

THE GENUS MYNDUS IN THE MALAY ISLANDS
(HOMOPTERA)

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ONE PLATE

Genus MYNDUS Stål

Myndus STÅL, Berl. Ent. Zeit. 6 (1862) 307; type, *musivus* Stål.

Most of the described species of this genus inhabit North America and the West Indies, thirteen species being recorded from those regions. Two species are recorded from the Pa-læarctic Region, one from Fiji, and one from Samoa. The present paper describes eleven species from the Malay Islands and thereby gives a totally different orientation to the distribution of this genus. These species differ from the type species in having the vertex and frons comparatively broader, especially *Myndus caligineus*. In this respect they approach such North American species as *M. erotatus* Van Duzee, but in this species the transverse carina is indistinct and there is an indistinct longitudinal median carina on the basal half of the vertex.

The first five are all closely related; *M. semialbus* stands by itself as does *M. dolosus*; *M. fasciatus* and *M. brunneus* from Amboina are also isolated. The two species from Borneo, *M. mundus* and *M. caligineus*, differ considerably from the others. Many more species of this genus are sure to be found in the Malay Archipelago, but their identification will be almost impossible unless the male genitalia are described or figured.

The types of the new species described in this paper are in the Hawaiian Sugar Planters' Experiment Station collection, Honolulu. Paratypes, when present, are in the Baker collection.

Myndus maculosus sp. nov. Plate 1, fig. 1.

Male.—Length, 2.1 millimeters; tegmen, 2.9. Width of vertex at base slightly greater than length in middle; transverse carina about middle. Length of face subequal to width, narrowest at base. Forking of Sc and R slightly basad of Cu.

Pygofer asymmetrical; right side produced into a large process rounded at apex, left side with a small projection near anal angle; medioventral process subconical in outline. Anal segment asymmetrical, the left margin being much lower than the right. Genital styles small, flat laterally, bent in middle to nearly a right angle, apex bluntly pointed. Periandrium with apical two-thirds membranous, basal third chitinous, a large process on ventral aspect bifurcate at apex, one very small and the other larger and curved, two small spines on the right side; aedeagus membranous.

Stramineous; darker over abdomen. Tegmina hyaline, apices of apical veins fuscous extending a little way down, apical crossveins fuscous, a few small spots at crossveins, one at apex of costa, one at fork of Sc and R, one at fork of Cu, one at apex of clavus, one at fork of clavus; veins stramineous except at spots, tubercles minute, same color as veins. Wings hyaline, veins slightly stramineous.

Female.—Length, 2.2 millimeters; tegmen, 3. In color a little darker than male, especially over the abdomen.

LUZON, Laguna Province, Los Baños (*Muir*), September, 1915, 2 males and 8 females; (*Baker 1304*), 1 female: Tayabas Province, Malinao (*Baker*), 1 female. Type No. 1069.

Myndus mindanaoensis sp. nov. Plate 1, fig. 2.

Male.—Length, 2 millimeters; tegmen, 2.8. In build and coloration this species is very similar to *M. maculosus*, but the genitalia differ as follows:

Right lateral margin of anal segment produced into two pointed processes; the production on right margin of pygofer longer and narrower at base, the angular projection on left side larger; genital styles larger with three small lobes at apex; the basal portion of periandrium having one bilobed process with lobes short, pointed, curved, and of equal length.

Female.—Length, 2.7 millimeters; tegmen, 3. Similar to *M. maculosus*, but slightly darker and the spots on tegmina darker.

MINDANAO, Kolambugan (*Baker*), 1 male: Dapitan (*Baker*), 2 females. Type No. 1070.

Myndus palawanensis sp. nov. Plate 1, fig. 3.

Male.—Length, 2.3 millimeters; tegmen, 2.7. Vertex slightly longer than width at base, base considerably wider than apex; frons slightly longer than wide, narrowest at base. Sc + R forking about middle of costa, Cu forking slightly more distad.

