX.1993, Sawoniewicz leg.; 3 ♂♂ Poland, Krynica, Kopkiowa 18–28.VI.2003, M. J. Luszczak leg.; 2 ♂♂ Poland, Hajanówka, Topilo 24–24.VII.2001, J. Sawoniewicz leg.; 11 ♀♀ Poland, Mielnik 1–19.VIII. 1995 and 18.VII.1996, J. Sawoniewicz leg.; 1 ♂ Poland, Krynica 14.VI.2001, M. J. Luszczak leg.; 1 ♂ Poland, Mielnik at Siemiatycze 19.VIII.2005, J. Sawoniewicz leg.; 1 ♂ Swietokrzyski Nat. Park 30.VI.1994, M. Luszczak leg.; 2 ♂♂ Poland, Wyzna at Kronica 14.VI.2004, J. Sawoniewicz leg.; 1 ♀ Germany, Göttingen 9.IX.1946, R. Hinz leg. (RJ); 1 ♂ Germany, Orderz, R. Hinz leg.

Mesoleptus tunisiensis Jussila, Sääksjärvi & Bordera sp. n.

Holotype male. Forewing length about 3.9 mm. Head with whitish hairs and polished, only slightly punctured on temple, frons, cheek, mandible and malar space, face is clearly

punctured; temple not narrowed behind compound eyes; head, from above seen, sub-cubic; temple equally broad; genal carina slightly curved in front of mandible; occipital carina rounded on its median part; malar space coarsely sculptured, about $1.0 \times$ width of base of mandible; clypeus distinctly convex, polished and punctured, with its median apical margin somewhat swollen, width about $1.6 \times$ length, and it is separated from face by distinct groove (fig. 5); upper tooth of mandible a little longer and wider than lower tooth; compound eye without hairs; antenna with 20 flagellomeres, length-to-thickness ratios: 1st flagellomere about 3.1, 2nd 2.25, 10th 1.2 and penultimate about 1.5, tyloids on flagellomeres 9–11. Mesosoma sub-cylindrical; mesoscutum polished with punctures, deep notaulus reaching about 0.5 the distance to scutellum; mesopleuron polished, rough around sternaulus, sternaulus quite deep; propodeum somewhat rugulose with distinct carinae, median area only little broader in its median part and usually with transverse carinulae on its apical part of median area, length-to-width ratio about 2.7, no clear apophysis or crest, propodeal spiracle quite small, propodeum quite long (extending a little between hind coxae). Forewing vein 3rs-m absent and 2m-cu with two very close bullae. Hind wing vein M+Cu reduced. Length-to-width ratio of hind femur about 5.0; tarsal claws not longer than pulvillus, rather thin and sharply curved. Metasoma, from above seen, rather steady, apex of segment 1, in lateral view, quite strongly curved, length-to-width ratio of postpetiolus about 1.15, tergite 1 shiny, dorsolateral carinae quite distinct; tergite 2 polished without punctures, its length-to-width ratio about 1.4.

Black; orange to brownish orange on palpi, mandibles, apices of femora, front and middle tibiae and tarsi and bases of 2nd and 3rd tergites.

The paratype males resemble strongly the holotype but the forewing can have only one bulla, the median area of the propodeum can be transversely striate and 2nd tergite wholly black. The forewing length changes from 3.7 to 4.7 mm, length-to-thickness ratios of the aforementioned flagellomeres are from 3.0 to 3.3, from 2.2 to 2.4, from 1.1 to 1.3 and 1.5 to 1.6. The length-to-width ratio of the hind femur 4.7–5.2, of the postpetiolus 1.0–1.5 and of the 2nd tergite 1.2–1.4.

Female unknown.

Material examined. Holotype ♂, Tunis, Hammamet, Coordinates: 36°24'30"N, 10°36'23"E, 3-15.XII.2005, J. Sawoniewicz leg. (RJ); paratypes: 82 ♂♂ from the same place 3-15.XII.2005, J. Sawoniewicz leg. (15 RJ, 15 ZT, other specimens UW).

Etymology. The specific name means in Latin "from Tunisia".

Mesoleptus vigilatorius (Förster 1876)

Mesoleptus vigilatorius Förster 1876: 73, ♂; holotype ♂: Germany, Aachen (ZM).

Atractodes ripicola Thomson 1884: 1021, ♀; lectotype ♀: Sweden, Skåne, Örtöfta, designation of Townes *et al.* 1965: 149 (EL), **syn. n.**

Mesoleptus ripicola (Thomson) Townes *et al.* 1965: 149.

