


## New species of the genera *Cranae* and *Lucretilis* (Orthoptera: Acrididae) from Indonesia with taxonomic notes on the tribe Cranaeini

## Новые виды родов *Cranae* и *Lucretilis* (Orthoptera: Acrididae) из Индонезии с таксономическими замечаниями по трибе Cranaeini

S.Yu. Storozhenko

С.Ю. Стороженко

Sergey Yu. Storozhenko , Federal Scientific Center of the East Asia Terrestrial Biodiversity, Far Eastern Branch of the Russian Academy of Sciences, Vladivostok 690022, Russia. E-mail: storozhenko@biosoil.ru

**Abstract.** Three species are described from Indonesia, namely *Cranae lolobatus* sp. nov. (Halmahera Island), *C. ferwillemsei* sp. nov. (New Guinea Island) and *Lucretilis balikpapan* sp. nov. (Borneo Island = Kalimantan). Position of the genera *Lucretilis* Stål, 1878 and *Cranae* Stål, 1878 in the modern classification of grasshoppers is discussed. First genus belongs to the nominative tribe of the subfamily Oxyinae. The genera *Cranae*, *Cranaella* Ramme, 1941, *Craneopsis* C. Willemse, 1933, *Opiptacris* Walker, 1870, *Paracranae* C. Willemse, 1931, *Phalaca* I. Bolívar, 1906, *Philicranae* C. Willemse, 1955 are placed in the tribe Cranaeini Brunner von Wattenwyl, 1893, **stat. resurr.** This tribe is transferred here from Oxyinae to the subfamily Hemiacridinae based on following characters: ventral genicular lobes of hind femora without spine; epiphallus bridge-like, not divided into two symmetric halves; zygoma apically with deep excision; valves of penis completely divided into basal and apical ones, and flexure between them absent.

**Резюме.** Из Индонезии описаны три новых вида: *Cranae lolobatus* sp. nov. (о-в Хальмахера), *C. ferwillemsei* sp. nov. (о-в Новая Гвинея) и *Lucretilis balikpapan* sp. nov. (о-в Борнео = Калимантан). Обсуждается положение родов *Lucretilis* Stål, 1878 и *Cranae* Stål, 1878 в современной системе саранчовых. Первый род относится к номинативной трибе подсемейства Охуиновые. Рода *Cranae*, *Cranaella* Ramme, 1941, *Craneopsis* C. Willemse, 1933, *Opiptacris* Walker, 1870, *Paracranae* C. Willemse, 1931, *Phalaca* I. Bolívar, 1906 и *Philicranae* C. Willemse, 1955 помещены в трибу Cranaeini Brunner von Wattenwyl, 1893, **stat. resurr.** Эта триба перенесена из Охуиновые в подсемейство Hemiacridinae на основании следующих признаков: нижние коленные лопасти задних бедер без вершинного шипа; эпифаллус мостовидный, не разделен на две симметричные части; зигома на вершине с глубоким и широким вырезом; базальные и апикальные створки пениса полностью разделены, а соединяющий их изогнутый склерит отсутствует.

**Key words:** grasshoppers, taxonomy, Southeast Asia, Orthoptera, Oxyinae, Oxyini, Hemiacridinae, Cranaeini, new species

**Ключевые слова:** саранчовые, таксономия, Юго-Восточная Азия, Orthoptera, Oxyinae, Oxyini, Hemiacridinae, Cranaeini, новые виды

**ZooBank Arcicle LSID:** urn:lsid:zoobank.org:pub:BB14E178-C161-4E74-A658-65632A247ADC

## Introduction

The group Cranaeae has been established for the genera *Cranae* Stål, 1878, *Lucretilis* Stål, 1878 and *Phemonoe* Stål, 1878 (Brunner von Wattenwyl, 1893). Nowadays *Cranae* is included in the nominative tribe of the subfamily Oxyinae, *Lucretilis* is placed among the genera of uncertain position in Oxyinae, and *Phalaca* I. Bolívar, 1906 (= *Phemonoe*) among the genera of uncertain position in the subfamily Catantopinae (Cigliano et al., 2020). To clarify the current position of *Cranae*, *Lucretilis* and related genera in the modern classification of grasshoppers, the external morphology and male genitalia of these genera are compared. Two new species of *Cranae* and one new species of *Lucretilis* are described below.

## Material and methods

This paper is based on the grasshoppers collected by A.V. Gorochov in Indonesia in 2004, 2011 and 2015. The studied specimens are deposited at the Zoological Institute, Russian Academy of Sciences, St Petersburg (ZIN). The morphological terminology and measurements follow Uvarov (1966) and Storozhenko et al. (2015). The terminology of male genitalia follows Dirsh (1956). The photographs of grasshoppers were made using a Canon EOS D6 digital camera with EF 100 mm f/2.8L Macro IS USM macro lens, Falcon Eyes SLK-2400S flash, and Combine ZM imaging software. The photographs of male genitalia 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.

## Taxonomic part

Family **Acrididae** MacLeay, 1821

Genus ***Cranae*** Stål, 1878

*Cranae* Stål, 1878: 41, 85; Brunner von Wattenwyl, 1893: 135; Brunner von Wattenwyl, 1898: 236; Kirby, 1910: 387.

*Cranae*: C. Willemse, 1956: 9, 97; F. Willemse, 1977a: 123; Otte, 1995: 110.

Type species *Cranae patagiata* Stål, 1878, by monotypy.

