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Tinodes dnemsognem sp.n., a new species of Psychomyiidae (Insecta: Trichoptera) from the slopes of Bromo volcano, Java, Indonesia

Tinodes dnemsognem — новый вид семейства Psychomyiidae (Insecta: Trichoptera) со склонов вулкана Бромо острова Ява, Индонезия

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Key words: Trichoptera, caddisflies, Psychomyiidae, *Tinodes,* new species, Indonesia, Java, taxonomy.

Ключевые слова: Trichoptera, ручейники, Psychomyiidae, *Tinodes,* новый вид, Индонезия, Ява, таксономия.

Abstract. New caddisfly species *Tinodes dnemsognem* Melnitsky, Ivanov, **sp.n.** (Psychomyiidae) is described and illustrated from volcano Bromo, East Java, Indonesia. Now the family Psychomyiidae is represented in Java Island by 21 species, and the genus *Tinodes* Curtis, 1834 includes 12 species.

Резюме. Описан и проиллюстрирован новый вид ручейников *Tinodes dnemsognem* Melnitsky, Ivanov, **sp.n.** (Psychomyiidae) с вулкана Бромо в восточной Яве Индонезии. Теперь семейство Psychomyiidae представлено на острове Ява 21 видом, а род *Tinodes* Curtis, 1834 включает 12 видов.

Introduction

The fauna of caddisflies on numerous islands of Southeast Asia has been studied fragmentary [Malicky et al., 2014]. Today, the Trichoptera of the Java Island (Greater Sunda Islands) includes 146 species [Malicky et al., 2014; Melnitsky, Ivanov, 2025]. The genus *Tinodes* Curtis, 1834 is represented Java by 11 previously described species: *Tinodes dedan* Malicky, 2009, *Tinodes flavopunctatus* Ulmer, 1910, *Tinodes ihalauwi* Malicky, 1998, *Tinodes katreus* Malicky, 2004, *Tinodes kepheus* Malicky, 2004, *Tinodes moab* Malicky, Ivanov et Melnitsky, 2011, *Tinodes noah* Malicky, Ivanov et Melnitsky, 2011, *Tinodes prihatmoi* Malicky, 1998, *Tinodes saul* Malicky, Ivanov et Melnitsky, 2011, *Tinodes simeon* Malicky, Ivanov et Melnitsky, 2011, and *Tinodes timotii* Malicky, 1998. These species were found in different localities mostly on separated mountains. The *Tinodes* of Java are partly sympatric (Fig. 1): *T. flavopunctatus, T. saul, T. simeon T. moab T. noah* in the Western Java, *T. dedan* and *T. kepheus* in Eastern Java. Other species are isolated. The spaces between mountain peaks seem to have no populations and the species are probably isolated in their present localities.

The genus *Tinodes* Curtis, 1834 occurs in smaller numbers of described species on the nearest islands: Sumatra — 5, Bali — 5, Lombok — 5, Sulawesi — 1, Kalimantan — 1 [Malicky, 1998, 2004, 2009, 2010; Malicky et al., 2010, 2025; Morse, 2025]. Java Island has the richest fauna of this genus comparing to other Sunda Islands. Most of them are endemic. *Tinodes flavopunctatus* Ulmer, 1910 was found outside Java on the Bali Island [Malicky et al., 2014]. The genus *Tinodes* comprises more than 200 extant species [Morse, 2025] found mostly in the tropical and subtropical environments. Great diversity of this genus suggests possibility of new findings. A new species of this genus is described below.

Material and methods

The material described here has been collected during the visit of V.D. Ivanov and S.I. Melnitsky to Indonesia, Java Island in January–February 2018. The distribution of caddisflies species of the genus *Tinodes* including the new one on Java Island is shown in Fig.1. Typical biotopes are shown on Figs 2–3. Field collecting included the methods of sampling by 4 small UV light pan traps (arriving insects were collected in water with addition of detergent) installed in a row close to the water edge along 50–100 m of shoreline. Insects are preserved in 70 % or 90 % ethanol. The material is deposited in the Zoological Institute of the Russian Academy of Sciences, Saint Petersburg, Russia.

