

THE GENUS MAKILINGIA (JASSOIDEA) IN THE PHILIPPINES

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TWO PLATES

Makilingia,¹ which is a member of the Gyponidæ, subfamily Sudrinæ, is undoubtedly a sudrine gyponid, instead of hylicine, as stated in my original paper. Since 1914 considerable additional material has accumulated, and it is now possible to present a more comprehensive treatment.

The five species first described came from the two great mountains of central Luzon, Maquiling and Banahao. We now find that the genus is more richly represented in the mountains of northern Luzon,² but also may occur at low altitudes, as well as in other islands of the Archipelago, south to Mindanao. A few of the species are abundant and widely distributed, while the remainder appear to be of very local distribution, so far as present knowledge goes. The genus appears to be confined to the Philippines and even more peculiarly characteristic of this fauna than are the pachyrrhynchid beetles. Fifteen new species and varieties are here presented. Exploration of the vast unknown mountainous regions of the Archipelago will undoubtedly produce many more.

There is a superficial resemblance in general form, between this genus and the Japanese genus *Epiacanthus* of Matsumura,³ but the latter possesses a totally different head structure and is, moreover, a tettigoniellid, not a gyponid.

In my earlier paper sufficient stress was not laid on the structure of the scutellum, which is highly characteristic of the genus. The raised apical portion is preceded by a wide transverse depression, very evident in lateral view (Plate 1, fig. 2, b). The fronto-clypeal suture is absent in all the species, the

¹ Baker, C. F., Philip. Journ. Sci. § D 9 (1914) 409.

² Nothing like thorough collecting has yet been done on Maquiling and Banahao.

³ Termes, Fuz. (1902) 354.

clypeus being relatively of great size. Also characteristic of the genus is the distally narrowed median apical cell (Plate 1, fig. 2, *b*; Plate 2, fig. 6, *c*; fig. 9, *b*). The ovipositor does not extend beyond the pygofer, and the genitalia are always considerably exceeded by the tegmina. The last sternite of the male is very characteristic, being greatly enlarged and usually swollen. The male plates are very diverse in form, sometimes coalesced at base, and this portion may be greatly enlarged.

There is usually marked sexual dimorphism in the form of the head, and may be in coloration as well, in certain species. The heads of males are a little shorter and the apical margin is more broadly arcuate. The color change in the sexes usually consists of reds and yellows being replaced by black, the former markings being occasionally reduced or obliterated in the male. In some species, such as *speciosa* and *colorata*, the colors of males and females may be practically identical. In most of the species, pale yellow markings may vary to reddish or vice versa. In all of the species the two basal joints of antennae are pale yellow in color.

In *M. tettigonoides* the rostrum is densely clothed with long, stiff, appressed, yellowish hairs. In *M. speciosa* these hairs are long, but far fewer in number. In all the other species they are short and inconspicuous.

The hind tibiae are armed with three rows of numerous very stout spines of medium length and one row of stout bristles. The fore femora have a short longitudinal row of small erect bristles on distal half beneath. The fore tibiae have a single row of spines beneath extending the entire length.

Synopsis of the species of Makilingia.

- a*. Clypeus basally strongly umbonate; very large robust species (7.5 to 10 millimeters) with broad, short heads; front shagreened.
b. Greenish yellow, with black markings on vertex and pronotum.
M. tettigonoides sp. nov.
- b*. Black, with reddish markings beneath and on fore margin of vertex and tegmina of two shades of reddish beyond the black basal fourth.
M. speciosa sp. nov.
- a*. Clypeus basally gently convex or very slightly raised; small slender species with heads usually longer for the total width.
b. Front shagreened, sometimes also with small separated punctures.
c. Front uniformly shagreened, without punctures.
d. Vertex always more or less punctured and wrinkled.
e. Tegmina bronzy or greenish fading to brownish; lateral margins of head broadly red, ivorylike callose, as is also basal border of clavus; length 5 to 5.5 millimeters.
M. colorata Baker.

