

A New Species of the Genus *Philbyella* China (Hemiptera, Auchenorrhyncha, Fulgoroidea: Nogodinidae) from the United Arab Emirates

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Abstract—*Philbyella aculeata* sp. n. is described from Fujairah Emirate (UAE) in the northeastern Arabian Peninsula. This species differs from the other members of the genus *Philbyella* China in the presence of a pair of spiniform triangular processes on the posterior margin of the male pygofer and in the style with a massive capitulum without the neck.

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The regular study and description of the insect fauna of the United Arab Emirates started 14 years ago within the framework of the project “Arthropod Fauna of the UAE” under the direction of Dr. A. van Harten. Based on the material collected, six papers concerning the Fulgoroidea were published (Wilson, 2010a, 2010b; Wilson and Turner, 2010; Gnezdilov and Wilson, 2011a, 2011b; Emeljanov and Gnezdilov, 2014). The genus *Philbyella* China, 1938 was reported as the only representative of the family Nogodinidae Melichar in the United Arab Emirates; however, the species was not identified (Wilson and Turner, 2010). The genus *Philbyella* was attributed by Fennah (1978) to the tribe Epacriini Fennah of the subfamily Nogodininae *sensu* Gnezdilov (Gnezdilov, 2012). Within the tribe Epacriini, *Philbyella* is most closely related to the monotypical genus *Morsina* Melichar, 1902 from Iran (Kerman Province) (Melichar, 1902) in the external structure but differs in the straight upper margin of the metope (in *Morsina persica* Melichar, 1902, the upper margin of the metope is sharply and deeply emarginate (Melichar, 1902, table 5, fig. 6a)).

The genus *Philbyella* established by W.E. China (1938) for a single species from Saudi Arabia currently comprises 8 species distributed from Iran and the Arabian Peninsula to northern and northeastern Africa (Dlabola and Heller, 1962; Linnavuori, 1973, 1989; Dlabola, 1980; Badawy et al., 2011). In the course of the field investigation in Fujairah Emirate, which was carried out at the end of March of 2017 under the patronage of the Crown Prince of Fujairah, His Highness, Sheikh Mohammed bin Hamad bin Mohammed Al Sharqi, with participation of specialists

from the Zoological Institute of the Russian Academy of Sciences, I found a new species of the genus *Philbyella*, which flew in mass to the light at the border of the “Wadi Wurayah” National Park. The description of this species is given below.

The type specimens of the species described are deposited in the Zoological Institute of the Russian Academy of Sciences (St. Petersburg, Russia)—ZIN, the Muséum national d’Histoire naturelle in Paris (France)—MNHN, and the Národní muzeum in Prague (Czech Republic)—NMPC.

Family **NOGODINIDAE** Melichar

Subfamily **NOGODININAE** Melichar

Tribe **Epacriini** Fennah

Genus *Philbyella* China

Philbyella adeiba Badawy,
El Hamouly et Sawaby, 2011

Philbyella adeiba Badawy, El Hamouly et Sawaby, 2011 : 500, figs. 1–15.

Distribution. Egypt (Gabal Elba: Wadi Adeib). The species was collected with Malaise trap (Badawy et al., 2011).

Philbyella ailet Linnavuori, 1973

Philbyella ailet Linnavuori, 1973 : 120, figs. 68a–68c.

Distribution. Eritrea (Ailet), Somalia (Daragodleh). The species was collected at light (Linnavuori, 1973).

Philbyella arabica China, 1938

Philbyella arabica China, 1938 : 437, figs. 58a–58d.

Distribution. Saudi Arabia (Mecca District).

Philbyella banajai Dlabola, 1980

(Figs. 19–22)

Philbyella banajai Dlabola, 1980 : 78, figs. 25–29.

Distribution. Saudi Arabia (Adama; Al Fresh; Wadi Shaib Luha; Jeddah-Taif).

Philbyella brevispina Linnavuori, 1989

Philbyella brevispina Linnavuori, 1989 : 8, figs. 5o–5s.

Distribution. Algeria (the Hoggar Mts.).

Philbyella elba Linnavuori, 1973

Philbyella elba Linnavuori, 1973 : 119, figs. 67a–67d.