Nomenclatural acts introduced in the present work are registered in ZooBank (www.zoobank.org) under urn:lsid:zoobank.org:pub:09C7D868-84FB-4D15-8E22-E304AE461977

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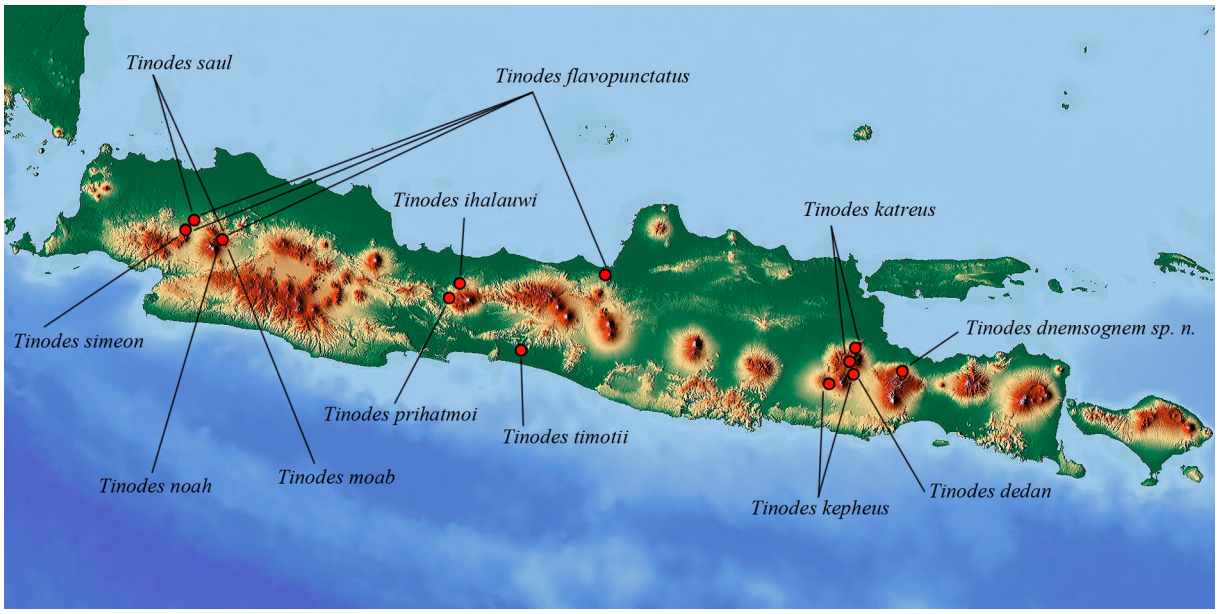


Fig. 1. The distribution of caddisflies species of the genus *Tinodes* on Java Island.
Рис. 1. Распределение видов ручейников рода *Tinodes* на острове Ява.

Results

Trichoptera Kirby, 1813
Annulipalpia Martynov, 1924
Psychomyiidae Walker, 1852
Tinodes Curtis, 1834
Tinodes dnemsognem Melnitsky et Ivanov, **sp.n.**
Figs 1–6.

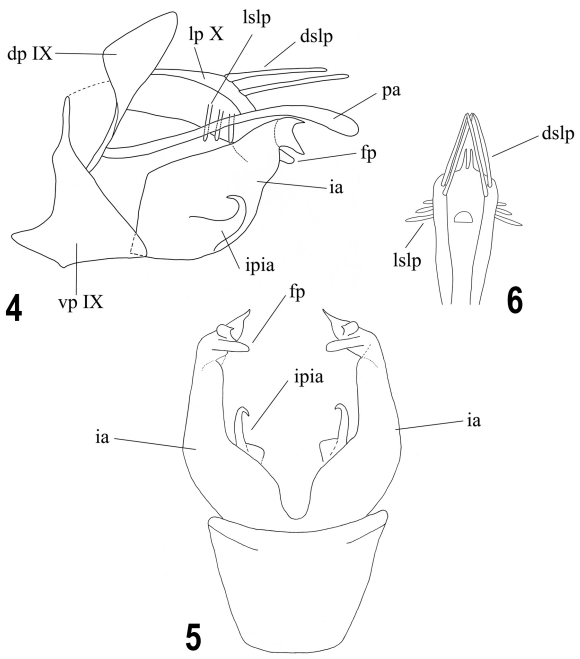
urn:lsid:zoobank.org:act:892B8D56-FD98-4DDD-81DB-0ED85ABE40B1

Material. **Indonesia, *Java:*** Holotype, ♂, Bromo Mountain, near Madakaripura waterfall, 650 m a.s.l., 07°50′41,9″ S, 113°00′48,5″ E, UV light traps, 3.II.2018, leg. V. Ivanov and S. Melnitsky. Paratypes: 1♂, 57♀♀ the same data as holotype.

