

New Afrotropical species of the tribe Lysitermini Tobias (Hymenoptera: Braconidae: Lysiterminae)

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Two new species of the genus *Acanthormius* Ashmead, 1906, and one species of the genus *Lysitermus* Foerster, 1862, are described from the Afrotropical region. Checklists of the genera *Acanthormius* and *Lysitermus* are added.

Introduction

For several decades after its description the genus *Acanthormius* Ashmead, 1906 (Braconidae: Lysiterminae: Lysitermini) remained a small genus; two species were included: *A. japonicus* Ashmead, 1906, from Japan, and *A. dubitatus* Brues, 1918, from Solomon Islands. In the last three decades the number of species spectacularly increased. In chronological order the following authors added new species: Granger (1949: 1), Watanabe (1968: 6), Tobias & Belokobylskij (1981: 1), Belokobylskij (1986: 1; 1988: 4; 1990: 2), Papp (1986: 3; 1991: 2), van Achterberg (1991: 1; 1995: 7), and Chen et al. (1995: 3). Recently, van Achterberg (1991, 1995, submitted) supplied identification keys for all species known. Van Achterberg (1991) included the genus in the tribe Lysitermini Tobias, 1968 of the subfamily Rogadinae Foerster, 1862. Belokobylskij (1993) named the subtribe Acanthormiina for it, but it was synonymised with the subfamily Lysiterminae by van Achterberg (1995) and included in the tribe Lysitermini in 1996 (van Achterberg & Steiner, 1996). Wharton (1993) presented a thorough account on the taxonomic position and problems of the genus *Acanthormius* and its related genera; he assigned *Acanthormius* to the tribe Hormiini Foerster, 1862, within the subfamily Hormiinae Foerster, 1862 (= Exothecinae auct. p.p.). In 1995 van Achterberg upgraded the tribe Lysitermini to the subfamily level and in 1996 two tribes were included: Lysitermini and Tetratermini van Achterberg, 1996 (van Achterberg & Steiner, 1996).

In the present paper two new species of the genus *Acanthormius* and one species of the genus *Lysitermus* Foerster, 1862, are described from Ivory Coast. The majority (29 species) of the known species of *Acanthormius* are reported from the Indo-Australian Region, the remainder (8 species) are equally divided over the Palaearctic and Afrotropical regions (both 4 species). The Afrotropical species deviate from the Indo-Australian species by having the vein M+CU of hind wing shorter than vein 1-M and are converging towards the genus *Lysitermus* in this respect. Up to 1999 the genus *Lysitermus* was unknown from the Afrotropical region (van Achterberg, 1991; 1999; Wharton, 1993). The biology of the species described in this paper is unknown, but

one species of *Acanthormius* has been reared from Xyloryctidae (Lepidoptera) and one species of *Lysitermus* has been reared several times from Psychidae (van Achterberg, 1991). An up-dated checklist of both genera is added. For the recognition of the subfamily Lysiterminae, see van Achterberg (1993; 1995; 1997); for a key to the Afrotropical genera and species of Lysiterminae, see van Achterberg (1999).

Abbreviations applied in the descriptions: OOL = shortest distance between posterior ocellus and eye; POL = shortest distance between both posterior ocelli; m-cu = transverse medio-cubital vein (or recurrent vein); r = transverse radial vein (or first section of the radial vein); 3-SR = second section of radial vein; SR1 = third section of radial vein; 2-CU1 = cubital vein (or discoidal vein); 2-1A = second section of the anal vein.

Descriptions

Subfamily Lysiterminae Tobias, 1968

Tribe Lysitermini Tobias, 1968

Lysitermus granulosis spec. nov.

(figs 1-3)

Material.— Holotype, ♀ (RMNH), "Côte d'Ivoire, 30-35 km N de Korhogo, Malaise [trap], 14.iii.1980, J.W. Everts e.a."