Distribution. Sudan (Kassala: Jebel Elba). The species was collected at light (Linnavuori, 1973).

Philbyella glareaa Dlabola et Heller, 1962

Philbyella glareaa Dlabola et Heller, 1962 : 2, figs. 7–9.

Distribution. Iran (Beluchistan Province, Mekran Mts., SO Nahu).

Philbyella wittmeri Dlabola, 1980

Philbyella wittmeri Dlabola, 1980 : 78, figs. 19–24.

Distribution. Saudi Arabia (Wadi Khumra; Wadi Al Ammariya; Hilwah).

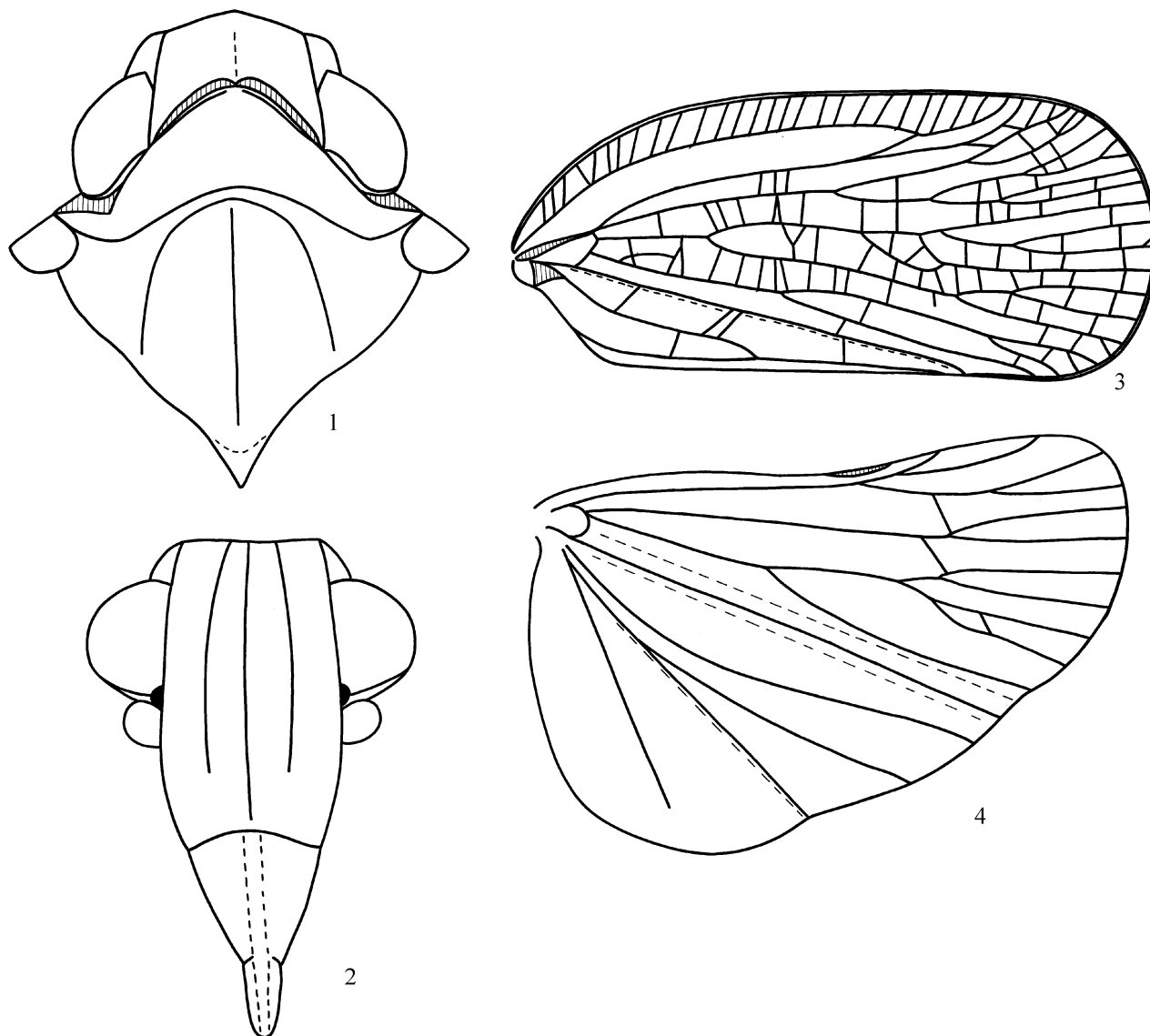
Philbyella aculeata Gnezdilov, sp. n.

