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RESEARCH ARTICLE

Notes on the genus *Lissodynerus* Giordani Soika, 1993 (Hymenoptera: Vespidae: Eumeninae) with description of a new species

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Abstract: A new species of the genus *Lissodynerus* Giordani Soika, 1993, namely *L. celebensis* **sp. nov.**, is described. This is the first record of *Lissodynerus* from Sulawesi. Giordani Soika's key is modified to include the new species. New distributional data are provided for three species, including the first record of the genus from Thailand.

Key words: Vespidae, Eumeninae, new species, new records, *Lissodynerus*, Sulawesi.

Introduction

Lissodynerus Giordani Soika, 1993 is an Oriental and Australian genus of potter wasps. Seventeen species with eight additional subspecies are presently recorded worldwide (Girish Kumar *et al.* 2015). It is recognizable by the combination of following characters: anterior face of pronotum without foveae, axillary fossa slit-like, metanotum without tubercles, T I sessile and transversely carinate, T II and III, T II-IV or T II-V with an apical lamella, and male antenna hooked apically (Giordani Soika 1994).

This genus was recorded from Sulawesi by Gusenleitner (1991) with 30 specimens belonging to an undescribed species referred to as "*Lissodynerus* spec.", which should have been described later by Giordani Soika. Some years later, Giordani Soika (1994) published a revision of the genus, but no specimens from Sulawesi were reported.

In the present paper a new species of *Lissodynerus* from Sulawesi is described, being the first named species of this genus recorded from the island. A modification of Giordani Soika's key to *Lissodynerus* species is provided in order to include the new species. New

distributional data are given for *L. niveatus* Giordani Soika, 1994, *L. philippinensis* (von Schulthess, 1913) and *L. septemfasciatus* (Smith, 1858). The latter is the first record of the genus from Thailand.

Material and methods

The adult morphology and color pattern were observed on a pinned dried specimen under a Seben Incognita III stereoscopic microscope.

Abbreviations used are as follows: T= metasomal terga; S= metasomal sterna; F= flagellomeres; BL= body length, measured from anterior margin of head to apical margin of T II; WL= length of fore wing.

Measurements were taken using a digital Vernier calliper (accuracy ± 0.02 mm)

The morphological terminology follows Yamane (1990).

Acronyms used are as follows:

MSNVE: Museo Civico di Storia Naturale, Venezia.

MSVI: Private collection of Marco Selis, Viterbo, Italy.

NHRM: Naturhistoriska Riksmuseet, Stockholm.

OUM: Oxford University Museum, Oxford.

USNM: National Museum of Natural History, Washington, D.C.

Results

Genus *Lissodynerus* Giordani Soika, 1993

Lissodynerus Giordani Soika, 1993: 135, genus. Type species: *Odynerus septemfasciatus* Smith, 1858, by original designation.

Lissodynerus Giordani Soika, 1973: 119, used as generic name for *Odynerus septemfasciatus* var. *feanus* Giordani Soika, 1941. Unavailable name according to Article 13.1.1 of the Code (ICZN 1999).

Trichodynerus Giordani Soika & Kojima, 1988: 178, used as generic name in the combination *Trichodynerus agilis cursor* Giordani Soika & Kojima, 1988. Unavailable under Article 13.1.1 of the Code (ICZN 1999).

Lissodynerus celebensis sp. nov. (Figs. 1-4)

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Diagnosis: This species is recognizable by the combination of the following characters: upper dorsal carinae of propodeum weakly developed, a very long apical lamella on T II-IV and a much shorter lamella on T I and V, lamellae ferruginous and translucent, teguments black with red and yellow-orange markings, apical margin of clypeus with a broad shallow emargination, apical teeth of clypeus short and rounded.

Material examined: 1 specimen. Holotype: ♀ labelled "ID – Sulawesi, Bantimurung, Makaroewa / III.2016 / Leg. local collector" (MSNVE).