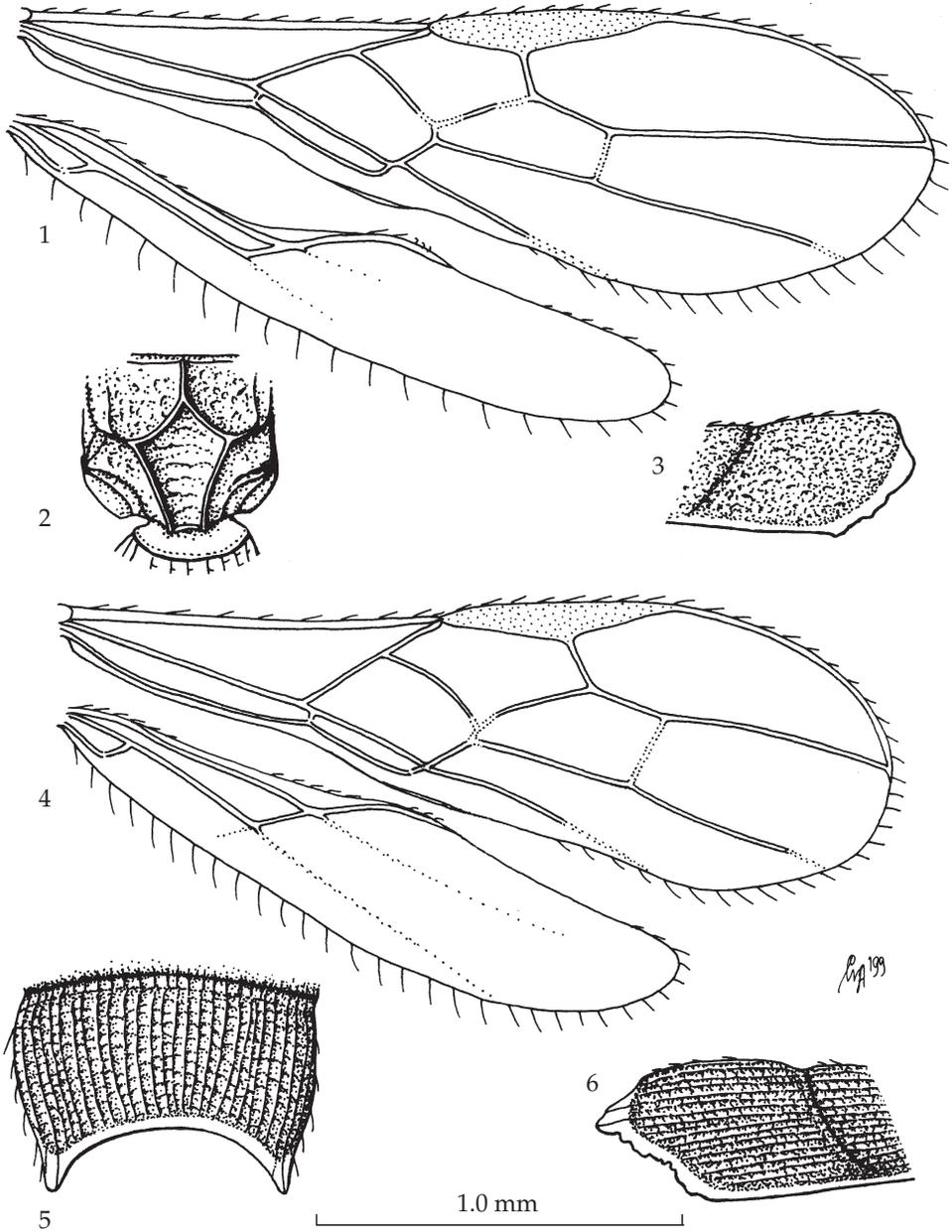
Etymology.— The species name "*granulosus*" refers to the granular sculpture of second and third metasomal tergites.

Holotype, ♀, length of body 1.3 mm, of fore wing 1.1 mm. Head in dorsal view 1.7 times as broad as long, eye 1.7 times as long as temple, temple receding, occiput weakly excavated, occipital carina less collar-like than in *Acanthormius*. Ocelli small and round, OOL distinctly twice as long as POL. Eye in lateral view relatively small and nearly round, 1.25 times as high as wide, temple broadening ventrally and 0.6 times as broad behind eye as width of eye. Malar space one-third shorter than height of eye and 1.6 times as long as basal width of mandible. Head smooth. Antenna long, about one-and-a-half times as long as body, with 16 antennomeres. Third antennomere seven times and penultimate antennomere five times as long as broad.

Mesosoma.— In lateral view 2.1 times as long as high. Notauli evenly deep, smooth. Propodeal areola large, its median carina nearly as long as anterior side of areola, interspaces superficially granulate, shiny (fig. 2). Precoxal sulcus deep, smooth, restricted to anterior 0.6 of mesopleuron. Mesonotum, scutellum and mesopleuron smooth; mesopleuron distinctly convex; pronotum rugulose; metapleuron smooth, ventrally with some rugae.