Pygofer asymmetrical, right side produced into a long quadrate process about two and one-half times as long as broad; left side produced into a small angle at anal angle, medioventral process angular. Anal segment large and asymmetrical, the shape as shown in figure. Periandrium with a thick process from near base with its apex bifurcate, a smaller spine nearer the apex. Genital styles flat, narrow, angular in middle.

Light brown. Tegmina hyaline, slightly stramineous, veins slightly darker; tubercles very small, same color as veins; apices of apical veins fuscous, crossveins, a dot at apex of clavus and at apex of costal and at fork of cubitus fuscous. These fuscous spots are very faint in some specimens; and in some there is a faint suggestion of a fuscous mark from middle of costa to apex of clavus.

Female.—Length, 3 millimeters; tegmen, 3.7. Considerably darker in color than the male, marks on tegmina more distinct.

PALAWAN, Puerto Princesa (*Baker 10071*), 3 males and 2 females, type locality. MINDANAO, Dapitan (*Baker 13347, 13348*), 1 male and 2 females; Butuan (*Baker 10073*), 1 female. BASSILAN (*Baker*), 3 specimens. BORNEO, Sandakan (*Baker 13343*), 2 males and 2 females. Type No. 1067. There are also three females from Larat (*F. Muir*), December, 1907, and one from Piroe, Ceram (*Muir*), January, 1909, which agree with the Philippine females, but I have not included them in the type material.

Myndus hyalinus sp. nov. Plate 1, fig. 4.

Male.—Length, 2.5 millimeters; tegmen, 3. Width of vertex slightly greater than length in middle, transverse carina about middle, base considerably wider than apex; width of frons nearly equal to length, narrowest at base; median ocellus present. Sc + R forked about middle of costa, Cu forked slightly distad.

Pygofer asymmetrical, the right side produced into a large quadrate process, longer than broad, with the dorsal corner forming a minute point; medioventral margin produced into a conical outlined process. Anal segment large, asymmetrical, as shown in figure. Periandrium with five spines, a large, curved basal one, two smaller slightly distad, and two very small ones near apex. Genital styles bent nearly at a right angle in middle.

Frons, vertex, and mesonotum dark brown; pronotum, legs, and abdomen lighter brown. Tegmina hyaline, slightly stramineous, veins stramineous, tubercles very small, same color as veins. Wings hyaline with light brown veins.

Female.—Length, 3 millimeters; tegmen, 3.3. Same color as male. Ovipositor considerably longer than pygofer, projecting well beyond apex of anal segment; pygofer longer than wide.

MINDANAO, Butuan (*Baker 10074*), 2 males and 2 females; Iligan (*Baker 10072*), 1 female. Type No. 1066.

Myndus obscuratus sp. nov. Plate 1, fig. 5.

Male.—Length, 3 millimeters; tegmen, 3.8. Length of vertex in middle equal to width at base; transverse carina about middle; face about as wide as long. Forking of Sc and R about middle of costa, Cu forking slightly more distad.

Pygofer asymmetrical, the right side being produced into a large process, medioventral process angular. Anal segment asymmetrical, in lateral view the left side of the ventral margin produced into a large angular process slightly curved, the dorsal margin into a large angular process, the apex pointed, the right side not so produced. The genital styles curved, with a large rounded process in the middle of the inner margin, apex slightly rounded. Perandrium fairly large with seven or eight spines as in figure.

Stramineous; slightly darker over vertex and middle of mesonotum. Tegmina hyaline, very slightly stramineous; veins stramineous, slightly fuscous on apices; tubercles numerous, minute; a faint fuscous mark at apex of clavus. Wings hyaline, veins light brown.

Female.—Length, 3.4 millimeters; tegmen, 4. Similar to male but darker over thorax and abdomen; ovipositor projecting beyond the pygofer, pygofer longer than wide.

LUZON, Mount Banahao (type locality) and Mount Maquiling (*Muir*), February, 1914; (*Baker 2824, 2883, 10071*), 5 males and 3 females. Type No. 1068.

Myndus semialbus sp. nov. Plate 1, fig. 6.

