

# New and Little Known Planthoppers of the Subfamily Ommatidiotinae (Homoptera, Fulgoroidea, Caliscelidae) from Madagascar and South Asia

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**Abstract**—*Cano merinus* gen. et sp. n., belonging to the tribe Augilini Baker, is described from Madagascar. *Tubilustrium typicum* Distant, 1916 is transferred from the tribe Ommatidiotini Fieber to the tribe Augilini. *Lasonia kirkaldyi* Melichar, 1903 is transferred from the family Issidae to the family Caliscelidae, tribe Adenissini Dlabola. A key to the tribes of the subfamily Ommatidiotinae is provided.

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The family Caliscelidae Amyot et Serville, 1843 consists of 2 subfamilies, Caliscelinae Amyot et Serville, 1843 with 2 tribes (Caliscelini Amyot et Serville, 1843 and Peltonotellini Fieber, 1872) and Ommatidiotinae Fieber, 1875 with 3 tribes (Ommatidiotini Fieber, 1875, Augilini Baker, 1915 and Adenissini Dlabola, 1980) (Gnezdilov and Wilson, 2006; Gnezdilov, 2008; Emeljanov, 2008). The subfamily Caliscelinae is distributed worldwide, while the subfamily Ommatidiotinae seems to be limited to the Old World where it is not found in the Australasian Region.

The autapomorphies of the tribes of the subfamily Ommatidiotinae are not elicited completely. I suggest that Ommatidiotini Fieber should be treated as a monotypical tribe including the genus *Ommatidiotus* Spinola, 1839 with 13 species distributed in the Palaearctic.

The tribe Augilini Baker, 1915 includes 11 genera (with *Tubilustrium* Distant, 1916 and a new genus described below), 9 of these distributed in the Oriental Region and 2, in Madagascar (Che et al., 2009; Gnezdilov and Bourgoïn, 2009). The members of the tribe are characterized by a relatively long clavus of the fore wings, often with a nodal line, and well developed hind wings (Figs. 1–3). The median vein of the fore wings often furcates after the nodal line (Fig. 1). The hind wings are characterized by the presence of transverse veins between *R* and *M* and between *M* and *CuA*, a marginal cleft between the branches of *CuA*, excluding *Symplana* Kirby, 1891 and *Augila* Stål, 1870, and a deep cleft of vannus on the apex of *A*<sub>1</sub> (Fig. 2). *Symplanodes conjunctor* Fennah, 1987 from Southeastern

India and *Signoreta victorina* Gnezdilov et Bourgoïn, 2009 from Madagascar should be treated as the most primitive members of the tribe Augilini. *S. conjunctor* has fore wings with a relatively short clavus (half as long as the whole wing) and missing nodal line (Fennah, 1987, fig. 13). *S. victorina* has no nodal line either, but its clavus is 0.8 times as long as the whole wing (Fig. 3). Both species as well as *Tubilustrium typicum* Distant, 1916 are characterized by the presence of latero-apical spines on the 1st and 2nd metatarsomeres. The other genera of the tribe are characterized by the absence of spines on the 1st and 2nd metatarsomeres. The new genus from Madagascar is externally close to the genus *Signoreta* Gnezdilov et Bourgoïn, 2009.

The tribe Adenissini Dlabola includes 8 genera distributed in the Oriental, Palaearctic, and Afrotropical Regions (Gnezdilov and Wilson, 2006; Gnezdilov, 2008). The monotypical genus *Lasonia* Melichar, 1903 established in the family Ricaniidae (Melichar, 1903) should be added to this tribe. R.G. Fennah (1978) transferred this genus to the family Issidae and mentioned that this genus was close to the genus *Tubilustrium* Distant. However, according to the structure of the ovipositor *Lasonia kirkaldyi* Melichar, 1903 is very closely related to *Delhina eurybrachydoides* Distant, 1912 (Gnezdilov, 2008, Figs. 9, 10, 12) and accordingly should be placed in the subtribe Coinquendina Gnezdilov et Wilson, 2006 of the tribe Adenissini.

The morphological terminology in the paper follows Emeljanov (1995) and Gnezdilov (2003). The wing

drawings are made using a camera obscura attached to a light microscope Leica MZ95. The photographs were made using the light microscope Leica MZ95 with a DFC290 camera. The images are produced using the software Helicon Focus 4.61 and Photoshop®.

The material studied is deposited in the following collections: CASC, California Academy of Sciences, San Francisco, USA; USNM, The United States National Museum of Natural History, Washington, USA; IRSNB, Institut Royal des Sciences Naturelles de Belgique, Bruxelles, Belgium; ZIN, The Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Russia.

