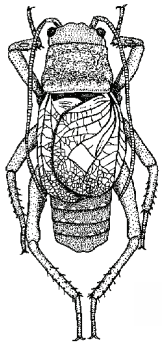

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# REVIEW OF THE GENUS *THANMOIA* RAMME, 1941 (ORTHOPTERA: ACRIDIDAE, OXYINAE)

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**Summary**. The genus *Thanmoia* Ramme, 1941 consists of four species endemic to Vietnam. An updated diagnosis of the genus, annotated list and original key to species are given. The previously unknown female of *T. olivacea* (Willemse, 1957) is described.

**Key words**: grasshoppers, Oxyini, taxonomy, key, fauna, South-East Asia.

**С. Ю. Стороженко. Обзор рода *Thanmoia* Ramme, 1941 (Orthoptera: Acrididae, Oxyinae) // Дальневосточный энтомолог. 2022. N 453. С. 1-7.**

**Резюме**. Род *Thanmoia* Ramme, 1941 включает четыре вида из Вьетнама. Даны расширенный диагноз рода, оригинальная определительная таблица и аннотированный список видов. Описана ранее неизвестная самка *T. olivacea* (Willemse, 1957).

## INTRODUCTION

The monotypic genus *Thanmoia* was described from Vietnam by Ramme (1941). Later two monotypic Vietnamese genera, *Annamacris* and *Oxyacris*, were established by Willemse (1957); both syninymized with *Thanmoia* by Hollis (1975). Nowadays *Thanmoia* consists of four species from Vietnam (Storozhenko, 1992; Cigliano *et*

*al*., 2022). Herein, an updated diagnosis of the genus, an original key to species, description of previously unknown female and an annotated list of species are given.

The morphological terminology and measurements followed those of Uvarov (1966) and Storozhenko *et al*. (2015). The terminology of male genitalia followed those of Dirsh (1956). Photographs were taken with an Olympus SZX16 stereomicroscope and an Olympus DP74 digital camera, and then stacked using Helicon Focus software. The final illustrations were post-processed for contrast and brightness using Adobe® Photoshop® software.

## TAXONOMY

### Subfamily Oxyinae Brunner von Wattenwyl, 1893

### Tribe Oxyini Brunner von Wattenwyl, 1893

### Genus *Thanmoia* Ramme, 1941

*Thanmoia* Ramme, 1941: 120 (type species: *Thanmoia gustavi* Ramme, 1941, by monotypy); Willemse, 1957: 483; Hollis, 1975: 207; Otte, 1995: 124; Yin *et al*., 1996: 698.

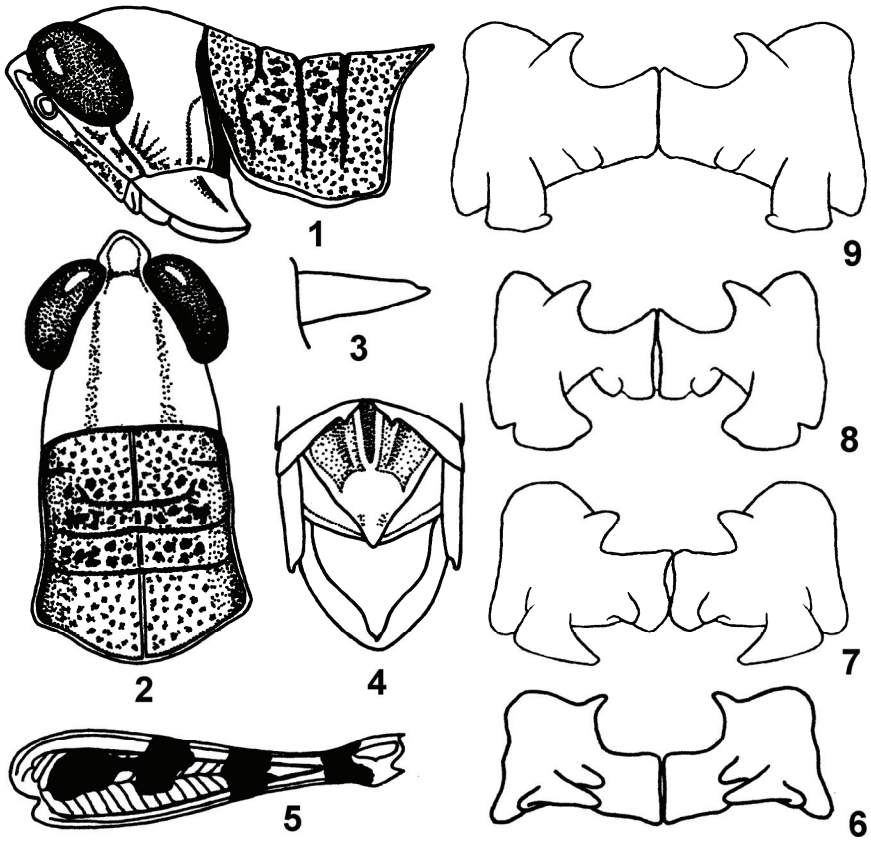
*Annamacris* Willemse, 1957: 479 (type species: *Annamacris olivacea* Willemse, 1957, by original designation); synonymized by Hollis (1975: 207).