(Figs. 1–18)

Description. Metope elongate, weakly widened above clypeus, about twice as long along midline as wide, with distinct median carina running from its upper margin to metopoclypeal suture and with less distinct sublateral carinae disappearing in its lower parts (Figs. 2, 13). Median and sublateral carinae not fused on upper margin of metope (Fig. 2). Lateral margins of metope weakly arcuately convex. Metopoclypeal suture distinct, slightly arcuately convex upward. Median carina of metope continuing onto post- and anteclypeus. Postclypeus with lateral carinae. Rostrum long; 2nd segment longest, reaching hind coxae; 3rd segment 0.5–0.7 times as long as 2nd, weakly con-

cally narrowed apically. Pair of large ocelli present. Metope and coryphe converging at acute angle (in lateral view). Coryphe transverse, without carinae, about twice as wide as long along midline; its anterior margin convex, and lateral margins diverging toward its deeply concave posterior margin (Figs. 1, 11, 12). Pronotum slightly longer than coryphe along midline, without carinae, with wide paradiscal fields, with strongly convex anterior margin and with arcuately concave posterior margin. Paranotal lobes of pronotum wide. Tegulae large. Mesonotum 3 times as long as pronotum, with median and lateral carinae (Fig. 1). Fore wings in rest roof-shaped, without hypocostal plate, with wide precostal area, 1/3 of their length projecting beyond apex of abdomen. Fore wing with large, oblong-oval basal cell. *R* furcating closely to basal cell, *M*, in first 1/3 of length of wing, and *CuA*, near middle of wing. *R* 12 *M* 8 *Cua* 4 (Fig. 3); cross-veins abundant, also in precostal area. Clavus long, about 3/4 as long as wing, closed (*Pcu* + *A*₁ running into *A*₂ before apex of clavus). Hind wings subequal in length to fore wings, three-lobed with weak cubital and vannal clefts; coupling lobe present. *R* 4 *r-m* 1 *M* 2 *m-cua* 1 *CuA* 5 *CuP* 1 *Pcu* 1 *A*₁ 2 *A*₂ 1 (Fig. 4). *R* and *M* first furcating behind middle of wing, *CuA*, near middle of wing. *Pcu* curved toward *CuP*. Hind tibia with 3 lateral spines: 1 small spine proximally and 2 large spines distally (Fig. 16). Apex of hind tibia with 11 spines. 1st and 2nd metatarsomeres subequal in length; 1st metatarsomere with 2 lateroapical and 10 intermedial spines forming continuous V-shaped row. Claws of pretarsus projecting beyond posterior margin of arolium by half of their length (dorsal view).

Coloration. Head dark brown to black (Figs. 11–13). Postclypeus dark brown with yellowish brown median carina; frontal part of postclypeus frequently yellowish brown. Lateral parts of postclypeus and anteclypeus dark brown. Pedicel greenish-dark brown to black. Ocelli pale. Coryphe, pronotum, and mesonotum yellowish brown to dark brown and black; thus, lateral parts of mesonotum (outward of lateral carinae) darker than its median part (inward of lateral carinae). Paranotal lobes dark brown to black. Fore wings dark brown to black with large and small pale spots occasionally merging in proximal part of wing; row of pale spots running onto precostal area (Figs. 11, 12, 17). Hind wings grayish brown to dark brown, with dark brown to black veins (Fig. 18). Ventral surface yellowish brown. Epimera and episterna of thorax dark