*A Key to the Tribes of the Subfamily Ommatidiotinae*

- 1(2). First metatarsomere with long hair-shaped setae ventrally. Abdominal sternites III–VI with straight hind margins ..... **Adenissini** Dlabola.
- 2(1). First metatarsomere with short truncate setae ventrally. Abdominal sternites III–VI with deeply rectangularly concaved hind margins ..... 3.
- 3(4). Fore wings with *CuP* ending at the apex of clavus (Fig. 4). Hind wings with *M* 2 and *CuA* 1; *rm* and *mcu* absent (Fig. 5). First and second metatarsomeres are nearly equal in length. Aedeagus with hook- and tooth-shaped processes ..... **Ommatidiotini** Fieber.
- 4(3). Fore wings with *CuP* surpassing the apex of clavus (except *Pseudosymplanella* Che, Zhang et Webb, 2009) (Figs. 1, 3). Hind wings with *rm* 1, *M* 2–4, *mcu* 1, *CuA* 2 (Fig. 2). First metatarsomere longer than second one. Aedeagus without processes, tubular ..... **Augilini** Baker.

Family **CALISCELIDAE** Amyot et Serville

Subfamily **OMMATIDIOTINAE** Fieber

Tribe **Augilini** Baker

Genus ***Cano*** Gnezdilov, gen. n.

Type species *Cano merinus* Gnezdilov, sp. n.

**Description.** Metope elongate, slightly narrowing apically (Fig. 7). Median carina reaching metopoclypeal suture, however, not reaching upper margin of metope. Sublateral carinae joint at upper margin of metope, however, not reaching metopoclypeal suture. The last one is deep, curved. Pair of ocelli present. Postclypeus large, with median carina in its basal

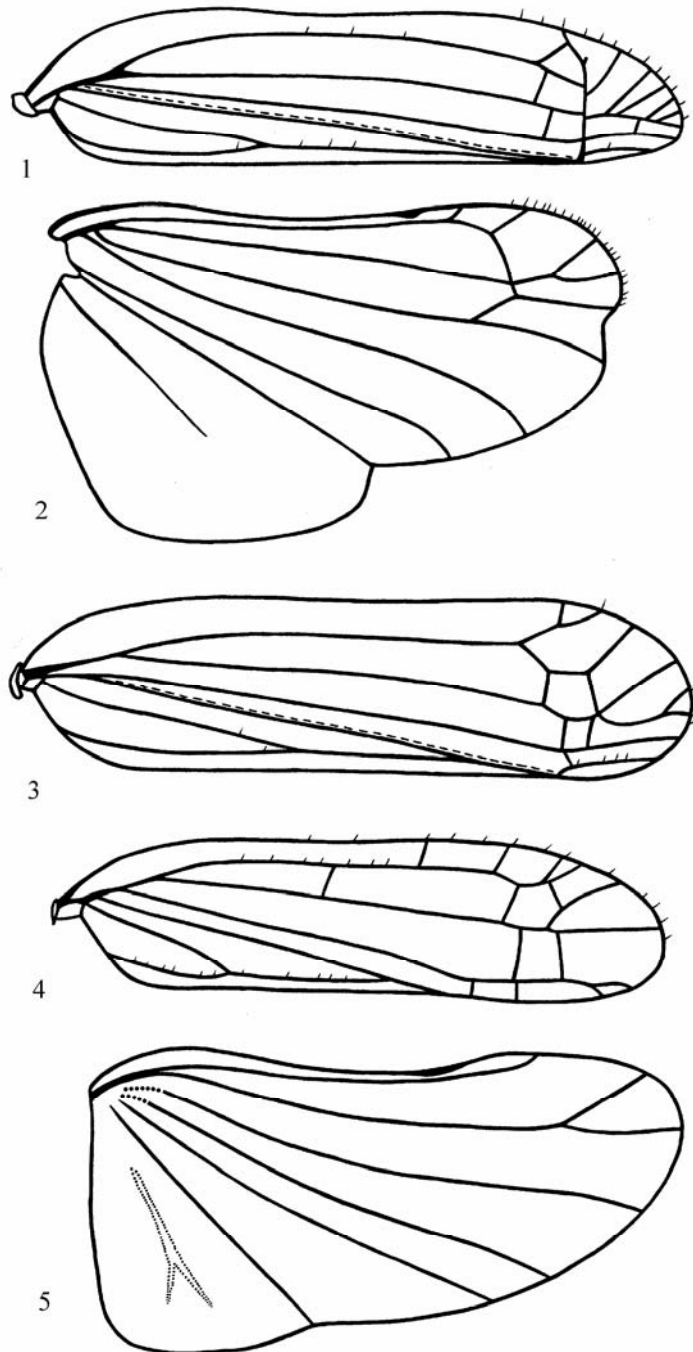
third. Rostrum reaching hind coxae. Coryphe elongate, acutely angulate apically (the specimen with head deformed apically), hind margin obtusely angulate (Fig. 8). Coryphe and pronotum with keeled lateral margins. Pro- and mesonotum without carinae. Median part of pronotum with nearly straight anterior margin, situated between the eyes, hind margin concave. Paradiscal fields narrow. Paranotal lobes wide. Fore wings narrowing apically, well surpassing apices of gonoplares (Fig. 6). Fore wings with weakly concave costal margin. Basal cell narrowly oval. Nodal line (nodum) present. Radius furcating before nodum (*R* 2–3), *rm* 1, median furcating after nodum (*M* 3–5), *mcu* 1 or 2 (one vein before and one vein after nodum), *CuA* 1, *CuP* 1 (surpassing nodum) (Fig. 1). Longitudinal veins with rare setae. Hind wings well developed, with coupling lobe. *R* 2 (furcated apically), *rm* 1, *M* 2 (furcated apically), *mcua* 1, *CuA* 2, *CuP* 1, *Pcu* 1, *A*<sub>1</sub> 1, *A*<sub>2</sub> 1 (not reaching wing margin) (Fig. 2). Wing margin with 2 clefts—between the branches of *CuA* and between vannus and anal lobe, second cleft deeper. Wing margin with setae between *R* and *CuA*. Hind tibia with 1 lateral tooth above its middle. First metatarsomere is longest one, with 2 latero-apical spines and sole with pad of dense, short and truncate setae. Second metatarsomere shorter than first one, also with 2 latero-apical spines and sole with hair-shaped setae. Pretarsus with wide arolium surpassing claw apices, without median concavity, with 3 long, narrow, sclerotized dors-lateral plates. Female sternum VII with hind margin weakly concave. Gonoplares triangularly elongate, far surpassing the apex of anal tube. Anal tube enlarged apically, truncate.