*Oxyacris* Willemse, 1957: 480 (type species: *Oxyacris maculata* Willemse, 1957, by original designation); synonymized by Hollis (1975: 207).

DIAGNOSIS. Body large or medium-size for the tribe. Head shorter than pronotum. Face in profile reclinate (Fig. 1). Fastigium of vertex from above rounded pentagonal; median carinula absent (Fig. 2). Frontal ridge distinct, sulcate, with margins almost parallel (Fig. 13). Eyes large, oval. Antennae filiform, longer than head and pronotum combined. Pronotum rugose or almost smooth, crossed by three transverse furrows; prozona distinctly longer than metazona; median carina vestigial; lateral carinae absent; anterior margin of prozona almost straight; posterior margin of metazona triangularly rounded (Fig. 2). Prosternal spine slender, conical, with subacute or rounded apex. Mesosternal lobes broad, subsquare or trapezoidal; mesosternal interspace longer than wide. Tegmina and hind wings fully developed or somewhat shortened; parallel veinlets in radial and median areas on tegmen absent. Hind femora slender; both dorsal and ventral median carinae smooth; ventral genicular lobes of hind knee with distinct apical spine (Fig. 5). Hind tibiae apically expanded; outer apical dorsal spine absent or rare very small. Hind tarsi short, not longer than the half of hind tibiae; third segment (without claws) as long as two others together; arolium large, reaching the apex of claws. Male 10th abdominal tergite with weak furculae; supra-anal plate triangular, with a median basal impression; cerci conical; subgenital plate short (Fig. 4). Female supra-anal plate elongated, triangular, with a median basal impression; cerci conical; subgenital plate with triangle pointed apex. Ovipositor long, elongated; dorsal valves dentate only at apical quarter; ventral valves straight and dentate along the full length (Figs 11, 12). Male genitalia: epiphallus bridge-shaped, symmetrical; bridge completely divided; oval sclerite present (Figs 6–9); valves of cingulum short and almost straight; apical valves of penis shorter

than valves of cingulum; basal valves of penis connected with apical ones by unbroken flexure.

COMPOSITION. The genus consists of four species from Vietnam.




Figs 1–9. *Thanmoia* spp., males (1–6 after Storozhenko, 1992; 7–9 after Hollis, 1975). 1–6 – *T. ceracrifucosa*: 1 – head and pronotum, lateral view; 2 – the same, dorsal view; 3 – cercus, lateral view; 4 – apex of abdomen, dorsal view; 5 – hind femur, lateral view; 6 – epiphalus, dorsal view; 7 – the same, *T. maculata*; 8 – the same, *T. gustavi*; 9 – the same, *T. olivacea*.

## Key to species of *Thanmoia*

1(2) Hind tibia black. – Body with rugose integument. Tegmina and hind wings reaching the apex of hind femur (Fig. 10). Hind femur yellow greenish; outer area with one black band; knee red. Hind tarsus greenish. Epiphallus – Fig. 8 ..... ***T. gustavi***

2(1) Hind tibia bluish or red.