Mesoleptus ripicolus (Thomson) Kasparyan 1981: 221.

Mesoleptus vigilatorius (Förster) Yu & Horstmann 1997.

Female. Forewing length 4.3–5.5 mm (about 4.5 in lectotype). Head with whitish hairs and polished, clearly punctured only on face, clypeus, mandible and malar space, the other parts of head are usually very polished and smooth (fig. 10A); temple

not narrowed behind compound eyes; head, from above seen, sub-cubic; temple equally broad; genal carina slightly curved in front of mandible; occipital carina rounded on its median part; malar space coarsely sculptured, $0.7\text{--}0.8 \times$ width of mandible; clypeus slightly convex to convex, polished and punctured, with its median apical margin somewhat swollen, width about $1.5\text{--}1.7 \times$ length; upper tooth of mandible a little longer and wider than lower tooth; compound eye without distinct hairs; antenna with 21–22 flagellomeres (21 in lectotype), length-to-thickness ratios: 1st flagellomere 5.5–7.0 (about 5.5 in lectotype) (distinctly long in comparison with other flagellomeres), 2nd 3.3–4.3 (about 3.8 in lectotype), 10th 2.0–2.3 and penultimate 1.4–1.7. Mesosoma sub-cylindrical; mesoscutum polished with punctures, notaulus reaching about 0.2 distance to scutellum; mesopleuron polished with some shallow punctures, slightly rough around the caudal part of sternaulus, sternaulus very deep, surroundings of sternaulus rough; propodeum rugulose with very distinct high carinae, median area a little broader in its median part with no or only a few transverse carinulae (as in lectotype), sometimes almost wholly polished, length-to-width of median area ratio 1.8–2.3, sometimes with clear apophysis or crest, propodeal spiracle quite small. In forewing vein 3rs-m absent and 2m-cu with two bullae (as in lectotype). Length-to-width ratio of hind femur 5.0–5.9 (about 5.4 in lectotype); tarsal claws longer than pulvillus, rather thin and sharply curved; metasoma moderately long, in lateral view rather blunt apically, seen from above compressed from segment 2 to apex; apex of segment 1, in lateral view, somewhat curved or straight, length-to-width ratio of postpetiolus 1.2–1.5, tergite 1 shiny, carinae strong (fig. 10B); tergite 2 polished with very few or no punctures, its length-to-width ratio 1.1–1.4, almost always 1.3–1.4 (lectotype 1.3); last tergites and hypopygium with very few or no punctures.

Black; brown to dark brown on antenna (one specimen with yellowish antennae), compound eye, tegula, spiracle; orange to yellowish on palpi, mandible except for brown teeth, coxae, trochantera, trochantelli, femora, tibiae, tarsi (usually darker), metasoma except for black tergite 1 (postpetiolus sometimes dark orange, e.g. in lectotype) and brown-black last segments (brownish-red in lectotype).

Male. Resembles female, but the following characters are different: Forewing length 4.4–6.5 mm. Malar space coarsely sculptured, $0.6\text{--}0.7 \times$ width of mandible; clypeus width about $1.4\text{--}2.0 \times$ length; antenna with 20–24 flagellomeres, length-to-thickness ratios: 1st flagellomere 3.8–5.5, 2nd 2.7–4.0, 10th 1.6–2.2 and penultimate 1.2–2.0, tyloids on flagellomeres 9–13, usually 5 very low and long tyloids (first ones are longer), sometimes only 3 or 4 long tyloids or 1 short, 3 long and 1 short tyloids (but tyloids are always typically very low, almost hard to notice); propodeum rugulose with usually very distinct high carinae, median area a little broader in its median part, number of transverse carinae varies a lot, sometimes almost wholly polished, length-to-width ratio of median area 1.6–2.1. Length-to-width ratio of hind femur 4.1–5.6. Metasoma moderately long, in lateral view rather sharp apically; length-to-width ratio of postpetiolus 1.1–1.5, tergite 1 shiny, lateral carinae strong; tergite 2 polished with very few or no punctures, its length-to-width ratio 1.2–1.6.

Material examined. A total of 86 ♂♂ and 47 ♀♀ from Finland, Great Britain, Italy, Poland, Russia and Sweden.