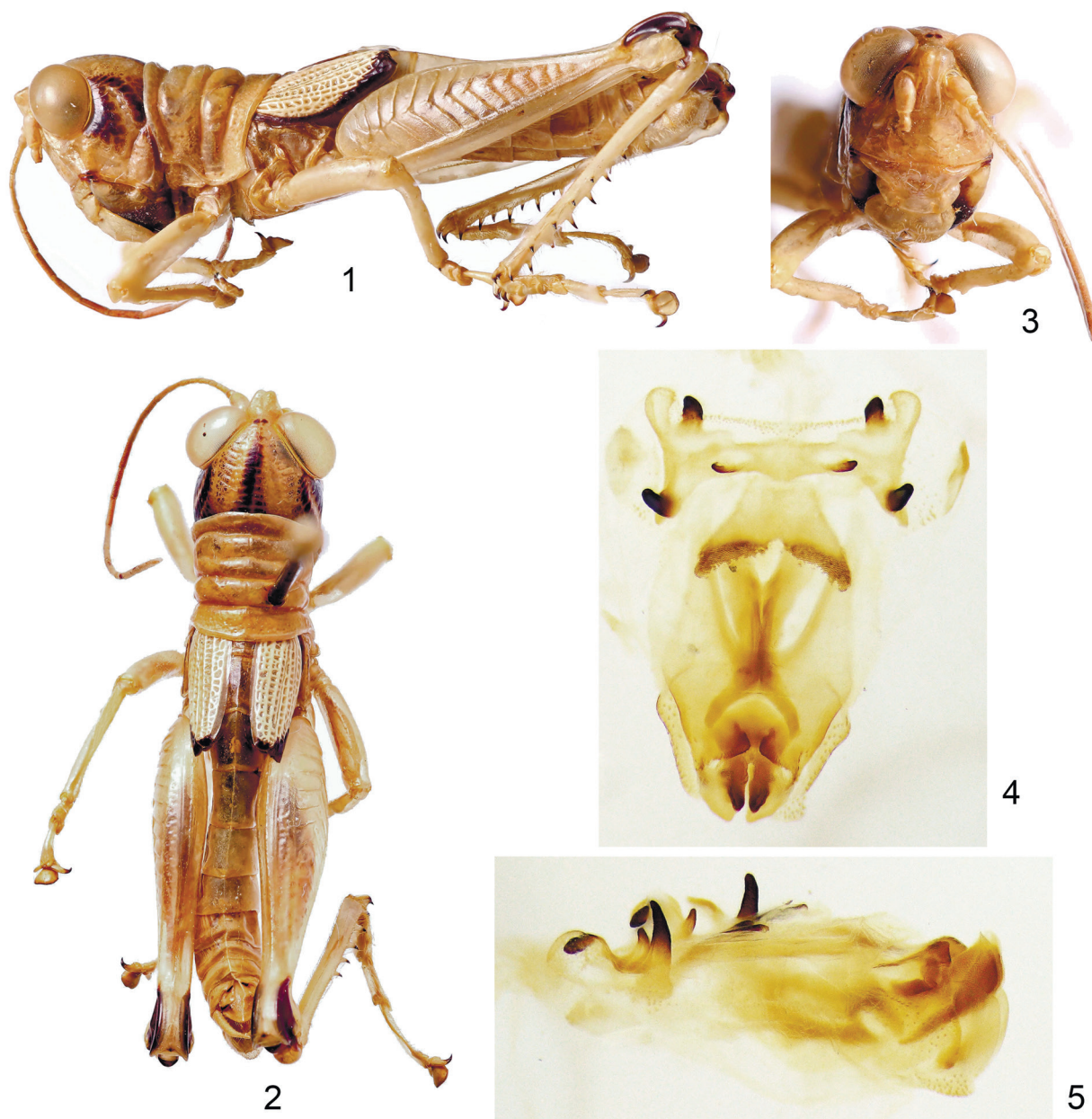
**Composition.** There are 16 species distributed in Malaysia, Indonesia and Papua New Guinea (C. Willemse, 1956; F. Willemse, 1977; Cigliano et al., 2020): *Cranae caprai* Ramme, 1941 (Indonesia, West Papua Prov., Sorong); *C. emendate* Brunner von Wattenwyl, 1898 (Malaysia, Sarawak State, Baram River); *C. genijam* F. Willemse, 1977 (Indonesia, Papua Prov., 40 km W of Jayapura, Genijam); *C. glabra* F. Willemse, 1977 (Indonesia, Papua Prov., Cenderawasih Bay, Biak I.); *C. kuekenthali kuekenthali* Brunner von Wattenwyl, 1898 (Indonesia, Maluku Prov., NE part of Halmahera I.); *C. k. annulata* Ramme, 1941 (Indonesia, Maluku Prov., W part of Halmahera I.); *C. longipennis* F. Willemse, 1977 (Papua New Guinea, Western Prov., Fly River, Olsobip); *C. luctuosa* C. Bolivar, 1923 (Indonesia, Maluku Prov., Obi Major I.); *C. manokwari* F. Willemse, 1977 (Indonesia, West Papua Prov., Manokwari, Tafelberg River); *C. nigroreticulata* Brunner von Wattenwyl, 1898 (Indonesia, Maluku Prov., Halmahera I.); *C. patagiata* Stål, 1878 (Indonesia, Maluku Prov., Ambon and Seram Islands); *C. pic-tipennis* C. Willemse, 1932 (Indonesia, Maluku Prov., Buru I., Nal'Besi near to Seram I.); *C. rubra* F. Willemse, 1977 (Papua New Guinea, Milne Bay Prov., Woodlark I., Murua, Kulumandau Hill); *C. rufipes* Ramme, 1941 (Papua New Guinea, Morobe Prov., Huon Peninsula); *C. tibialis* Brunner von Wattenwyl, 1898 (Indonesia, Maluku Prov., Kai Islands); *C. trivittata* C. Willemse, 1922 (Indonesia, Papua Prov., Kloofbivak on Lorentz River); *C. unistrigata* (Haan, 1842) (Indonesia, West Papua Prov., SW coast of New Guinea I.). Two new species from Indonesia are described below.