Wings.— Fore wing: pterostigma narrowly triangular (fig. 1), six times as long as wide, issuing radial vein (r) somewhat distally from its middle; r somewhat longer than width of pterostigma, 3-SR twice as long as r, SR1 straight and reaching tip of wing; m-cu postfurcal; 1-SR+M completely (right wing) or partly (left wing) unsclerotised (fig. 1). Subdiscal cell closed, 2-1A joining to 2-CU1 basad of m-cu (fig. 1).

Legs.— Hind femur distinctly six times as long as broad, hind tibia somewhat shorter than hind tarsus, hind basitarsus somewhat shorter than remainder of tarsus.



Figs 1-3, *Lysitermus granulosus* spec. nov., ♀, holotype; figs 4-6, *Acanthormius evertsi* spec. nov., ♀, holotype. 1, 4, wings; 2, propodeum, dorsal aspect; 3, 6, third metasomal tergite, lateral aspect; 5, third tergite, dorsal aspect. 1: 2.0 x; 2, 3: 2.8 x; 4: scale-line (= 1.0 x); 5, 6: 1.7 x.

Metasoma.— About as long as mesosoma. First tergite distinctly broadening posteriorly, as long as apically wide, without apical-lateral pits. Second tergite transverse, 1.7 times as broad behind as long medially and one-fourth longer than third tergite. Third tergite latero-apically with indistinctly serrate lamella (fig. 3). First tergite with fine longitudinal striation, with transverse interstriations. Second and third tergites granulose, second tergite basally with fine few striae (fig. 3). Ovipositor sheath in lateral view as long as first and second tergites combined, as long as hind femur, and 0.29 times fore wing; ovipositor moderately curved.

Colour.— Dark brown; prothorax brownish yellow (except dorsally), clypeus, mandible and mouth-parts yellow, palpi pale yellow. Scapus and pedicellus brownish yellow, third-tenth and apical antennomeres brown, seventh-fifteenth antennomeres white or ivory. Coxae and trochanters pale yellow, remainder of legs yellow. Wings faintly darkened, pterostigma and most of veins light brown; tegula brown, humeral plate yellow.

Note.— Differs from the Palearctic species by the presence of the sclerotised vein 2-SR of fore wing, the granulate and comparatively short third metasomal tergite and its small size. From the Neotropical species by the comparatively long vein m-cu of fore wing and by the wider propodeal areola.

Acanthormius concavus spec. nov.
(figs 7-11)

Material.— Holotype, ♀ (RMNH), "Ivory Coast, 3 km S Katiola, gall[ery] forest, Malaise trap, 4.i.1981, J.W. Everts c.s."