**Etymology.** The generic name is derived from the Greek “κανό”—canoe.

**Comparison.** According to the presence of three intermedial carinae on metope and the presence of spines on the second metatarsomere and also according to the shape of coryphe (elongate and acutely angulate apically) and gonoplares (triangularly angulate), the new genus is undoubtedly, closely related to the genus *Signoreta* Gnezdilov et Bourgoïn. The new genus is distinguished by the narrowing apically fore wings with a nodal line. *Signoreta* has fore wings widely rounded apically, without a nodal line (Fig. 3).

***Cano merinus*** Gnezdilov, sp. n. (Figs. 1, 2, 6–8)

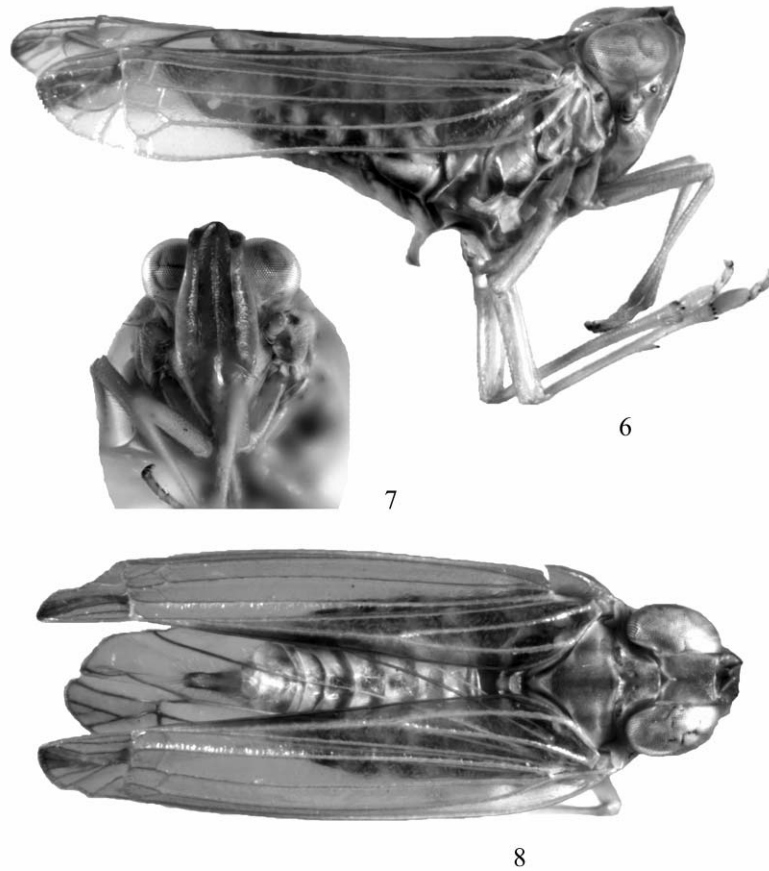
**Description.** General coloration including the veins of fore wings light yellow. Metope apically and between sublateral carinae and frontoclypeus excluding