Description

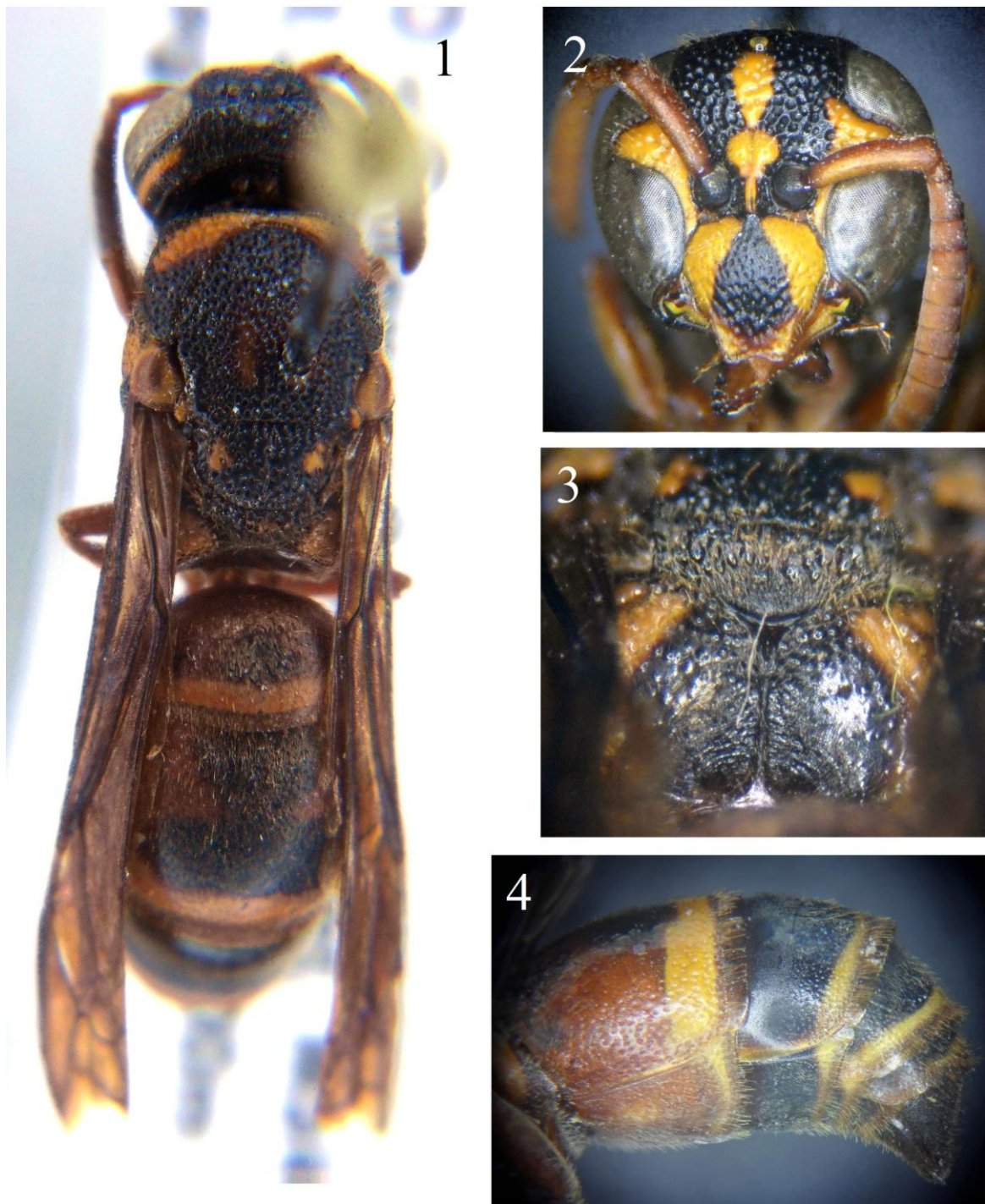
Female. BL 12mm; WL 10mm.