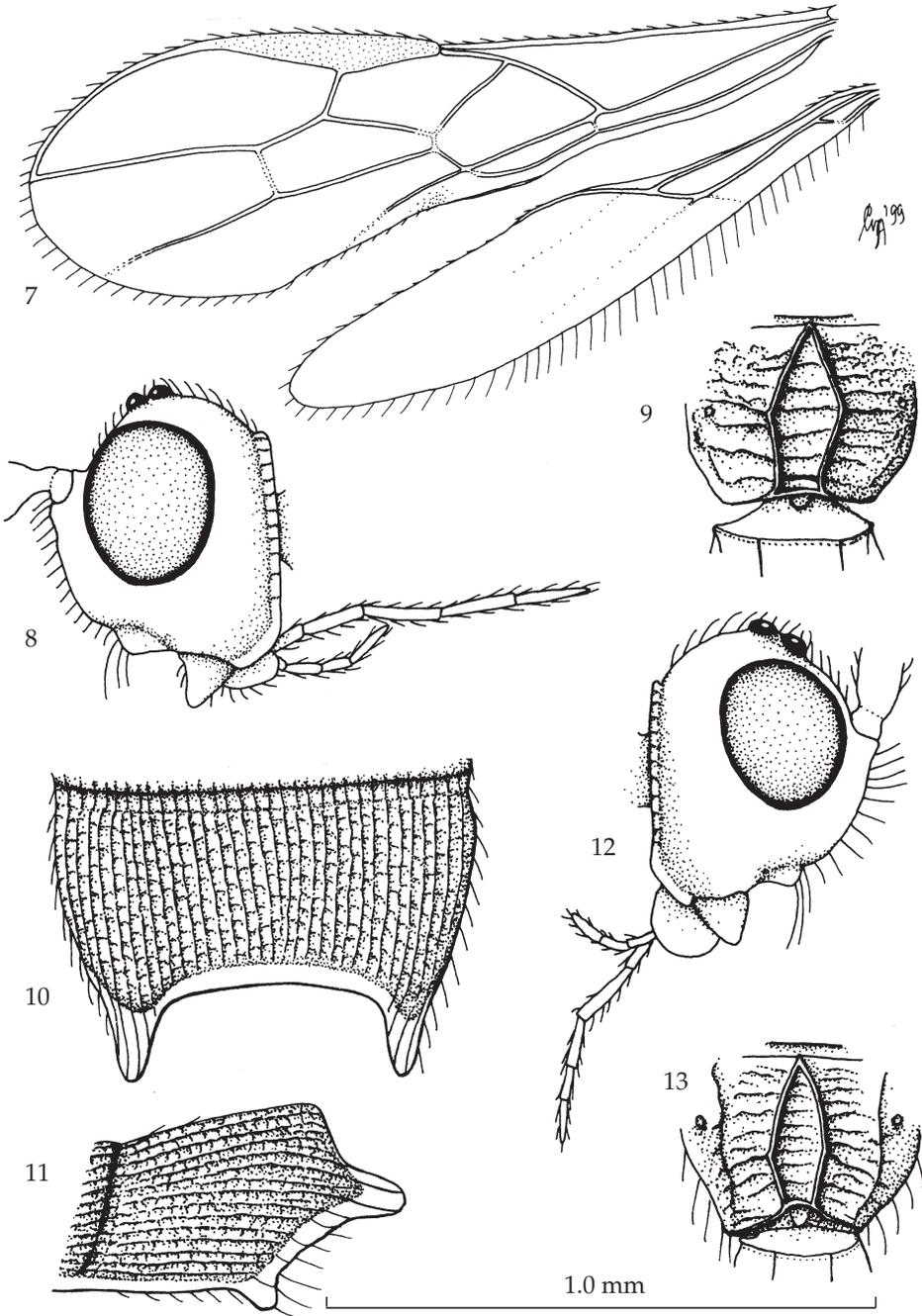
Etymology.— The specific name "*concavus*" refers to the concave lower margin of the tooth of the third tergite.

Holotype, ♀, length of body 2.3 mm, of fore wing 1.9 mm. Head in dorsal view 1.75 times as broad as long, eye twice as long as temple, temple receding, occiput weakly excavated, occipital carina rather strong and finely crenulate. Ocelli small, POL half as long as OOL. Eye in lateral view 1.3 times as high as wide, temple broadening ventrally and its minimum width about 0.3 times width of eye (fig. 8). Malar space half as long as height of eye and 1.4 times as long as basal width of mandible. Head smooth. Antenna nearly twice as long as body, with 24 antennomeres. Third antennomere five times and penultimate antennomere four times as long as broad.

Mesosoma.— In lateral view 1.6 times as long as high. Notauli complete, smooth. Propodeal areola medium-sized (fig. 9), distinctly rug(ul)ose between carinae. Precoxal sulcus deep and micro-sculptured, posterior 0.4 absent. Mesonotum largely smooth, rugulose near notauli posteriorly; pronotum and metapleuron densely silvery setose, largely rug(ul)ose. Mesopleuron smooth.

Wings.— Fore wing: pterostigma triangularly elongate, 6.6 times as long as wide, issuing radial vein just distally from its middle (fig. 7); r nearly twice as long as width of pterostigma, 3-SR 1.3 times as long as r, and 0.6 times 2-SR, SR1 faintly arched and reaching tip of wing. Vein m-cu postfurcal. Subdiscal cell distally closed, 2-1A joining near m-cu (fig. 7).

Legs.— Hind femur 5.5 times as long as broad, hind basitarsus almost as long as remainder of tarsus.



Figs 7-11, *Acanthormius concavus* spec. nov., ♀, holotype; figs 12, 13, *A. evertsi* spec. nov., ♀, holotype. 7, wings; 8, 12, head, lateral aspect; 9, 13, propodeum, dorsal aspect; 10, third metasomal tergite, dorsal aspect; 11, third tergite, lateral aspect. 7: scale-line (= 1.0 ×); 8, 10, 11: 1.2 ×; 9, 12, 13: 1.4 ×.