Description. Holotype: male. Length of each forewing 3.0 mm, body length 2.5 mm. Head, palps and antennae light brown, abdomen and legs yellowish, wings brown. Scapus dark brown, pedicellum pale, almost white. Abdominal sternite V with small lateral cuticular sclerites associated with ducts of sternal pheromone glands.

Male genitalia. Ventral part of segment IX irregularly triangular, dorsally narrow, ventrally wide with anterad oriented, rounded lateral lobes. Dorsal part of segment IX narrow ventrally and with massive, triangularly expanded part dorsally. Preanal appendages long and very slender, slightly curved in distal part, with numerous long hairs. Inferior appendages shorter than preanal appendages. Basal part of inferior appendage elongate with strong curved internal hook-shaped process.

Figs 2–3. The type locality of *Tinodes dnemsognem* sp.n. in Volcano Bromo. 2 — the river valley; 3 — small waterfalls of the river tributary.
Рис. 2–3. Типовое местонахождение *Tinodes dnemsognem* sp.n. на горе Бромо. 2 — речная долина; 3 — малые водопады притока реки.



Figs 4–6. Male genital structures of *Tinodes dnemsognem* sp.n. 4 — genitalia, lateral; 5 — inferior appendages, ventral; 6 — segment X and phallic apparatus, dorsal. Designations: dp IX — dorsal part of segment IX, dslp — dorsal spines of segment X, fp — finger-like process of apical part of inferior appendage, ia — inferior appendage, ipia — internal hook-shaped process of inferior appendage, lp X — lateral part of segment X, lslp — lateral spines of segment X, pa — preanal appendages, vp IX — ventral part of segment IX.

Рис. 4–6. Структуры гениталий самца нового вида *Tinodes dnemsognem* sp.n. 4 — гениталии, вид сбоку; 5 — нижние придатки, вид снизу; 6 — сегмент X и фаллический комплекс, вид сверху. Обозначения: dp IX — дорсальная часть сегмента IX, dslp — дорсальные шипы сегмента X, fp — пальцевидные отростки концевой части нижнего придатка, ia — нижний придаток, ipia — внутренний крюковидный отросток нижнего придатка, lp X — латеральная часть сегмента X, lslp — латеральные шипы сегмента X, pa — преанальные придатки, vp IX — вентральная часть сегмента IX.

Apical part of inferior appendage very complex in shape: on lateral view with two pointed lobes directed backwards and finger-like process; one lobe larger, pointed, the other attached to it upwards at almost right angle. The finger-like process below this lobe long and directed inwards on the ventral view. Segment X and phallic apparatus elongate with long lateral sclerotized stripes provided with 3 pairs of strong lateral spines and 2 pairs of very long dorsal spines.

Comparison. This species is closely related to *T. kepheus* Malicky, 2004 from Indonesia (Java, Batu Mountain about 60 km west from the type locality of the new species). *T. dnemsognem* sp.n. differs from it and other related Java species in the shape and proportions of apical lobes and characteristically curved long internal hook-shaped process of inferior appendage. The shape of segment X apex and configuration and number of spines on it are different in *Tinodes kepheus* having only one pair of long dorsal spines and 4 paired lateral spines; other *Tinodes* have either other spine design or no spines.

Distribution. Indonesia, Eastern Java.

Etymology. The literal translation means «at daytime with fire». The name comes from a Russian idiom, the meaning of which can be interpreted as «you won't find it even if you search with a lantern» or «it's like searching for a needle in a haystack». Besides that, since Bromo is an active volcano, the new species has a good chance to meet eruption and fire in its life.

Remark. No other caddisflies or amphibiotic insects were collected in the type locality of *Tinodes dnemsognem* sp.n. near the waterfall Madakaripura. The new species is the most eastern of other known *Tinodes* from Java.

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