- e'. Tegmina black, with reddish or yellowish markings or with none; sometimes with pale costal spots; markings of vertex not shining; callose.
- f'. Tegmina reddish or yellowish marked, at least a narrow commissural line.
- g'. Lateral spots of vertex small and distant from eyes, or absent.
- h'. Pronotum without distinct transverse rugæ; punctures on base of tegmina smaller, more separated, and with smooth interspaces; costal area subapically with a pale macula; emargination of female genital sternite with a median tooth.
- ♀. Commissural yellow macula occupying a large part of clavus; spots on vertex four and reddish.
M. maculata Baker.
- ♀. Commissural mark reduced to a narrow marginal line; spots on vertex two, large, yellowish.
M. sibuyanensis sp. nov.
- h'. Pronotum with distinct transverse rugæ; punctures on base of tegmina large, crowded, with raised margins between; costal area subapically without pale macula, emargination of female genital sternite evenly arcuate; commissural macula narrower than in *maculata*, sometimes with a yellow dash exterior to it, and in males may be reduced to a slender commissural line *M. variabilis* sp. nov.
- g'. Lateral spots of vertex very large, adjoining eyes, and occupying a large part or all of lateral margins of vertex.
- h'. Clavus entirely bordered with reddish.
- ♀. Disk of clavus with two small reddish dots or these coalesced to form an oblique crossband.
M. banahaensis sp. nov.
- ♀. Disk of clavus immaculate..... *M. haughtiana* sp. nov.
- h'. Clavus not reddish bordered.
- ♀. Clavus pale yellowish with two dark discal stripes; eye above entirely yellow bordered.
M. lineata sp. nov.
- ♀. Clavus black, with a slender yellowish commissural line; postocular area black. *M. suriguenensis* sp. nov.
- f'. Tegmina entirely black, except for decolorated costal areas; lateral spots of vertex very large but not adjoining eyes.
- g'. Tegmina with decolorated costal border; front with basal border yellowish; tegminal punctures shallow and well separated; emargination of female genital sternite with a median tooth..... *M. panayensis* sp. nov.
- g'. Tegmina without decolorated costal border; entire front yellowish; tegminal punctures coarse and crowded; emargination of female genital sternite evenly arcuate.
M. bimaculata sp. nov.

- d. Vertex almost entirely smooth, without punctures or wrinkles; ocelli nearer to each other than to eyes.
- e. Small (length, 5 to 5.5 millimeters); white or pale yellowish throughout *M. pallida* Baker.
- f. Larger (length, 6.5 millimeters); black, with yellowish legs, genitalia, front, and marks on vertex. *M. woodworthi* sp. nov.
- e. Front shagreened, but also with small, deep, mostly separated punctures; largely black.
- d. Tegmina without pale costal area.
- e. Clypeus emarginate at apex; puncturation above very coarse and thick; length 7 millimeters..... *M. pruinosa* Baker.
- e. Clypeus with narrowly rounded apex; punctures shallow and well separated; length, 5 to 6 millimeters.... *M. nigra* Baker.
- d. Tegmina with a broad, elongate, whitish, translucent costal area on distal half..... *M. costalis* sp. nov.
- b. Front without shagreening and with large separated punctures but otherwise smooth, shining; female genital segment medially deeply roundly bisinuate emarginate..... *M. frontalis* sp. nov.

Makilingia tettigoneides sp. nov. Plate I, fig. 1.

Female.—Length, 8 millimeters. Ochraceous to yellowish; abdomen black with pale segmental margins; tegmina, except costal margins greenish to near apical cross veins, the apices slightly smoky; vertex (Plate I, fig. 1, a) with four black spots, two marginal near apex, and two surrounding ocelli; on infero-posterior surfaces of eyes, beneath posterior margin of vertex and entirely hidden from view without separating the head from pronotum, are two black spots; pronotum with two black spots just behind eyes; large black spots also occur on basal angles of scutellum; basal lateral angles of front narrowly black.

Front strongly convex, medially shallowly depressed, very faintly shagreened, smooth, shining. Clypeus strongly roundly umbonate basally, with surface like that of front. Genæ and loræ with shallow separated punctures. Vertex strongly depressed before the sharp anterior margin, as usual in this genus, the remainder of surface separated into three portions by low rounded longitudinal prominences along the lines of the ocelli, the lateral concavities much the deeper; the median area minutely and sparsely punctured, the lateral areas wrinkled next eyes. Ocelli large, equidistant from basal and antero-lateral margins of vertex and nearer to eyes than to each other. Pronotum uniformly covered with separated punctures, the interspaces smooth, and transverse rugæ not evident. Tegminal punctures well separated, the interspaces smooth. Genital segment apically broadly, deeply, arcuately emarginate.