***Cranae lolobatensis*** Storozhenko, sp. nov.  
(Figs 1–8)

**Holotype.** Male, **Indonesia**, *Maluku Utara Prov.*, Halmahera Island, env. of Subaim Vill. to S from Lolobata Vill. (not far from it), near coast of Wasile Bay, 27.I–1.II 2011, coll. A. Gorochov (ZIN).

**Paratype.** Female, same data as for holotype (ZIN).

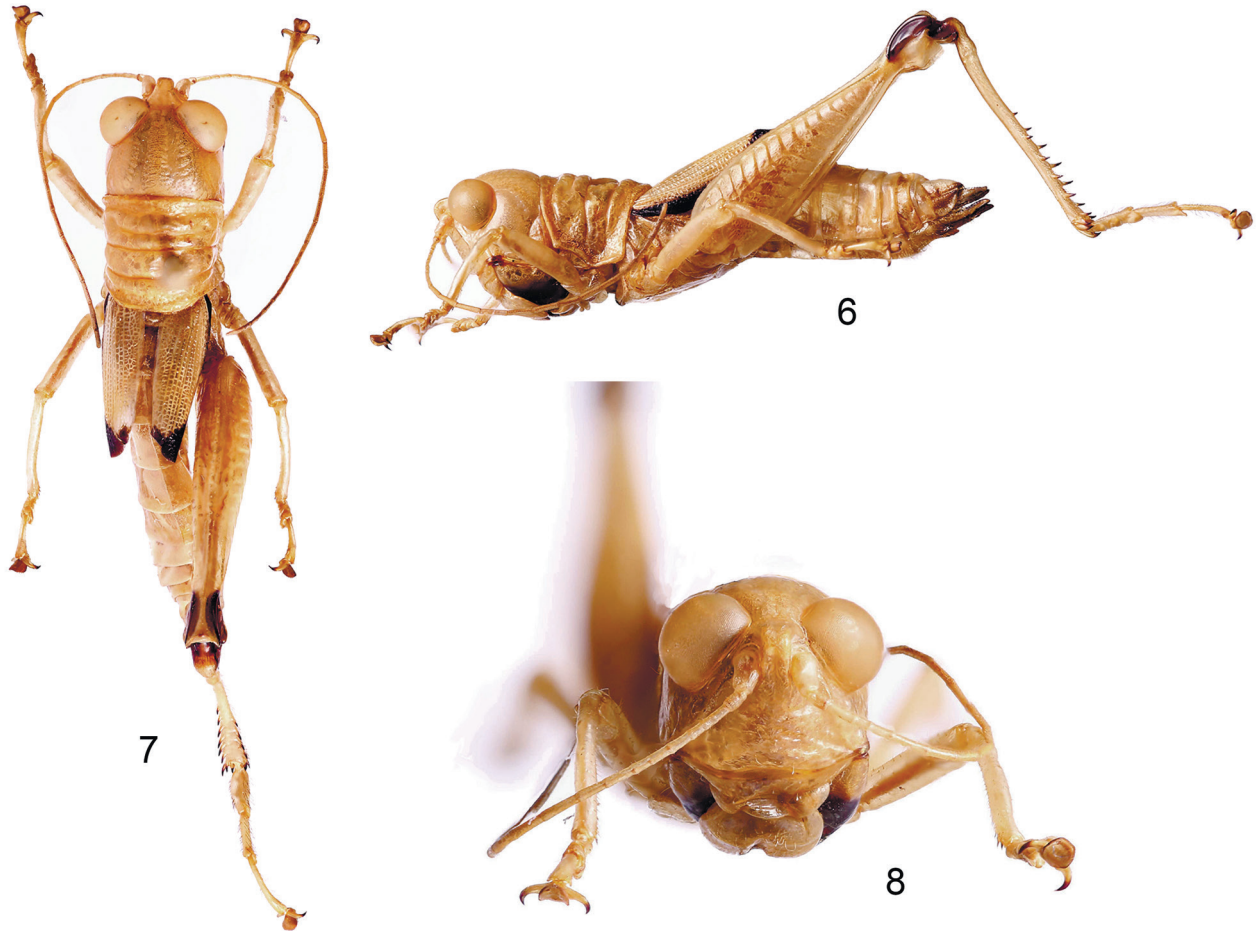
**Description.** Male (holotype). Body medium-sized for this genus; integument shiny (Figs 1, 2). Head thick, rounded, as long as pronotum.



**Figs 1–5.** *Cranae lolobatensis* sp. nov., male: **1, 2**, body, lateral (1) and dorsal (2) views; **3**, head, frontal view; **4, 5**, genitalia, dorsal (4) and lateral (5) views.

Face in profile slightly reclinate. Frontal ridge distinct only above median ocellus, weakly sulcate, with margins obtuse and nearly parallel (Fig. 3). Vertex between eyes 1.4 times as wide as frontal ridge between antennae. Fastigium of vertex slightly marked off from rest of vertex, more or less widely triangular from above, with truncated apex not reaching tip of 1st antennal segment, and without foveolae. Eyes ovoid-hemispherical; vertical diameter of eye 2.0 times as long as subocular

furrow. Antennae filiform, 24-segmented, reaching basal third of hind femora; mid segments of antennae about 4 times as long as width. Pronotum about as long and as wide as head, crossed by four transverse furrows; prozona 2.5 times as long as metazona; anterior margin of prozona not excised; posterior margin of metazona weakly rounded; median and lateral carinae absent. Lateral lobe of pronotum about as long as high. Prosternal process strong, vertical, laterally compressed, in



**Figs 6–8.** *Cranae lolobatensis* sp. nov., female: 6, 7, body, lateral (6) and dorsal (7) views; 8, head, frontal view.