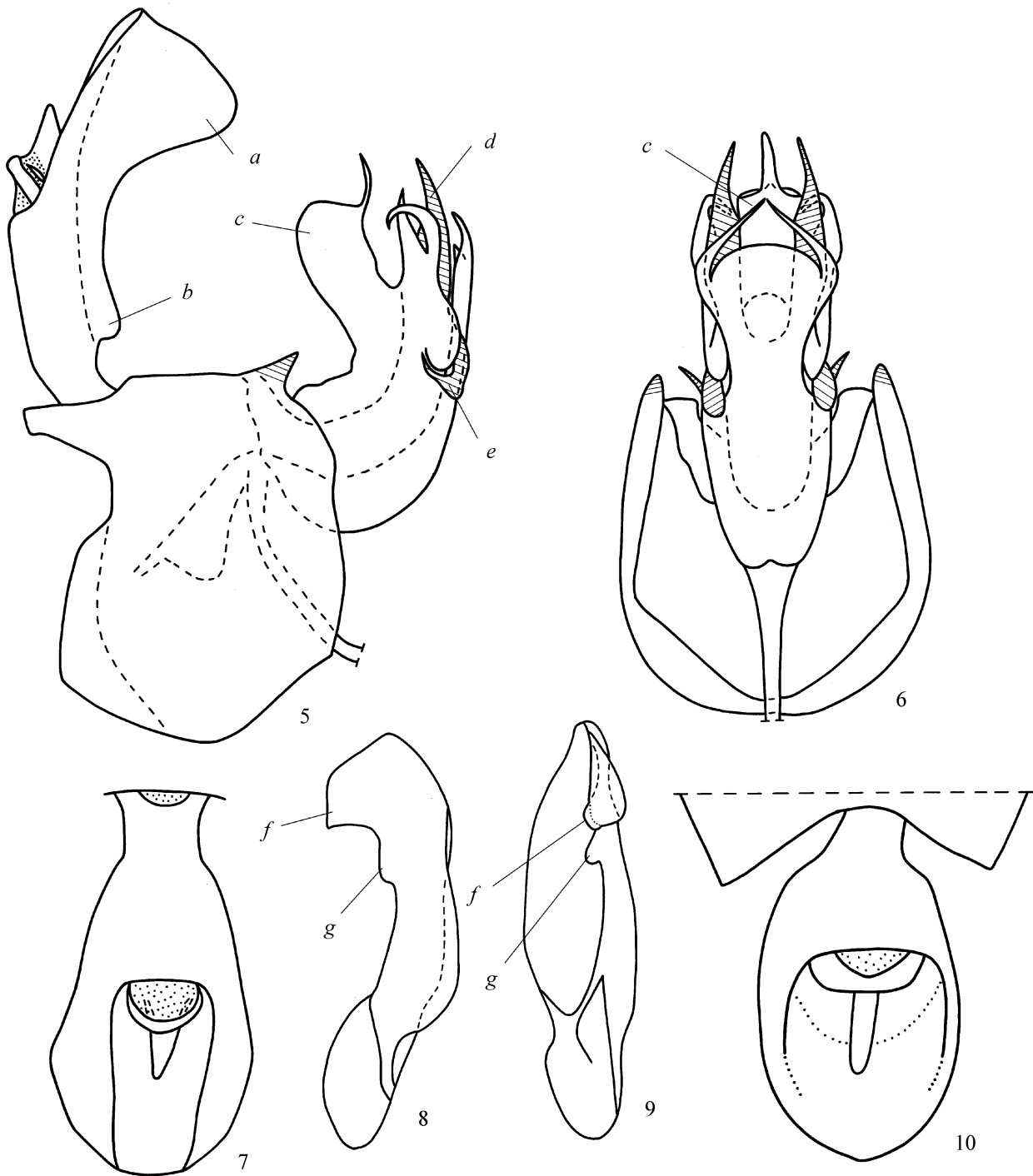


Figs. 1–4. *Philbyella aculeata* sp. n., male holotype (1, 2) and female paratype (3, 4): (1) head, pronotum, and mesonotum (dorsal view); (2) head (front view); (3) fore wing; (4) hind wing.

brown. Fore and middle femora and tibiae dark brown; hind femur and tibia yellowish brown; in dark specimens, all legs dark brown. Spines on legs with black apices. Abdominal tergites dark brown. Anal tube of male and female dark brown. Gonoplasts dark brown, except for pale, weakly sclerotized apical parts (Fig. 15).