3(4) Hind tibia bluish. Body with smooth integument. Brachypterous: tegmina and hind wings reaching 4th abdominal tergite. Hind tarsus light bluish. – Hind femur yellow, outer area somewhat greenish; knee blackish brown with bluish ventral genicular lobes. Epiphallus – Fig. 7 ..... ***T. maculata***

4(3) Hind tibia red. Body with subrugose integument. Tegmina and hind wings reaching the apex of 7–9th abdominal tergites (Fig. 14). Hind tarsus red.

5(6) Hind femur yellow with three black bands; outer area with large black spot near the base (Fig. 5); knees black with yellowish apex. Basal part of wing bluish. Male cercus with shallow excision at apex (Fig. 3). Epiphallus – Fig. 6 ..... ***T. ceracrifucosa***

6(5) Hind femur yellowish green with two black bands; outer area in female without black spot near the base (Fig. 14), in male with small blackish spot; knees black with yellowish green ventral genicular lobes. Basal part of wing hyaline. Male cercus with obtuse apex. Epiphallus – Fig. 9 ..... ***T. olivacea***

## List of the species

### *Thanmoia ceracrifucosa* Storozhenko, 1992

Figs 1–6

*Thanmoia ceracrifucosa* Storozhenko, 1992: 27 (holotype – male, Vietnam, Gia Lai Province, 20 km N Kannak; in the Zoological Institute, St. Petersburg); Kim & Pham, 2014: 57.

MATERIAL EXAMINED. Vietnam: Gia Lai Province, 20 km N Kannak, Buon Luoi, 21–30.XI 1998, 1 ♂ (holotype), coll. A.V. Gorochov.

REMARKS. This species is known by male (holotype); female unknown.

DISTRIBUTION. North Vietnam (Gia Lai Province).

### *Thanmoia gustavi* Ramme, 1941

Figs 8, 10, 11

*Thanmoia gustavi* Ramme, 1941: 120 (holotype – female, Tonkin, Than-Moi; in Museum für Naturkunde, Berlin); Willemse, 1957: 484; Hollis, 1975: 208; Storozhenko, 1992: 29; Otte, 1995: 124; Yin *et al*., 1996: 698; Kim & Pham, 2014: 57.

MATERIAL EXAMINED. Vietnam: Vinh Phuc Province, vicinity of Tam Dao, 900–1000 m, 9–18.II 1990, 1 ♀, coll. A.V. Gorochov.

RAMARKS. This species was described by females. Apart from the type specimens there is a female paratype in the Natural History Museum Vienna and a male and two females from the type locality in the National Museum of Natural Science Madrid (Hollis, 1975).

DISTRIBUTION. North Vietnam (Lang Son and Vinh Phuc provinces).

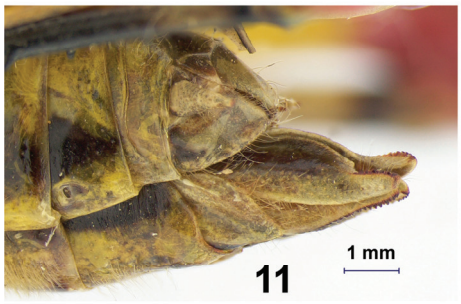
### *Thanmoia maculata* (Willemse, 1957)

Fig. 7

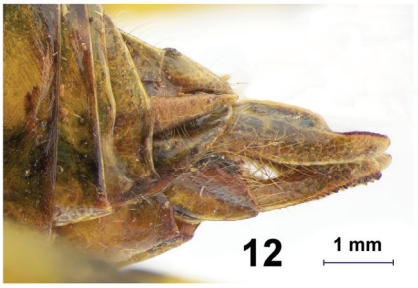
*Oxyacris maculata* Willemse, 1957: 481 (holotype – male, Cochin China, Nha Trang, Song Man; in the collection of C. Willemse, the Netherlands).

*Thanmoia maculata*: Hollis, 1975: 208; Otte, 1995: 124; Kim & Pham, 2014: 57.