frontal view slightly widened distally and with truncated apex. Mesosternal lobes wider than long, with inner margins convex; mesosternal interspace trapezoid; metasternal lobes fused. Tegmina short, 2.1 times as long as wide, not touching each other in resting position, reaching posterior margin of third abdominal tergite, with apex weakly excised. Hind wings slightly shorter than tegmina. Hind femora moderately stout, 3.8 times as long as their maximal width; dorsomedian carina slightly crenulate, terminating in a small tooth; ventral genicular lobes truncate. Hind tibiae with 5 outer and 7 inner dorsal spines; outer apical dorsal spine present. Hind tarsi slightly longer than half of hind tibiae; third segment (without claws) short, 0.5 times as long as two others together; arolium wide and long, surpassing apex of claws. Tympanum large, oval. Tenth abdominal tergite triangularly excised with a pair of well-separated small furculae on posterior margin. Supra-anal

plate roughly triangular, as long as its width near base, with transverse ridges near middle and longitudinal depression in basal half of plate as well as with smooth apex. Cerci slender, 4.0 times as long as their width near base, slightly up- and incurved, and with pointed apex reaching tip of subgenital plate. Subgenital plate subconical, short and with obtuse apex.

Male genitalia (Figs 4, 5). Epiphallus not divided into two symmetric halves; anterior projections large; ancorae elongate and lamellate, with apices rounded; posterior projections short, with apices rounded; bridge narrow, with anterior and posterior margins nearly straight; outer lophi of epiphallus large, projecting ecto-dorsally and separated distinctly from posterior projections; inner lophi shorter and also projecting ecto-dorsally; oval sclerites large. Ectophallic membrane with sclerotised plate near the middle. Cingulum sclerotised, consisting of broad apodemes, zygo-

ma and rami; zygoma apically with deep excision, not covering arch of cingulum; valves of cingulum short, divided, apically pointed. Apical valves of penis with pointed apex, as long as cingular valves; basal and apical penis valves touch each other but disconnected; flexure absent.

Body (after alcohol preservation) light brown with black marks (Figs 1, 2). Dorsal side of head light brown with black median stripe almost reaching fastigium of vertex; black postocular stripe wide; genae and face light brown; apical part of mandibles black; antennae brown. Pronotum completely light brown, without any black marks. Tegmina yellowish with black stripe along costal and apical margins. Hind wings black. Fore and mid legs light brown. Hind femur light brown, without any dark marks; dorsal genicular lobes blackish brown; ventral genicular lobes light brown. Hind tibia light brown; dorsal spines with black apex. Abdomen dorsally light brown; tenth tergite with black furculae; supra-anal plate light brown with black transverse ridges; cercus light brown. Body ventrally (including subgenital plate) light brown.

Female (Figs 6–8). Similar to male. Head as in male, but eyes hemispherical and vertical diameter of eye 1.5 times as long as subocular furrow. Antennae 25-segmented, reaching basal third of hind femora; mid segments of antennae 4.0–4.3 times as long as wide. Pronotum as in male, but prozona 2.6 times as long as metazona. Prosternal process, mesosternal and metasternal lobes as in male; mesosternal interspace 1.2 times as long as wide. Tegmina as in male, but 2.8 times as long as wide, almost reaching posterior margin of fourth abdominal tergite. Hind wings vestigial. Hind femora 4.1 times as long as their maximal width; dorsomedian carina and ventral genicular lobes as in male. Hind tibiae with five outer and seven inner dorsal spines; outer apical dorsal spine present. Hind tarsi and tympanum as in male. Posterior margin of tenth abdominal tergite angularly excised. Supra-anal plate tongue-like, 1.75 times as long as its width near base; median longitudinal sulcus absent. Cerci conical, slightly outcurved, 2.8 times as long as their width near base, almost reaching apex of supra-anal plate. Subgenital plate 1.4 times as long as wide, deeply sulcated between a pair of longitudinal keels; hind margin tridentate. Basivalvular plates elongated. Ovipositor

short; upper margin of dorsal valves and lower margin of ventral valves scarcely serrated; apices of both valves not definitely hooked.

Body (after alcohol preservation) generally coloured as in male, but head completely light brown, while apical half of mandibles black. Pronotum, sternal plate and abdomen light brown. Legs as in male. Supra-anal plate light brown with narrow blackish stripe around lateral and apical margins; apex of cercus blackish; subgenital plate light brown with blackish distal part of lateral keels; ovipositor black with light lateral sides.

*Measurements* (length in mm). Body: male 22.5, female 22.8; antenna: male 16.0, female 17.0; pronotum: male 4.2, female 4.7; tegmen: male 4.5, female 7.4; hind femur: male 12.0, female 13.8; hind tibia: male 9.8, female 10.5; ovipositor 1.4.

*Distribution*. Indonesia: Halmahera Island (Maluku Utara Province).

*Comparison*. The new species is similar to *Cranae emendata* and *C. tibialis* in the brown pronotum without any black marks. All other species of the genus *Cranae* has black or dark brown stripes or spots on the disc and the lateral lobes of pronotum (C. Willemse, 1956; F. Willemse, 1977a). The female of the new species differs from *C. emendata*, in which the male is unknown, in the colour of tegmen (in latter, the tegmen is light brown with dark brown apex). In both sexes of *C. tibialis*, the tegmina are completely light, and the valves of cingulum and apical valves of penis are long and narrow (see F. Willemse, 1977a: figs 18, 19); while in the new species, tegmina with narrow black stripe along anterior (lower) side reaching the apex of tegmen (Figs 1, 7), and the valves of cingulum and apical valves of penis are short and broad (Fig. 4).

*Etymology*. The new species is named after the type locality.

***Cranae ferwillemsei* Storozhenko, sp. nov.**  
(Figs 9–13)

*Holotype*. Male, **Indonesia**, *West Papua Prov.*, New Guinea I., env. of Manokwari Town, primary forest on hills near sea, 4–6.XI 2004, coll. A. Gorochoy (ZIN).