Male genitalia (Figs. 5–9, 14). Pygofer wide (in lateral view). Posterior margin of pygofer shallowly emarginate, with pair of large triangular spiniform processes at the points of phallobase attachment (Fig. 5). Lower margin of pygofer (below bases of styli) arcuately emarginate (Fig. 14). Anal tube large, subequal in length to phallobase, elongate, widened

toward apex, with lateral margins deflexed in shape of large semicircular lobes (Fig. 5a). Dorsal surface of anal tube with pair of longitudinal carinae (Fig. 7). Lower margin of anal tube with small semicircular projection at base (lateral view) (Fig. 5b). Anal column short, narrow. Phallobase wide (lateral view); its dorsoapical part in shape of cylindrical hollow projection with narrow ventral process (Figs. 5c; 6c). Each of lateral lobes of phallobase with 2 narrow horn-shaped processes at apex: one directed upward, and other recurved. Ventral lobe of phallobase long, wide, widened toward arcuately rounded apex, with pair of long horn-shaped processes at sides (Fig. 6). Apical processes of aedeagus horn-shaped, narrowed apically,



Figs. 5–10. *Philbyella aculeata* sp. n., male, holotype (5–9) and female, paratype (10): (5) genital block (lateral view); (6) pygofer and penis (ventral view); (7, 10) anal tube (dorsal view); (8) stylus (lateral view); (9) stylus (dorsal view). Abbreviations: (a) semicircular lobes of anal tube; (b) semicircular projection of lower margin of anal tube; (c) cylindrical hollow projection of phallobase; (d) apical processes of aedeagus; (e) ventral hooks of aedeagus; (f) apical tooth of stylus; (g) rounded process below capitulum of stylus.



Figs. 11–14. *Philbyella aculeata* sp. n., female (11) and male (12–14), paratypes: (11, 12) dorsal habitus; (13) head, front view; (14) genital block, ventral view.

projecting beyond upper margin of phallobase (Fig. 5d). Aedeagus with pair of short curved ventral hooks (Fig. 5e). Connective in shape of narrow cup. Stylus long, narrow; capitulum wide, without neck, with short apical tooth (Figs. 8f; 9f); rounded process present below capitulum (Figs. 8g; 9g).

Female genitalia (Figs. 10, 15). Posterior margin of sternite VII deeply emarginate. Ovipositor flattened laterally. Gonoplacs roundly triangular (lateral view) (Fig. 15). Anal tube oblong-oval (dorsal view)

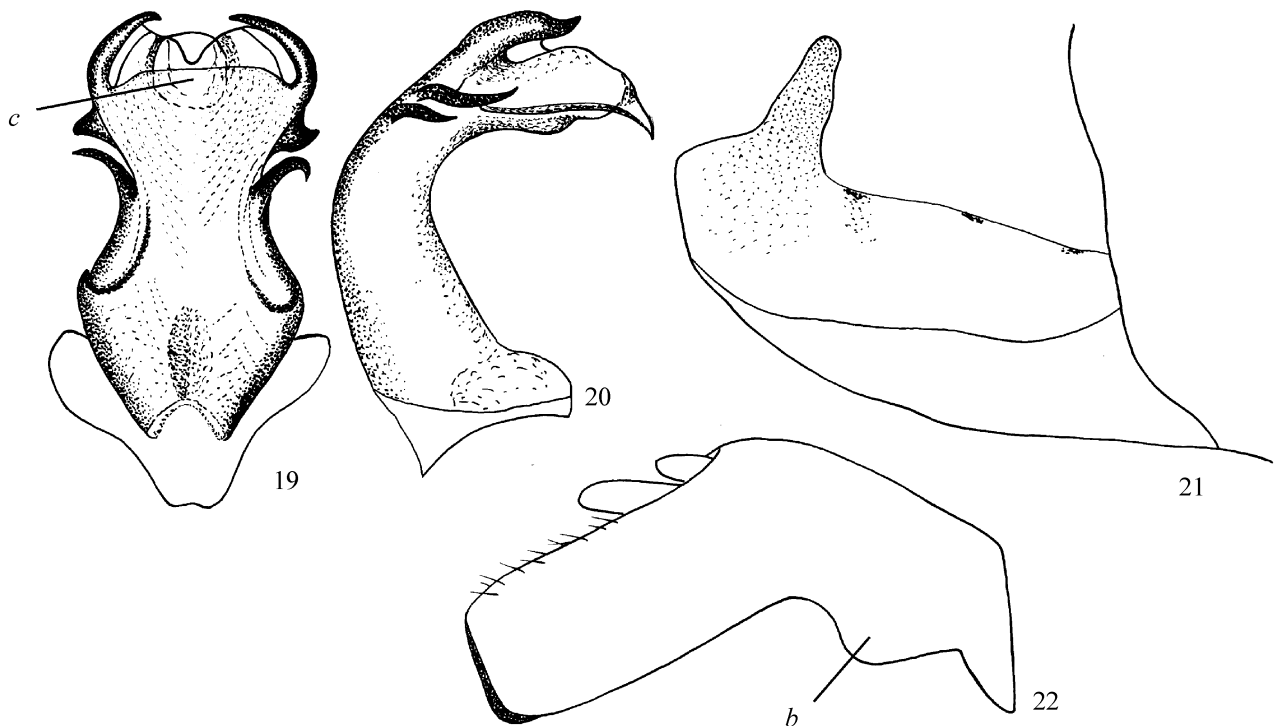
(Fig. 10). Anal column long ($1/3$ as long as anal tube), narrow.