Head about as wide as long in front view (Fig. 2). Clypeus weakly convex, the extreme apex with two short, broadly rounded teeth forming a very shallow emargination, distance between teeth slightly more than distance between antennal toruli, clypeus 1.04x as long as wide. Distance from posterior ocellus to inner eye margin equal to the distance between posterior ocelli; diameter of anterior ocellus about equal to the distance between anterior ocellus and posterior ocelli; temple 0.5x as wide as eye at ocular sinus; occipital carina complete, duplicated medially. Antennae short, F I clearly less than 2x as long as apically wide. Anterior face of pronotum completely smooth, without foveae; pronotal carina strong and complete. Mesoscutum as long as its maximum width, weakly convex, posterior margin crenate. Scutellum flattened, with an extremely narrow furrow in the middle. Metanotum strongly convex, with posterior face as part of posterior face of mesosoma. Mesepisternum with epicnemial carina present. Propodeum (Fig. 3) vertical, very weakly oblique; upper carina weakly developed, forming two blunt teeth behind metanotum; posterior face of propodeum concave, median carina complete but weak; submarginal carina not produced as lobe above propodeal valvula. Tegula emarginated, adjoining parategula but not reaching its tip; axillary fossa narrower than long. T I with a blunt transverse carina; 2.1 as wide as length from carina to posterior margin. T II-IV with broad apical lamellae, well differentiated from rest of surface, ferruginous and translucent; T I and V with an apical lamella similar to the lamellae on T II-IV, but not clearly differentiated from rest of the surface (Fig. 4); S II basally flat, not furrowed longitudinally.

Body covered with short golden bristles, denser on apical margins of T II-V and on sterna.

Clypeus with dense oblique punctures, finer basally, larger apically. Frons with dense deep punctures, interspaces smaller than puncture diameters. Vertex with punctures similar to frons, but sparser, interspaces slightly larger than puncture diameter and shiny. Gena with small scattered punctures. Anterior face of pronotum entirely smooth, dorsal face punctured like frons but interspaces larger, lateral faces with punctures coalescing into irregular striae. Mesoscutum with dense coarse punctures, slightly sparser on disc, two short impunctate areas along tegulae. Scutellum with a shallow but well defined median longitudinal furrow, punctures like mesoscutum but sparser. Metanotum with very coarse dense punctures. Dorsal faces of propodeum smooth with large punctures on posterior margin, posterior face smooth and shiny with some punctures on dorsal margin and some fine transverse striae along median carina, lateral faces with punctures coalescing into irregular striae. Mesepisternum very densely punctured, punctures larger and denser on dorsal half. Metaepisternum smooth and shiny, with small shallow punctures ventrally. T I with small shallow oblique punctures; T II with oblique punctures, larger than those on T I, forming a dense line of punctures right before apical lamella; T III with dense, well-defined small punctures; T IV-VI with dense, extremely fine punctures. S I with regular longitudinal carinae; S II shiny, with large dense punctures laterally and apically, basal median area with smaller punctures; S III-VI punctured like respective terga.

Color. Black; the following parts are yellowish-orange: corners of clypeus, lower half of inner eye margin, ocular sinus, spear-shaped marking from dorsal margin of clypeus to anterior ocellus, basal spot on mandibles, line on anterior face of scape, line along posterior eye margin from vertex to mandibles, anterior half of dorsal face of pronotum, two short median lines on mesoscutum, two irregular lateral spots on scutellum, indistinct spot on center of metanotum, a large lateral spot on either side of propodeum, tegulae except brown



Figures 1-4. *Lissodynerus celebensis* sp. nov. holotype. **1**, dorsal view of habitus; **2**, frontal view of head; **3**, posterior view of propodeum; **4**, lateral view of metasoma.

central spot, parategulae, a rounded spot on upper half of mesepisternum, a rectangular spot on posterior margin of lower half of mesepisternum, a wide regular band on apical margin of T I, a broad, slightly bisinuate band on apical margin of T II, a thin bisinuate band on apical

margin of T III-V, basal lateral spots on S II, a thin, medially interrupted band on S II-IV, apical half of fore femora, outer face of all tibiae and fore basitarsus; the following parts are red: mandibles, antennae, basal half of T I, large irregular spots on side of T II, S I-II, legs.