Metasoma.— About as long as head and mesosoma combined. First tergite distinctly broadening posteriorly, without distinct latero-apical pits, its length 0.7 times its apical width. Second tergite transverse, its medial length 0.7 times its basal width and 1.5 times as long as third tergite. Pair of teeth at postero-lateral end of third tergite about 0.6 times as long as median length of tergite and distinctly differentiated (figs 10, 11). In lateral view lower margin of tooth concave and not serrate (fig. 11). First-third tergites longitudinally striate, with fine transverse interstriations. Ovipositor sheath in lateral view as long as first tergite, and 0.17 times fore wing. Ovipositor apically somewhat downcurved.

Colour.— Dark brown; cheek, orbit, pronotum and first and second tergites, and base and apex of third tergite narrowly, reddish brown. Antenna brown, six preapical antennomeres pale yellowish (but at begin and at end somewhat darkened), apical antennomere dark brown. Legs yellow. Palpi pale yellow. Tegulae brownish yellow. Wings faintly fumous, pterostigma and veins yellow.

Notes.— Runs in the key by van Achterberg (1995) to the Oriental *A. iriomotensis* Watanabe, 1968, but this species has the head brownish-yellow, the apical teeth of third tergite yellowish basally, the ovipositor sheath distinctly longer than the first tergite and the antenna with about 20 antennomeres.

Acanthormius evertsi spec. nov.

(figs 4-6, 12, 13)

Material.— Holotype, ♀ (RMNH), "Ivory Coast, 3 km S Katiola, gall[ery] forest, Malaise trap, 6.ii.1981, J.W. Everts c.s.". Paratypes (2 ♀♀ + 1 ♂): 1 ♀ (TMA: Hym. Typ. No. 7704), id., but 26.xii.1980; 1 ♀ (LUW), "Ivory Coast, Klébo, 8 km NW Bouaflé, Malaise trap, 4.ii.1981, J.W. Everts"; 1 ♂ (LUW), "Cote d'Ivoire, Katiola, Malaise [trap], 3.vi.1981, J.W. Everts".

Etymology.— The species is dedicated to its collector, Ir. J.W. Everts (Wageningen).

Holotype, ♀, length of body 1.8 mm, of fore wing 1.5 mm. Head in dorsal view 1.65 times as broad as long, eye twice as long as temple, temple receding, occiput weakly excavated, occipital carina strong, crenulate. Ocelli small and round, POL nearly half as long as OOL. Eye in lateral view 1.4 times as high as wide, temple broadening ventrally and its minimum width about 0.5 times width of eye (fig. 12). Malar space about half as long as height of eye and 1.6 times as long as basal width of mandible. Head smooth. Antenna filiform and one-third longer than body, with 21 antennomeres. Third antennomere distinctly six times and penultimate antennomere four times as long as broad.

Mesosoma.— In lateral view 1.9 times as long as high. Notauli evenly deep, smooth. Propodeal areola elliptical and comparatively narrow (fig. 13), mainly rather superficially transversely rugose. Precoxal sulcus deep and smooth, absent posteriorly. Mesonotum largely smooth and indistinctly punctulate, pronotum and metapleuron densely rugose, mesopleuron smooth.

Wings.— Fore wing: pterostigma narrowly triangular (fig. 4), six times as long as wide and issuing radial vein from its middle; r somewhat longer than width of pterostigma, 3-SR 1.6 times as long as r, and 0.7 times 2-SR, SR1 straight and reaching tip of wing; m-cu postfurcal. Subdiscal cell distally semi-closed, i.e., CU1b weakly sclerotized and not pigmented (fig. 4).

Legs.— Hind femur 6 times as long as broad, hind tibia as long as hind tarsus, hind basitarsus almost as long as remainder of tarsus.

Metasoma.— Almost as long as head and mesosoma combined. First tergite distinctly broadening posteriorly, its length 1.2 times its apical width. Second tergite transverse, apically 1.5 times as broad as long medially and 1.4 times longer than third tergite. Pair of teeth at postero-lateral end of third tergite about 0.4 times as long as median length of tergite, rather short (fig. 5). In lateral view lower margin of tooth nearly straight and somewhat serrate (fig. 6). First-third tergites longitudinally striate, with transverse interstriations. Ovipositor sheath in lateral view as long as first tergite and 0.18 times fore wing, ovipositor somewhat downcurved.