*Description*. Male (holotype). Body medium-sized for this genus; integument shiny (Figs 9, 10). Head thick, rounded, as long as pronotum. Occiput and genae finely punctuated. Face rugose,

in profile reclinate and straight. Frontal ridge distinct to median ocellus, sulcate, parallel-sized (Fig. 11); vertex between eyes almost 1.8 times as wide as this ridge between antennae. Fastigium of vertex slightly marked off rest of vertex, more or less widely triangular from above, with truncated apex not reaching tip of 1st antennal segment, and without foveolae. Eyes ovoid-hemispherical; vertical diameter of eye 1.8 times as long as subocular furrow. Antennae filiform, 25-segmented, reaching basal third of hind femora; mid segments of antennae 4.8–5.0 times as long as width. Pronotum rugose, long, crossed by four transverse furrows; prozona 2.3 times as long as metazona; anterior margin of prozona broadly rounded; posterior margin of metazona almost straight; lateral carinae absent; median carina low. Lateral lobe of pronotum about as long as high. Prosternal process strong, vertical, laterally compressed, in frontal view slightly widened distally and with truncated apex. Mesosternal lobes wider than long, with inner margins convex; mesosternal interspace trapezoid; metasternal lobes fused. Tegmina elongated, 3.2 times as long as wide, not touching each other in a resting position, reaching posterior margin of fifth abdominal tergite, with rounded apex. Hind wings slightly shorter than tegmina. Hind femora moderately stout, 3.8 times as long as their maximal width; dorsomedian carina slightly crenulate; ventral genicular lobes truncate. Hind tibiae with five outer and seven inner dorsal spines; outer apical dorsal spine present. Hind tarsi slightly longer than half of hind tibiae; third segment (without claws) 1.1 times as long as first one; arolium wide and long, surpassing apex of claws. Tympanum large, oval. Tenth abdominal tergite angularly excised and with a pair of well-separated small furculae on posterior margin. Supra-anal plate subsquare, as long as its width near base, with short transverse ridges near middle and shallow longitudinal depression in basal half of plate as well as with smooth apex. Cerci slender, 3.1 times as long as their width near base, surpassing tip of subgenital plate, with pointed apex. Subgenital plate subconical, short and with obtuse apex.

Male genitalia (Figs 12, 13). Epiphallus not divided into two symmetric halves; ancorae hook-like and almost completely fused with anterior projections; posterior projections narrowly trian-

gular; bridge narrow, with anterior and posterior margins nearly straight; outer lophi of epiphallus large, projecting ecto-dorsally and separated distinctly from posterior projections; inner lophi also projecting ecto-dorsally; oval sclerites large. Ectophallic membrane soft, with weakly sclerotised plate. Cingulum sclerotised, consisting of broad apodemes, zygoma, and rami; zygoma apically with deep excision, not covering arch of cingulum; valves of cingulum divided, apically lamellate. Apical valves of penis tapering apically, with apex tooth-shaped and slightly outcurved, considerable longer than cingular valves; basal and apical penis valves disconnected, only touch each other, flexure absent.

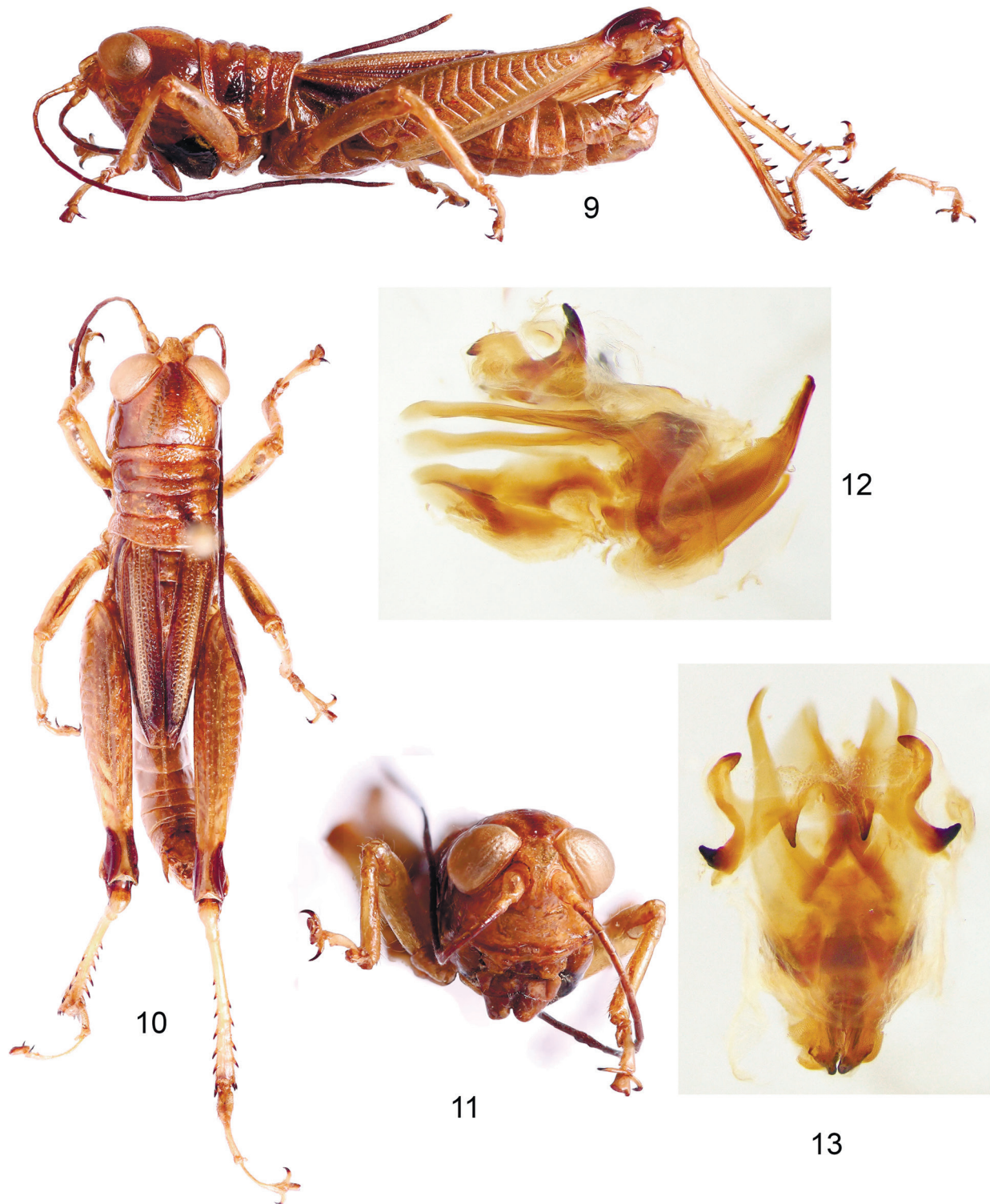
Body (after alcohol preservation) brown with blackish marks (Figs 9, 10). Dorsal side of head brown with two lateral light brown stripes; fastigium of vertex light brown; genae, face, clypeus and labrum brown; mandible black with brown base; antennae black except for light brown scapus and pedicel. Pronotum brown; lateral lobes of pronotum with blackish brown spot in central part; prosternal process and sternal plate light brown. Tegmina dark brown with wide light brown stripe along median part of each tegmen. Fore and mid legs greenish brown. Hind femur greenish brown, without any dark marks; dorsal genicular lobes shining brown; ventral genicular lobes light brown. Hind tibia greenish brown; dorsal spines with black apices. Tarsi light brown; claws with black apex. Abdomen dorsally light brown; tenth tergite light brown with dark brown furculae; supra-anal plate brown with a pair of transversal black stripes in middle part; cerci brown. Sternites and subgenital plate light brown.