Male. Unknown.

Distribution: Indonesia: Sulawesi.

Etymology: The specific name is in reference to Celebes, the old name of Sulawesi, the island where this new species was collected.

Notes: This new species shows a striking resemblance to another Eumeninae endemic to Sulawesi, *Lissepipona variabilis* Giordani Soika, 1994, having almost the same coloration and vestiture and similar structural characters. However the two genera are easily differentiated by the shape of the axillary fossa, slitlike in *Lissodynerus* and broad in *Lissepipona*, and the transverse carina on T I, present only in *Lissodynerus*.

Partial key to *Lissodynerus* species

[Modified from Giordani Soika (1994)]

5. Apical lamellae of T II-IV thick, opaque, dark-brown or black.....6
 – Apical lamellae of T II-IV thin, translucent, ferruginous.....5a
 5a. Vertex mostly smooth, with small, very sparse punctures. Female vertex without a hairy fovea. Black with yellow markings. Philippines.....*pallidus* Giordani Soika
 – Vertex with dense large punctures. Female vertex with a hairy fovea. Black with orange and red markings. Sulawesi.....*celebensis* **sp. nov.**

New distributional data

Lissodynerus niveatus Giordani Soika, 1994

Lissodynerus niveatus Giordani Soika, 1994, Ann. Mus. Civ. Stor. Nat. “G. Doria” 90: 303 (key), 312, male, female – “Is. Filippine: Is. Samar” (holotype male USNM).

Material examined: Philippines: Mindanao, Bukidnon, Kabanglasan, I.2016, leg. local collector, 1♀ (MSVI); Mindanao, Compostela, Masara, I.2015, leg. local collector, 1♂ (MSVI); Mindoro, Baco, III.2015, leg. local collector, 1♀ (MSVI); Mindoro, Baco, IV.2015, leg. local collector, 1♂1♀ (MSVI); Mindoro, Puerto Galera, VIII.2014, leg. local collector, 1♂ (MSVI).

Notes: Previously known from Samar (Giordani Soika 1994). First records from Mindanao and Mindoro.

Lissodynerus philippinensis (von Schulthess, 1913)

Odynerus philippinensis von Schulthess, 1913, Ark. Zool. 8(17): 11, fig. 9, male (in subgenus *Ancistrocerus*) – “Philippinen” (holotype male NHRM).

Material examined: Philippines: Negros, Don Salvador Benedicto, XII.2014, leg. local collector, 1♂1♀ (MSVI); Negros, Dumaguete, VI.2014, leg. local collector, 2♀ (MSVI);

Negros, Dumaguete, VIII.2014, leg. local collector, 1♀ (MSVI); Negros, Dumaguete, XI.2014, leg. local collector, 1♀ (MSVI).

Notes: Previously known from Mindanao (Giordani Soika 1994). First record from Negros.

Lissodynerus septemfasciatus (Smith, 1858)

Odynerus septem-fasciatus Smith, 1858, J. Proc. Linn. Soc. Zool. 2: 111, male – “Borneo (Sarawak)” (holotype male OUM).

Material examined: Thailand: Suratthani, Khao Sok, 9.XI.2015, leg. local collector, 1♀ (MSVI).

Notes: First record of the genus from Thailand. This is a polytypic species, with three subspecies, characterized solely by mesosomal coloration: *septemfasciatus* (Smith, 1858) from India (Karnataka), Malaysia and Indonesia (Sumatra, Java), *feanus* (Giordani Soika, 1941) from Myanmar, Vietnam, Malaysia and China (Guangxi), and *flavithorax* Giordani Soika, 1994 from Indonesia (Sumatra) (Girish Kumar *et al.* 2015; Li & Chen 2016). The specimen from Thailand could represent a transition between the subspecies *septemfasciatus* and *feanus*, having yellow markings on the mesosoma but lacking mesoscutal lines. However, the real status of the three subspecies needs to be clarified.

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