Colour.— Dark brown to brown. Antenna brown, but scapus and pedicellus yellowish brown, and seven penultimate antennomeres whitish, with apical antennomere again partly brownish. Cheek, labrum, mandible and palpi yellow. Tegulae brown. Legs yellow, coxae and trochanters pale yellow, femora and tibiae distally with faint brownish tinge. Wings subhyaline, pterostigma and veins opaque brownish yellow.

Variation.— Female paratypes: body 1.8-1.9 mm long. Head 1.6-1.7 times as broad as long. Antenna with 20 antennomeres. Pterostigma 6-6.5 times as long as wide, 3-SR just less than twice as long as r and SR1 indistinctly arched (1 ♀). First tergite 1.4 times as broad behind as long medially (1 ♀). First tergite entirely and second tergite anteriorly yellowish brown. Male paratype: body 1.8 mm long. Head in dorsal view 1.68 times as broad as long. Antenna with 20 antennomeres. Pterostigma five times as long as wide, 3-SR only one-fourth longer than r. First tergite 1.4 times as broad behind as long medially.

Notes.— Runs in the key by van Achterberg (1995) to the Madagascan *A. dentatus* Granger, 1949, but this species has two apical antennomeres of ♀ dark brown, its ♀ has about 18 antennomeres and vein r of fore wing is about 0.3 times as long as vein 3-SR. It resembles also the recently described *A. albidensis* Chen & He, 1995, from China, which it has the teeth of the third tergite thin and yellowish.

Checklist of species of the genus *Acanthormius* Ashmead

Indo-Australian region (29 species):

- A. albidensis* Chen & He, 1995: China
- A. alius* Papp, 1986: India
- A. bakeri* Watanabe, 1968: Philippines, India
- A. balanus* Papp, 1986: India
- A. brevidentatus* van Achterberg, 1995: Malaysia (Sabah)
- A. chinensis* Chen & He, 1995: China
- A. curvidentatus* van Achterberg, 1995: Malaysia (Sabah)
- A. dentifer* van Achterberg, 1995: Indonesia (Sulawesi)
- A. dubitatus* Brues, 1918: Solomon Islands
- A. flavoapicalis* Belokobylskij, 1990: Vietnam
- A. gilvus* Papp, 1991: India
- A. gatienshanensis* Chen & He, 1995: China
- A. iriomotensis* Watanabe, 1969: Ryukyu Islands

- A. japonicus* Ashmead, 1906: Ryukyu Islands (and Palaeartic Japan)
A. kabaenensis van Achterberg, 1995: Indonesia (Kabaena)
A. malayensis Watanabe, 1968: Malaysia
A. nitidiotum Belokobylskij, 1988: Taiwan
A. nixonii Belokobylskij, 1990: Vietnam
A. obstitus Papp, 1986: India
A. philippinensis Watanabe, 1968: Philippines
A. propensus Papp, 1991: India
A. royi van Achterberg, 1995: Malaysia (Sabah)
A. rugosivertex Belokobylskij, 1988: Taiwan
A. rugosus Watanabe, 1968: Ryukyu Islands
A. sabahensis van Achterberg, 1995: Malaysia (Sabah)
A. sumatrensis van Achterberg, 1991: Indonesia (Sumatra)
A. unidens Belokobylskij, 1988: Taiwan
A. wusheensis Belokobylskij, 1988: Taiwan
A. yasirae van Achterberg, 1995: Indonesia (Sula)

Afrotropical (= Ethiopian) region (3 species):

- A. concavus* spec. nov.: Ivory Coast
A. dentatus Granger, 1949: Malagasy Rep.
A. evertsi spec. nov.: Ivory Coast

Palaeartic region (4 species):

- A. crustatus* Belokobylskij, 1986: Russia (Far East Maritime Territory)
A. japonicus Ashmead, 1906: Japan (and Ryukyu Islands)
A. rossicus Tobias et Belokobylskij, 1981: Russia (Far East Maritime Territory)
A. takadai Watanabe, 1968: Japan

Checklist of species of the genus *Lysitermus* Foerster

Neotropical region (2 species)

- L. maculipennis* (Ashmead, 1900): St. Vincent
L. woolleyi Wharton, 1993: Mexico

Afrotropical region (1 species):

- L. granulatus* spec. nov.: Ivory Coast

Palaeartic region (4 species):

- L. longiventris* (Tobias, 1976): North Caucasus
L. pallidus Foerster, 1862: Germany, Moldavia, North Caucasus
L. suecicus (Hedqvist, 1957): France, Italy, Portugal, Sweden
L. tritoma (Boucek, 1956): Czech Republic

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