Female unknown.

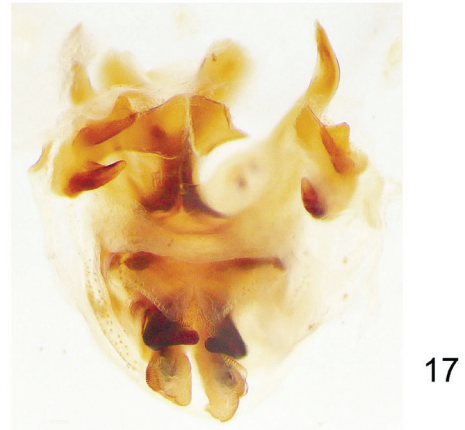
*Measurements* (length in mm). Male body: 22.4; antenna: 16.2; pronotum: 4.0; tegmen: 8.1; hind femur: 12.0; hind tibia: 8.9.

*Distribution*. Indonesia: New Guinea Island (West Papua Province).

*Comparison*. The new species is similar to *Cranae manokwari* F. Willemse, 1977 from the same province of Indonesia in the apical valves of penis tapering apically and with tooth-shaped and slightly outcurved apex (see F. Willemse, 1977a: figs. 34, 35), but it differs from the latter in the colour of head, pronotum and lower ventral genicular



**Figs 9–13.** *Cranae ferwillemsei* sp. nov., male: **9, 10**, body, lateral (9) and dorsal (10) views; **11**, head, frontal view; **12, 13**, genitalia, dorsal (12) and lateral (13) views.



**Figs 14–18.** *Lucretilis balikpapan* sp. nov., male: **14, 15**, body, lateral (14) and dorsal (15) views; **16**, head, frontal view; **17, 18**, genitalia, dorsal (17) and lateral (18) views.



lobes (in *C. manokwari*, the head and pronotum are black with yellow longitudinal stripes, and both dorsal and ventral genicular lobes are black).

**Etymology.** This species is named in memory of the Dutch orthopterist Fer Willemse (1927–2009).

Genus ***Lucretilis*** Stål, 1878

*Lucretilis* Stål, 1878: 41, 85; Kirby, 1910: 388; C. Willemse, 1956: 118; F. Willemse, 1967: 390; Hollis, 1975: 206; Otte, 1995: 309.

Type species *Lucretilis taeniata* Stål, 1878, by monotypy.

**Composition.** There are eight species distributed in Malaysia and Indonesia (Cigliano et al., 2020): *L. antennata* Bolívar, 1898 (Indonesia, West Sumatra Prov., Mentawai Islands); *L. bolivari* Miller, 1934 (Peninsular Malaysia, Pahang State); *L. dohrni* Ramme, 1941 (Indonesia, Sumatra I., Soekaranda); *L. jucunda* Miller, 1953 (Peninsular Malaysia, Kuala Lumpur); *L. maculata* C. Willemse, 1936 (Indonesia, East Kalimantan Prov.); *L. splendens* C. Willemse, 1938 (Malaysia, Sarawak State, Kuching); *L. taeniata* Stål, 1878 (Indonesia, Sumatra I.); *L. uvarovi* Miller, 1935 (Peninsular Malaysia, Pahang State, Kuantan). One new species from Kalimantan (= Borneo) is described below.

***Lucretilis balikpapan*** Storozhenko, sp. nov.  
(Figs 14–18)

**Holotype.** Male, **Indonesia**, *East Kalimantan Prov.*, 20 km N of Balikpapan City, Bukit Bangkirai Park, forest on hills, 01°1'43"N, 116°51'49"E, 4–8.X 2015, coll. A. Gorochoy, M. Berezin, I. Kamskov, E. Tkatsheva (ZIN).