Male.—Length, 7.5 millimeters. Vertex more broadly rounded apically. Color inclining to testaceous (as is sometimes the case in females). Meso- and metasternal sclerites black. Spots of vertex enlarged and variously coalesced. A common type is represented in males from Baguio (Plate 1, fig. 1, *c*) though many minor variations of this occur. A male color form from Dapitan (Plate 1, fig. 1, *d*) shows complete coalescence of the black spots across disk of vertex. Females occasionally have the male type of marking, and one Baguio female is selected (Plate 1, fig. 1, *b*) which is very similar to Dapitan males. The vertex is finely wrinkled anteriorly also, and has two small deep depressions near basal margin. Genital segment as long as broad, roundly swollen, shining black, hind margin nearly truncate except for a short, acute, median projection; base of the long slender plates very broad, undivided, and swollen.

LUZON, Benguet Province, Baguio and Pauai (Haight's place); Nueva Vizcaya Province, Imugan. MINDANAO, Zamboanga Province, Dapitan (*Baker*).

Makilingia speciosa sp. nov. Plate 1, fig. 2.

Female.—Length, 10 millimeters. Black, venter, femora, and tarsi reddish, tibiae piceous; lateral margins of cheeks, anterior margin of vertex and narrow posterior border of pronotum yellowish; basal fourth of tegmina and costal margin black, this followed by a broad reddish crossband, remainder pale brown.

Front and clypeus formed as in *M. tettigonoides*, but surface strongly granulate shagreened. Genæ, in the deep concavity, with shallow separated punctures, but none on the yellow border; below and on loræ becoming coarser and with a few rugæ. Vertex (Plate 1, fig. 2, *a*) with median area a little elevated, with coarser, very sparse punctures, and with a deep, subtriangular depression at apex; ocelli large, a little nearer to basal than to antero-lateral margins and nearer to eyes than to each other. Pronotum and scutellum (Plate 1, fig. 2, *b*) as in *M. tettigonoides*. Tegminal punctures much coarser. Genital segment (Plate 1, fig. 2, *c*) medially cross-striate, medially and posteriorly black, the hind margin evenly arcuately emarginate.

Male.—Length, 9 millimeters. Colored like the female. Genitalia (Plate 1, fig. 2, *d*) of remarkable structure, the stout plates arising from a solid base which is extended to one and a half times the length of genital segment. The latter, while charac-

teristically swollen, is comparatively small, with hind margin medially acutely extended.

LUZON, Benguet Subprovince, Baguio (*Baker*). The most conspicuous species of the genus, but apparently rare, only four specimens having been taken.

Makilingia colorata Baker.

Described from Mount Maquiling. We now have specimens of this beautiful and very distinct species from Malinao, Tayabas Province, Luzon; from the Cuernos Mountains of Negros; and from Butuan, Agusan Province, and Surigao, Surigao Province, in Mindanao.

Makilingia maculata Baker.

Originally described from Mount Banahao and Mount Maquiling, this species has since been taken in Malinao, Tayabas Province, Luzon; in Surigao, Surigao Province, and Zamboanga, Mindanao; and in Basilan and Sibuyan Islands.

Makilingia sibuyanensis sp. nov. Plate 1, fig. 3.

Male.—Length, 5.5 millimeters. Black; four marginal spots on vertex and upper border of front (Plate 1, fig. 3, a), legs, last ventral segment, and a slender line on claval commissure pale yellow. With a subapical pale spot on costal margin of tegmina, as in *maculata*.