Body length: 7.0–8.0 mm in males, 7.8–8.8 mm in females.

Material. **The United Arab Emirates.** Holotype, ♂: Fujairah, Wadi Wurayah National Park, cordon, 25°23.366'N, 56°18.356'E, 165 m, at light, 22.III.2017, V.M. Gnezdilov leg. (ZIN). Paratypes: 2 ♂, 5 ♀, as holotype (ZIN); 22 ♂, 14 ♀ (1 ♂, 1 ♀ in ethanol), same locality, at light, 27–31.III.2017, V.M. Gnezdilov



Figs. 15–18. *Philbyella aculeata* sp. n., female, paratype: (15) ovipositor (lateral view); (16) hind tibia (lateral view); (17) fore wing; (18) hind wing.



Figs. 19–22. *Philbyella banajai* Dlabola, 1980, male genitalia (after Dlabola, 1980, modified): (19) phallobase (ventral view); (20) phallobase (lateral view); (21) stylus and posterior margin of pygofer (lateral view); (22) anal tube (lateral view). For abbreviations see Figs. 5–10.



Figs. 23–26. Type locality of *Philbyella aculeata* sp. n., Wadi Wurayah (photographs by V.M. Gnezdilov).



Figs. 23–26. (Contd.)

leg. (20 ♂, 12 ♀ ZIN; 1 ♂, 1 ♀ MNHN; 1 ♂, 1 ♀ NMPC); 1 ♂, same locality, 28.III.2017, V. Byalt leg. (ZIN); 2 ♂, 1 ♀, Fujairah, Wadi Wurayah National Park, 25°23'46.5"N, 56°16'10.2"E, 170 m, at light, 26.III.2017, V.M. Gnezdilov leg. (ZIN).

Etymology. The name of the species refers to its distinctive character—the presence of spines on the posterior margin of the male pygofer.

Habitat. The species was collected from low-mountainous stony areas with poor vegetation, including Fabaceae (*Acacia tortilis*, *Tephrosia apollinea*), Gramineae (*Saccharum ravennae*, *Aristida ?abnormis*, *Arundo donax*, *Phragmites australis*), Euphorbiaceae (*Euphorbia larica*), Resedaceae (*Ochradenus aucheri*), Polygonaceae (*Pteropyrum scoparium*), and Moraceae (*Ficus cordata salicifolia*) (Figs. 23–26). Most of the type specimens were collected at the border of the nature reserve at luminescent lamp light at 7–11 p. m.

Comparative notes. The new species differs from all the congeners in the presence of a pair of spines at the posterior margin of the male pygofer and in the stylus with a wide capitulum and without a neck. The other species of the genus are characterized by a convex posterior margin of the pygofer without spines and by a usually long capitulum of the stylus (Fig. 21), except for *Ph. brevispina* Linnavuori, 1989 with a short capitulum (Linnavuori, 1989, fig. 5o). In the presence of an apical cylindrical hollow projection of the phallobase and a semicircular projection of the lower margin of the anal tube of the male, the new species is most closely related to *Ph. banajai* Dlabola, 1980 (Figs. 19c, 22b).

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