**Description.** Male (holotype). Body rugose, medium-sized for this genus (Figs 14, 15). Head slightly shorter than pronotum; occiput and genae punctuated; face rugose. Face in profile distinctly reclinate and weakly excised below base of antennae. Frontal ridge distinct to median ocellus, sulcate, parallel-sized (Fig. 16). Vertex between eyes 1.3 times as wide as frontal ridge between antennae. Fastigium of vertex short, distinctly separated from vertex by furrow; lateral margins of fastigium bordered by low carinulae; foveolae absent. Eyes large, oval; vertical diameter of eye 1.9 times

as long as subocular furrow. Antennae filiform, 23-segmented, reaching middle of hind femora; mid segments of antennae 3.6–4.0 times as long as width. Pronotum rugose, long, crossed by three transverse furrows; prozona 1.9 times as long as metazona; anterior margin of prozona rounded; posterior margin of metazona triangular rounded; lateral carinae absent; median carina weak and low. Prosternal process transversally lamellate, at apex slightly widened. Mesosternal lobes subsquare, 1.1 times as wide as long; mesosternal interspace narrow, 2.0 times as long as wide; metasternal lobes touching each other in middle. Tegmina 4.1 times as long as wide, touching each other in resting position, reaching posterior margin of seventh abdominal tergite; apex broadly rounded. Hind wings slightly shorter than tegmina. Hind femora moderately slender, 5.1 times as long as their maximal width; dorsomedian carina weakly serrate; ventral genicular lobes with one sharp but short tooth. Hind tibiae with 7–8 outer and 7–8 inner dorsal spines; outer apical dorsal spine small. Hind tarsi short, not longer than half of hind tibiae; third segment (without claws) 1.4 times as long as first one; arolium large, reaching apex of claws. Tympanum large, oval. Tenth abdominal tergite with very short furculae on posterior margin. Supra-anal plate triangular, as long as its width near base, with lingua-like apex; median longitudinal sulcus deep. Cerci conical, 2.5 times as long as their width near base. Subgenital plate short, obtuse.

Male genitalia (Figs 17, 18). Epipallus bridge-shaped; bridge broad and completely divided; ancorae broad, triangular; anterior and posterior projections short, broadly rounded; outer lophi of epiphallus great; inner lophi absent; oval sclerites narrowly elongated. Cingulum sclerotised, consisting of broad apodemes, zygoma, and rami; zygoma broadly rounded apically, covering arch of cingulum; valves of cingulum broad, divided, apically curved. Apical valves of penis with broadly rounded apex, slightly shorter than cingular valves; basal and apical penis valves connected by narrow, strongly curved and unbroken flexure.

Body (after alcohol preservation) light brown with blackish marks (Figs 14, 15). Dorsal side of head light brown with two lateral dark brown stripes; fastigium of vertex brown with lateral

sides dark brown. Genae light brown with small black spot below eyes. Face and clypeus brown; labrum light brown; mandible brown with black apex. Antennae black except light brown scapus. Pronotum brown; transverse furrows dark brown. Prosternal process and sternal plate brown, with a few small blackish spots. Tegmina light brown, with broad black stripe along costal margin. Fore and mid legs yellowish brown. Hind femur light brown, without any dark marks; dorsal genicular lobes shining brown; ventral genicular lobes light brown; tooth with black apex. Hind tibia yellowish brown; dorsal spines black. Tarsi brown; claws with black apex. Abdomen dorsally brown; tenth tergite light brown with dark brown furculae; supra-anal plate brown. Cerci brown. Sternites and subgenital plate light brown.

Female unknown.

*Measurements* (length in mm). Male body: 21.5; antenna: 16.7; pronotum: 4.6; tegmen: 10.4; hind femur: 13.2; hind tibia: 11.5.

*Distribution*. Indonesia: Kalimantan Island (East Kalimantan Province).

*Comparison*. The new species is most similar to *L. antennata* in the colour of body and appendages but distinguished from the latter by the presence of a wide black stripe along the costal tegminal margin (in *L. antennata*, this tegminal area in the basal half light bluish green, the apical half more or less hyalinous, and the posterior margin also light bluish green). From two other congeners known from Kalimantan I., the new species differs in completely light brown face and pronotum (in *L. maculata*, the face is black with a small yellow spot near the base of antennae, and the disc of pronotum is black with four large yellow spots; in *L. splendens*, the face is completely black, the disc of pronotum is black and bordered along each lateral margin with a longitudinal yellow stripe).

*Etymology*. The new species is named after the type locality.

## Discussion

Nowadays, the subfamily Oxyinae consists of two tribes: Oxyini, widely distributed in the Old World except for Europe (Hollis, 1975), and the endemic Australian Praxibulini Rehn, 1957 (Rehn, 1957; Key, 1992), while there are a lot of genera with uncertain tribal position (Otte, 1995;

Cigliano et al., 2020). According to the present study, the genus *Lucretilis* undoubtedly belongs to the nominative tribe of Oxyinae.

On the contrary, *Cranae* is the type genus of the group Cranaeae *sensu* Brunner von Wattenwyl (1893) and F. Willemse (1977b). This group has been considered as the tribe Cranaeini in the subfamily Catantopinae (Mistshenko, 1952), but later Cranaeini was erroneously synonymized with Oxyinae (Hollis, 1975). The genus *Cranae* and a few related genera are regarded here as the tribe Cranaeini Brunner von Wattenwyl, 1893, **stat. resurr.** This tribe is also transferred from the subfamily Oxyinae to the subfamily Hemi-acridinae based on the following characters: ventral genicular lobes of hind femora without spine; epiphallus bridge-like, not divided into two symmetric halves; zygoma apically with deep excision; valves of penis completely divided into basal and apical ones, and flexure between them absent (in Oxyinae, ventral genicular lobes of hind femora with sharp spine; bridge of epiphallus divided into two symmetric halves; zygoma apically broadly rounded, straight or with shallow excision; basal and apical penis valves connected by a narrow and strongly curved sclerotized flexure). The tribe Cranaeini consists of at least seven Oriental genera: *Cranae*; *Cranaella* Ramme, 1941; *Craneopsis* C. Willemse, 1933; *Opiptacris* Walker, 1870; *Paracranae* C. Willemse, 1931; *Phalaca* I. Bolívar, 1906; *Philicranae* C. Willemse, 1955. It is clear that the current tribes of the subfamilies Oxyinae, Hemi-acridinae and Spathosterninae are in need of revision, because some of them may be polyphyletic taxa (Song et al., 2018).