**Figs. 1–5.** Ommatidiotinae, wings: (1, 3, 4) fore wing; (2, 5) hind wing [(1, 2) *Cano merinus* gen. et sp. n., holotype; (3) *Signoreta victorina* Gnezdilov et Bourgoïn, holotype; (4, 5) *Ommatidiotus dissimilis* Fallén, female (Russia, Leningrad Province)].

median line and laterally brown. Ocelli with brown edge. Coryphe, pro-, and mesonotum with red median stripe mostly wide on mesonotum. Each paradiscal field with dark brown spot behind the eye. Paranotal lobes, episternae, epimerae, and abdominal tergites with dark brown spots. Fore wings with claval margin from brown to dark brown. Apices of fore wings with

elongate brown spot after nodal line. Hind wings with dull cells and light yellow veins except almost totally brown *rm* and *Pcu*, brown apically *M* and *CuA*, and brown in apical third *CuP*. Hind coxae with dark brown spots. Abdominal sternites dark brown laterally. Gonoplacs brown apically. Legs and tarsomeres with black spines. Claws dark brown.



**Figs. 6–8.** *Cano merinus* gen. et sp. n., holotype: (6) lateral view, (7) front view, (8) dorsal view.

**Material. Madagascar.** Holotype, ♀ (from alcohol), *Tulear* [Toliar] *Province*, Mikea forest, NW of Manombo, 30 m, 22°54.22'S, 43°28.53'E, 6–17.VII.2003, Malaise trap in deciduous dry forest, “MA-02-18A-61,” “CASLOT 038325,” M. Irwin & R. Harin’Hala leg. (CASC).

**Etymology.** The species name is derived from state Merina which existed in the territory of Madagascar in the XIV–XIX centuries.

**Comments.** The new species was collected in a dry deciduous forest in Southwestern Madagascar, whereas the closely related species, *Signoreta victorina* Gnezdilov et Bourgoin, 2009, was described from Périnet (Malagasy name—Analamazaotra) (Gnezdilov and Bourgoin, 2009) which is a part of an evergreen rain forest in the central part of the island.

Genus *Tubilustrium* Distant, 1916

Type species *Tubilustrium typicum* Distant, 1916.

The genus was described by Distant (1916) from southern Myanmar (“Lower Burma”), the type species of the genus up till now was known only by the holo-

type; below it is recorded for the first time from north-eastern Thailand. The genus was included by Fennah (1987) in the tribe Ommatidiotini based on the presence of short paradiscal fields of pronotum; however, according to the character of venation of the fore and hind wings, more probably it belongs to the tribe Augilini (see the key to the tribes above).

*Tubilustrium typicum* Distant, 1916

**Material. Thailand.** 3 ♀, Na Haeo, 29.V–5.VI. 2003, Malaise trap, P. Grootaert leg. (IRSNB, ZIN).

**Comments.** Metope with sublateral carinae joint above the clypeus. Postclypeus with median carina. Gonoplacs narrow, curved (in lateral view). Total length of females 7.0–7.3 mm.

Tribe *Adenissini* Dlabola

Subtribe *Coinquendina* Gnezdilov et Wilson

Genus *Lasonia* Melichar, 1903

Type species *Lasonia kirkaldyi* Melichar, 1903.

**Diagnosis.** Metope in its upper part with large median black mammoid rounded by light yellow stripe.

Metope with weak median carina below the mammoid. Postclypeus with thick median carina. Pedicel globular. Coryphe transverse, anterior margin convex, posterior margin concave. Pro- and mesonotum without carinae. Paradiscal fields very narrow. Mesonotum 1.5 times as long as pronotum medially. Fore wings without hypocostal plate. *R* 2, *M* ?1, *CuA* ?1 [on the figures by Melichar (1903, Abb. 9) the branches of radius fused distally]. Hind wings well developed, with cleft between remigium and vannus. Hind tibia with 2 latero-apical spines distally. First metatarsomere with 6 intermedial spines apically. Second metatarsomere with only 2 latero-apical spines [in the original version was mentioned only 1 lateral spine, however, examined later another specimen had 2 spines].

***Lasonia kirkaldyi* Melichar, 1903**

**Material.** Sri Lanka. 1 ♀ (apices of fore and hind wings missing), “Man. Dist., Kondachchi, Ma Villu, 17–18.IX.1979, T. Wijesinhe, L. Jayawickrema & R. Subasinhe leg.” “Restrictions apply NMNH—Sri Lanka Agreement # 6” (USNM).

**Comments.** Up till now the species was known only by the syntypes [in the original version mistakenly holotype was mentioned] (Melichar, 1903).

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