REMARKS. This species is known by a single male only; female unknown.
DISTRIBUTION. South Vietnam (Khanh Hoa Province).







Figs 10–14. *Thanmoia* spp., females. 10, 11 – *T. gustavi*: 10 – body, lateral view; 11 – apex of abdomen, lateral view; 12–14 – *T. olivacea*: 12 – apex of abdomen, lateral view; 13 – head, frontal view; 14 – body, lateral view.

***Thanmoia olivacea* (Willemse, 1957)**
Fig 9, 12–14

*Annamacris olivacea* Willemse, 1957: 480 (holotype – male, Annam, Col des Nuages, near Tourane [= Da Nang]; in the Muséum national d' Histoire naturelle, Paris).
*Thanmoia olivacea*: Hollis, 1975: 208; Otte, 1995: 124; Kim & Pham, 2014: 57.

MATERIAL EXAMINED. Vietnam: Hua Thien Hue Province, Bach Ma National Park, 22–23.IX 2008, 1 ♀, coll. V.G. Bezborodov.

REMARKS. The description of unknown female is given below.

DESCRIPTION. Female (*nova*). Similar to male, but larger. Head in frontal view elongated, subrugose; frontal ridge narrow, complete, almost reaching clypeus (Fig. 13). Face in lateral view reclinate; frontal ridge almost straight (Fig. 14). Eyes large, oval; vertical diameter of eye 1.2 times as long as subocular furrow. Antennae 26-segmented, surpass the posterior margin of the pronotum; mid segments of antennae 3.7–4.0 times as long as their width. Pronotum long, subrugose, crossed by three transverse furrows; prozona 1.8 times as long as metazona. Mesosternal lobes subsquare, 1.1 times as wide as long; mesosternal interspace narrow, 2.7 times as wide as long. Tegmina touching each other in a resting position, reaching 9th abdominal tergite, with rounded apex. Hind wings in a rest position as long as tegmina. Hind femora slender, 4.4 times as long as their maximal width. Hind tibiae with 8 outer and 9 inner dorsal spines including a very small apical spine. Tympanum large, oval. Supra-anal plate triangle, elongated; median longitudinal sulcus shallow. Cerci conical with pointed apex. Subgenital plate elongated with posterior margin triangular. Dorsal valves of ovipositor as long as lower ones (Fig. 12).

Body olivaceous green; abdominal tergites yellow with black marks. Antennae black. Tegmina black with olivaceous green stripe along upper (posterior) margin and narrow yellow stripe between black and green parts. Fore and mid legs olivaceous green. Hind femur yellowish green, with two black bands; knees black with yellowish green ventral genicular lobes. Hind tibia and tarsus red. Ovipositor greenish brown.

MEASUREMENTS (female). Length of body 29.8; pronotum 7.0; tegmen 17.0; hind femur 18.5; ovipositor 2.9 mm.

DISTRIBUTION. Central Vietnam (Da Nang City, Thien Hue Province).

## CONCLUSION

The genus *Thanmoia* undoubtedly belongs to the tribe Oxyini of the subfamily Oxyinae by the majority of diagnostic characters mentioned above, such as symmetrical male genitalia with completely divided epiphallus, conical prosternal spine, narrow mesosternal interspace, both dorsal and ventral median carinae of the hind femora smooth, ventral genicular lobes of the hind knee with distinct apical spin, hind tibiae apically expanded, and outer apical dorsal spine of the hind tibiae absent or rare very small. Nevertheless, the females of *Thanmoia* demonstrate some similarity with representatives of the subfamily Incolacridinae. Both taxa are characterized by specific dentition of the ovipositor valves. In Incolacridinae, the dorsal valves shorter than lower ones, widened apically, dentate only at apex; ventral valves slightly curved

and also dentate or crenulate at apex only (Storozhenko, 2021), while in *Thanmoia*, the dorsal valves as long as lower ones, narrowed apically, dentate only in apical quarter; ventral valves almost straight and dentate along the full length (Figs 11, 12). Probably such similarity of the ovipositor dentition depends on using the same type of substrate for oviposition.

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