## Acknowledgements

I thank Dr. A.V. Gorochoy for the possibility to study the collections of the Zoological Institute (St Petersburg) and Dr. V.M. Loktionov (Federal Scientific Center of the East Asia Terrestrial Biodiversity, Vladivostok) for help with preparing photos. I am sincerely grateful to anonymous reviewers for the valuable comments on the manuscript.

## References

**Brunner von Wattenwyl C.** 1893. Révision du système des Orthoptères et description des espèces rapportées par M. Leonardo Fea de Birmanie. *An-*

- nali del Museo civico di Storia naturale di Genova*, **33**: 1–230. <https://doi.org/10.5962/bhl.title.5121>
- Brunner von Wattenwyl C.** 1898. Orthopteren des Malayischen Archipels, gesammelt von Prof. Dr. W. Kükenthal in den Jahren 1893 und 1894, unter Berücksichtigung neuer verwandter Species. *Abhandlungen der Senckenbrischen Naturforschenden Gesellschaft*, **24**(2): 193–288.
- Cigliano M.M., Braun H., Eades D.C., & Otte D.** 2020. *Orthoptera Species File Online. Version 5.0/5.0* [online]. <http://Orthoptera.SpeciesFile.org> [viewed 9 June 2020].
- Dirsh V.M.** 1956. The phallic complex in Acridoidea (Orthoptera) in relation to taxonomy. *Transactions of the Royal Entomological Society of London*, **108**(7): 223–356. <https://doi.org/10.1111/j.1365-2311.1956.tb02270.x>
- Hollis D.** 1975. A review of the subfamily Oxyinae (Orthoptera: Acridoidea). *Bulletin of the British Museum (Natural History). Entomology*, **31**(6): 189–234. <https://doi.org/10.5962/bhl.part.29486>
- Key K.H.L.** 1992. A higher classification of the Australian Acridoidea (Orthoptera). I. General introduction and subfamily Oxyinae. *Invertebrate Taxonomy*, **6**(3): 547–551. <https://doi.org/10.1071/IT9920547>
- Kirby W.F.** 1910. *A synonymic catalogue of Orthoptera. Vol. III. Orthoptera Saltatoria. Part II. (Locustidae vel Acridiidae)*. London: The Trustees of the British Museum. 674 p.
- Mistshenko L.L.** 1952. Locusts and grasshoppers, Catantopinae. *Fauna SSSR. Nasekomye prjamokrylye*, **4**(2). [Fauna of USSR. Orthoptera]. Moscow–Leningrad: Academy of Sciences of USSR. 610 p. (In Russian).
- Otte D.** 1995. *Orthoptera Species File. 4. Grasshoppers (Acridomorpha). C. Acridoidea: Lentulidae, Pauliniidae, Tristiridae, Romaleidae, Acrididae (part)*. Philadelphia: Orthopterists' Society & Academy of Natural Sciences of Philadelphia. 518 p.
- Rehn J.A.G.** 1957. *The grasshoppers and locusts (Acridoidea) of Australia. III. Family Acrididae: subfamily Cyrtacanthacridinae, tribes Oxyini, Spathosternini, and Praxibulini*. Melbourne: CSIRO. 273 p.
- Song H., Mariño-Pérez R., Woller D.A. & Cigliano M.M.** 2018. Evolution, diversification, and biogeography of grasshoppers (Orthoptera: Acrididae). *Insect Systematics and Diversity*, **2**(4): 1–25. <https://doi.org/10.1093/isd/ixy008>
- Stål C.** 1878. Systema Acridiodeorum. Essai d'une systématization des Acridiodées. *Bihang till Kongliga Svenska Vetenskaps-Akademiens Handlingar*, **5**(4): 1–100.
- Storozhenko S.Yu., Kim T.W. & Jeon M.J.** 2015. *Monograph of Korean Orthoptera*. Incheon: National Institute of Biological Resources. 377 p.
- Uvarov B.P.** 1966. *Grasshoppers and locusts: a handbook of general acridology. Vol. 1. Anatomy, physiology, development, phase polymorphism, introduction to taxonomy*. Cambridge: University Press. 481 p.
- Willemsse C.** 1956. Synopsis of the Acridoidea of the Indo-Malayan and adjacent regions (Insecta, Orthoptera). Part II. Fam. Acrididae, subfam. Catantopinae. Part I. *Publicaties van het Natuurhistorisch Genootschap in Limburg*, **8**, 1955: 1–226.
- Willemsse F.** 1967. Additional data on some genera and species of Acrididae (Orthoptera, Acridoidea) from the Indo-Malayan region. *Tijdschrift voor Entomologie*, **110**(12): 381–397.
- Willemsse F.** 1977a. A study on the genus *Cranae* Stål (Orthoptera, Acridoidea, Catantopinae). *Tijdschrift voor Entomologie*, **120**(4–5): 121–152.
- Willemsse F.** 1977b. A study on the genus *Cranaella* Ramme (Orthoptera, Acridoidea, Catantopinae). *Tijdschrift voor Entomologie*, **120**(4–5): 109–120.

---

Received 1 August 2020 / Accepted 25 October 2020. Editorial responsibility: A.V. Gorochov