Male.—Length, 2 millimeters; tegmen, 2.5. Length of vertex in middle very slightly less than width at base, apex slightly narrower than base; transverse carina in middle, distinct. Length of face equal to width, narrowest at base, widest before apex, frontal ocellus distinct. Forking of Sc and R about one-third from base, M leaving Sc + R near base, Cu forking slightly before apex of clavus, M with five apical veins.

Pygofer symmetrical, medioventral margin produced into a process subconical in outline, lateral angles produced into a rounded process which is produced into a spine on the lower portion. Anal segment large, asymmetrical, the ventral margin

produced and ending in two unequal spines. Genital styles small, flat, curved, apex truncate. Periandrium short, the basal portion produced into a large spine and the apical margin into a small spine, penis membranous.

Dark brown; legs, pygofer, and anal segment lighter. Tegmina hyaline, basal portion to nodal line brown with a light band through the middle, apical half hyaline with a waxy covering making it white. Veins same color as membrane, tubercles small, numerous, bearing light macrotrichia. Wings hyaline with brown veins.

Female.—Length, 2.2 millimeters; tegmen, 2.7. Color similar to that of male. Pygofer longer than wide, ovipositor complete, a little longer than pygofer.

LUZON, Mount Banahao and Mount Maquiling (*Muir*), September, 1915; (*Baker*), 4 males and 3 females. Type No. 1064.

Myndus dolosus sp. nov. Plate 1, fig. 7.

Male.—Length, 2.6 millimeters; tegmen, 3. In general build and markings this species is similar to *M. maculosus*, but the genitalia differ. In lateral view the anal segment beyond anus is not produced into an angle but is rounded, the apex is rounded asymmetrically; the right margin of pygofer is angularly produced; the left margin slightly sinuous but not produced; genital styles not so angularly bent in middle; the ædeagus is small, the apical portion of the periandrium and the penis are membranous, the basal portion of periandrium is produced into two similar, flat, curved spines with a couple of minute spines between them on ventral aspect.

Straits Settlements, Penang Island (*Baker 10077*), 3 males. Type No. 1071.

Myndus fasciatus sp. nov. Plate 1, fig. 8.

Male.—Length, 2 millimeters; tegmen, 2.7. Length of vertex in middle equal to width at base, base shallowly emarginate, transverse carina about middle, obscure; face slightly longer than broad, median ocellus distinct. Cu forking slightly before apex of clavus, Sc + R before Cu, about one-third from base, M joining Sc + R near base, M with five apical veins.

Pygofer and anal segment asymmetrical; periandrium fairly long with three spines near apex. Genital styles flat, fairly narrow, angular, apex truncate with a minute spine on outer angle. The shape of genitalia is better shown in figures.

Light brown, mesothorax darker with lighter carinae, legs light. Tegmina hyaline, a brown mark down middle of clavus,

broad at base and narrowing to apex, a brown band across from middle of costa to apex of clavus with two darker marks on costa, apex brown, two brown marks on costa before stigma, veins same color as membrane except in hyaline band across corium where there are some brown marks on the veins; tubercles minute, same color as veins.

Female.—Length, 2.6 millimeters; tegmen, 2.8. Body slightly darker in color. Ovipositor slightly longer than pygofer.

AMBOINA, March and April, 1908 (*Muir*), 1 male and 4 females. Type No. 1065.

Myndus brunneus sp. nov. Plate 1, fig. 9.

Male.—Length, 2.6 millimeters; tegmen, 2.9. Length of vertex along middle equal to width of base, base wider than apex, transverse carina in middle distinct, base roundly emarginate. Length of face equal to width, narrowest at base, gradually widening to near apex, then narrowing, sides rounded on apical half. Frontal ocellus distinct. Forking of Sc_2 and R_0 near middle; M leaving Sc and R at base; C forking about level with the fork of Sc and R; M with five apical veins, namely, 1, 1a, 2, 3, and 4; R with two apical veins. Claval veins joining commissure before apex of clavus.