Speciae incertae sedis

- Mesoleptus splendens* Gravenhorst 1829b: 115b, ♀; holotype ♀ lost (Dr. M. Wanat, UW by letter).
- Cryptus coarctatus* Gravenhorst 1829b: 571a, ♂; holotype ♂: without label (UW); antennae broken.
- Exolytus anceps* Förster 1876: 51, ♀; holotype ♀: Germany, Lousberg (ZM); specimen without antennae.
- Exolytus gemellus* Förster 1876: 56, ♀; holotype ♀: Germany, Aachen (ZM); specimen broken.
- Exolutus incesitus* Förster 1876: 56, ♀; holotype ♀: Germany, Aachen; specimen lost.
- Exolytus seductorius* Förster 1876: 63, ♀; holotype ♀: Germany, Aachen (ZM); specimen broken.
- Exolytus approximatus* Förster 1876: 63, ♀; holotype ♀: Germany, Aachen; specimen lost.
- Exolytus deceptor* Förster 1876: 70, ♂; holotype ♂: Germany, Aachen (ZM); specimen broken.
- Exolytus melanocerus* Förster 1876: 74, ♂; holotype ♂: Germany, Soers (ZM); specimen broken.
- Exolytus silisiacus* Förster 1876: 77, ♂; holotype ♂: Germany, Schlesien; specimen lost.
- Exolytus evagator* Förster 1876: 77, ♂; holotype ♂: Germany, Ratibor in Schlesien; specimen lost.
- Exolytus invitus* Förster 1876: 82, ♂; holotype ♂: Germany, Aachen; specimen lost.
- Exolytus alticola* Förster 1876: 82, ♂; holotype ♂: Germany, Pontresina in Oberengadin; specimen lost.
- Exolytus novellus* Förster 1876: 83, ♂; holotype ♂: Germany, Aachen; specimen lost.
- Exolytus concors* Förster 1876: 83, ♂; holotype ♂: Germany, Aachen; specimen lost.
- Exolytus distans* Förster 1876: 84, ♂; holotype ♂: Germany, Aachen (ZM); specimen broken.
- Exolytus auxiliarius* Förster 1876: 86, ♂; holotype ♂: Germany, Aachen (ZM); specimen broken.
- Exolytus difformis* Förster 1876: 86, ♂; holotype ♂: Germany, Aachen (ZM); specimen broken.
- Exolytus signatus* Förster 1876: 89, ♂; holotype ♂ and syntype ♂: Germany, Aachen; both specimens lost.
- Exolytus fundatus* Förster 1876: 90, ♂; holotype ♂: Germany, Lousberg (ZM); specimen broken.
- Exolytus lepidus* Förster 1876: 93, ♂; holotype ♂: Germany, Aachen; specimen lost.
- Exolytus vicinus* Förster 1876: 94, ♂; holotype ♂: Germany, Beppard; specimen lost.
- Exolytus genuinus* Förster 1876: 95, ♂; holotype ♂: Germany, Aachen (ZM); specimen broken.
- Exolytus anxius* Förster 1876: 96, ♂; holotype ♂: Germany, Aachen; specimen lost.
- Exolytus olistherus* Förster 1876: 97, ♂; holotype ♂ and syntype ♂: Germany; Aachen and Montjoie; both specimens lost.
- Exolytus fractus* Förster 1876: 99, ♂; holotype ♂: Germany, Aachen; specimen lost.
- Exolytus melanurus* Förster 1876: ♂; holotype ♂: Germany, Aachen; specimen lost.
- Exolytus assimilis* Förster 1876: 105, ♂; holotype ♂: Germany, Aachen; specimen lost.
- Exolytus navus* Förster 1876: 106, ♂; holotype ♂: Germany, Aachen (ZM); specimen broken.
- Exolytus mitis* Förster 1876: 109, ♂; holotype ♂: Switzerland (ZM); specimen broken.
- Exolytus leptogaster* Förster 1876: 114, ♂; holotype ♂: Germany, Lousberg (ZM); specimen broken.
- Exolytus gracilis* Förster 1876: 116, ♂; holotype ♂: Germany, Altenberg (ZM); specimen broken.

Species incorrectly referred to Mesoleptus

- Exolytus cinctus* Förster 1876: 59, ♀ (error, must be ♂); holotype ♂: Germany, Aachen (ZM); a junior synonym of *Attractodes fumatus* (Haliday 1838).
- Exolytus ficticius* Förster 1876: 57, ♂; holotype ♂: Germany, Lousberg (ZM); a senior synonym of *Attractodes genuinus* (Förster 1876).
- Exolytus helveticus* Förster 1876: 57, ♂; holotype ♂: Pontresina in Oberengadin (ZM); a senior synonym of *Attractodes areophilus* (Förster 1876).

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