Pygofer symmetrical, lateral margins entire; medioventral edge produced into a small angular process. Anal segment median size, asymmetrical, on the right side a spine arises from the margin and is directed basally, on the left side a longer spine is directed ventrally at right angle to anal segment. \AA edeagus median size, the epiandrium flattened laterally with three large spines on the ventral aspect near apex, the two apical spines thin and curved, the more basal one broad at base and serrated on edge and drawn out into a fine point. Genital styles flattened laterally, angular about middle, apex broad and truncate, a flange or carina runs from near apex to ventral margin near base.

Brown; rostrum, legs, and hind margin of pronotum lighter. Tegmina brown, lighter in middle, veins slightly darker, tubercles small, bearing black macrotrichia. Wings fuscous, veins brown.

Female.—Length, 2.9 millimeters; tegmen, 3.4. In build and color similar to male. Ovipositor projecting beyond pygofer; anal segment a little longer than broad.

AMBOINA, January, 1908 (*Muir*), 1 male (holotype), 1 female (allotype), 1 damaged male. Type No. 1048.

Myndus mundus sp. nov. Plate 1, fig. 10.

Male.—Length, 2.7 millimeters; tegmen, 3. In build and color this species is very much like *M. hyalinus*, but it is slightly lighter in color and the genitalia are quite distinct.

Pygofer symmetrical, the medioventral process short and widely angular. Anal segment but slightly asymmetrical, apex rounded, left margin slightly lower than right. Periandrium fairly large, subangularly produced on dorsal aspect near apex, with two long, thin processes arising from a common base and forming a U-shaped process near the apical margin on right side, penis considerably chitinized with two long spines and a small one between them. Genital style nearly straight, slightly curved at apex where it is produced into a broad spine pointing basad. Apex round, inner margin entire, slightly convex at apex, outer margin slightly sinuous.

Female.—Length, 3 millimeters; tegmen, 3.7. Similar to the male; lighter in color than *M. hyalinus*.

BORNEO, Sandakan (*Baker*), 1 male and 1 female. Type No. 1072.

Myndus caligineus sp. nov. Plate 1, fig. 11.

Male.—Length, 2.4 millimeters; tegmen, 3. Width of vertex at base considerably (one-third) greater than length in middle; transverse carina distinct in middle; frons about as wide as long, slightly larger before apex, base and apex subequal in width; median ocellus distinct. Fork of Sc and R near base, fork of Cu about middle of clavus.

Pygofer symmetrical, medioventral process small, lateral margins entire, not produced. Anal segment symmetrical, much longer than broad, apex rounded, anus about middle. Periandrium long, tubular, with one large spine on ventral aspect near apex pointing basad; penis long, semichitinous with four spines, two about middle, the other two more apical. Genital style small, inner margin entire, slightly convex, outer margin straight on basal half, then concave, apex truncate.

Dark castaneous, legs slightly lighter. Tegmina dark castaneous, tubercles small, numerous, dark; wings castaneous, veins darker.

Female.—Length, 2.8 millimeters; tegmen, 3.3. In coloration similar to male.

WEST BORNEO, Mowong, September, 1907 (*Muir*), 1 male and 1 female. Type No. 1073.

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ILLUSTRATION

PLATE 1

- FIG. 1. *Myndus maculosus* sp. nov.; *a*, male genitalia with ædeagus dissected out, left lateral view; *b*, ædeagus, left lateral view.
2. *Myndus mindanaoensis* sp. nov.; *a*, male genitalia with ædeagus dissected out, left lateral view; *b*, ædeagus, left lateral view.
3. *Myndus palawanensis* sp. nov.; *a*, genitalia with ædeagus dissected out, left lateral view; *b*, ædeagus, left lateral view.
4. *Myndus hyalinus* sp. nov.; *a*, pygofer and anal segment, right lateral view; *b*, ædeagus and left style, left lateral view; *c*, anal segment, end view.
5. *Myndus obscuratus* sp. nov.; *a*, male genitalia with ædeagus dissected out, lateral view; *b*, ædeagus, left lateral view.
6. *Myndus semialbus* sp. nov.; *a*, male genitalia with ædeagus dissected out, left lateral view; *b*, ædeagus, left lateral view.
7. *Myndus dolosus* sp. nov.; *a*, male genitalia with ædeagus dissected out, left lateral view; *b*, ædeagus, left lateral view.
8. *Myndus fasciatus* sp. nov.; *a*, male pygofer and anal segment, left lateral view; *b*, ædeagus and right genital style, right lateral view.
9. *Myndus brunneus* sp. nov.; ædeagus and right genital style, right lateral view.
10. *Myndus mundus* sp. nov.; ædeagus and right genital style, right lateral view.
11. *Myndus caliginus* sp. nov.; *a*, ædeagus, left lateral view; *b*, left genital style, lateral view.

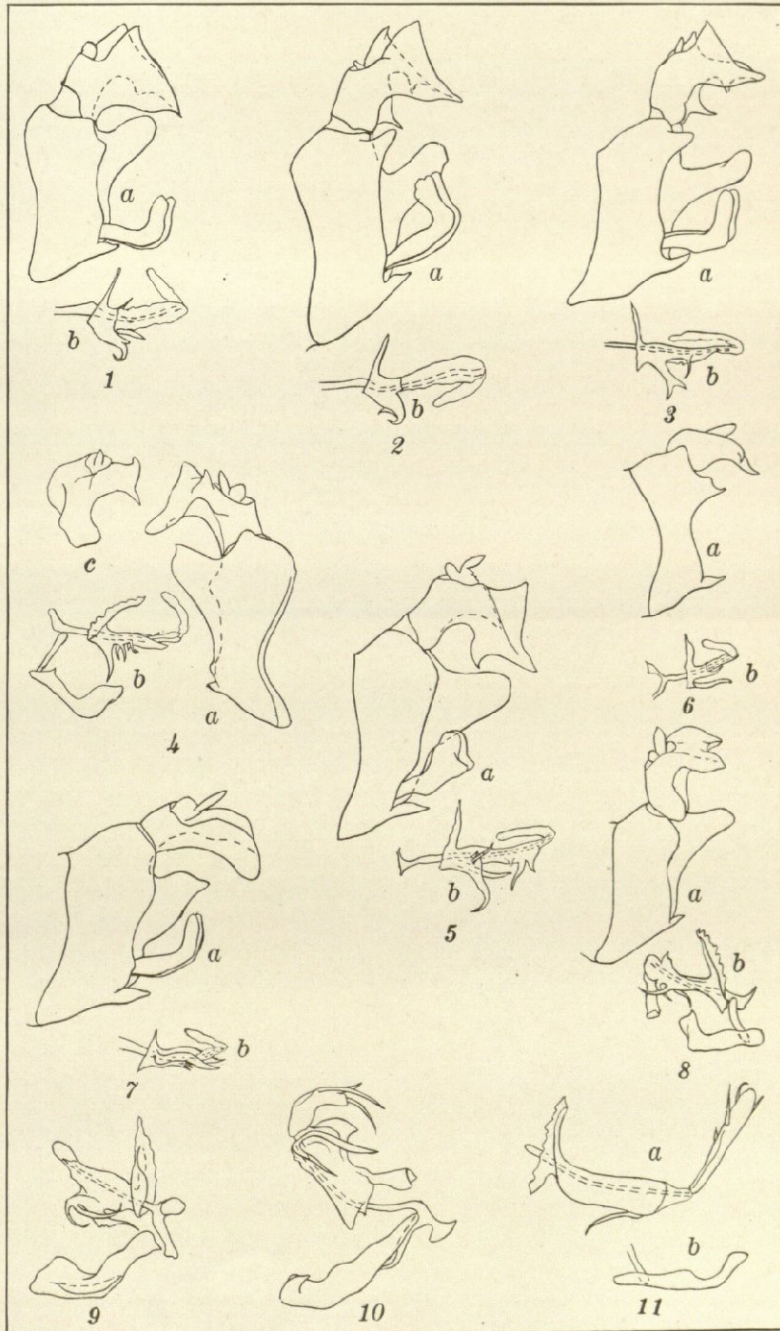


PLATE 1. GENITALIA OF SPECIES OF MYNDUS.