Front, with clypeus, thickly granulate shagreened throughout; clypeus slightly raised basally, but not umbonate as in *M. tetti-gonoides*, though its outlines are similar to that of the latter species. Genæ and loræ with shallow separated punctures. Vertex with median area gently convex and very sparsely punctate, the lateral depressions nearly smooth except for very strong and irregular wrinkles in postero-lateral corners. Ocelli very large, equidistant from basal and antero-lateral margins, but farther in front of anterior line of eyes than usual and but very little farther from each other than from eyes. Pronotum uniformly covered with large separated punctures, the interspaces smooth and with no indication of transverse rugæ. Genitalia (Plate 1, fig. 3, b) of ordinary type.

Female.—Length, 5.75 millimeters. Similar to *maculata*, the large median macula on clavus being of quite the same form as may occur in *maculata*. Vertex with four marginal spots, as in the male; the apical spots in both sexes are larger than the lateral, not smaller as in *maculata*. Genital segment black

medially; hind margin with a shallow subrectangular median emargination.

SIBUYAN (*Baker*). It is interesting that *maculata*, found in Luzon and Mindanao, should be replaced in an intermediate island by a very similar but entirely distinct species. Sibuyan is rich in endemic species of many groups, though many species of Sibuyan are also found in Romblon and northern Panay, and this one, also, may occur there.

Makilingia variabilis sp. nov. Plate 1, figs. 4 and 5.

Black; yellow markings in certain forms very similar to those of *maculata*, but very variable and with striking sexual dimorphism. In the fully colored female forms, in addition to the large common claval macula, there is a small separated spot or dash near the middle of clavus and on the adjoining border of the corium; when these lateral spots are lacking, then the median macula is narrower than in *maculata*; associated with females so marked are males which have the median macula a little narrower but also possess the lateral spot. At times series of females (var. *simillima*) may be taken, all of which have a much narrowed median macula on clavus, lack the lateral spots on corium inner border, and usually lack the apical spots of vertex (Plate 1, fig. 5, *a*); associated with these are males in which the median macula is reduced to a slender commissural line (as also in occasional females) and the spots of vertex (Plate 1, fig. 5, *b*) are entirely lacking. The tegmina have no subapical pale costal spot, but midway, next costal margin, may occur a small waxy pruinose area, though this is usually rubbed off.

Female.—Length, 5.25 millimeters. Front evenly convex, the clypeus slightly raised at base, both thickly granulate shagreened. Genæ and loræ sparsely coarsely punctate. Vertex, behind sharp fore margin, evenly depressed from eye to eye, the median basal area evenly gently convex, and sparsely small punctured; surface next eye and somewhat along fore border wrinkled, the wrinkles much stronger in posterior lateral corners. Ocelli very large, equidistant from basal and antero-lateral margins, and a little farther from each other than from eyes. Pronotum uniformly covered with shallow separated punctures and basally with distinct indications of transverse rugæ. Tegminal punctures well separated, with smooth interspaces. Genital segment broadly, shallowly, arcuately emarginate behind.

Male.—Length, 4.75 millimeters. Genital segment brown, much longer than broad, rapidly broadening caudad, the hind margin with an obtuse median projection which is yellow. Plates as long as genital segment, blunt tipped and testaceous in color.

LUZON, Benguet Subprovince, Baguio and Pauai (Haight's place): Nueva Vizcaya Province, Imugan. MINDANAO, Zamboanga Province, Dapitan. The fully colored typical form and the var. *simillims* occur together in all localities. It would have been difficult to understand this variable species without large series. The genitalia are uniform throughout.

Makilingia banahaensis sp. nov. Plate 2, figs. 6 and 7.

Black; legs yellowish; head with two small reddish apical spots (Plate 2, fig. 6, a) and two very large lateral spots, the latter adjoining eyes; in the var. *montalbanensis*, the subapical spots are coalesced in one large apical spot. Clavus apparently broadly bordered with reddish, very slenderly on median portion of commissure, broader at apex of clavus, the outer reddish stripe being actually located on the corium, along the claval suture; disk of clavus with two reddish dots obliquely placed, and these, in the var. *montalbanensis* (Plate 2, fig. 7, a), are coalesced into an oblique stripe, this with the basal and apical reddish borders being much broader than in the typical form. Abdomen with narrowly pale segmental margins.

Female.—Length, 5.25 millimeters. Front gently convex, the clypeus not raised basally, both thickly evenly granulate shagreened; genæ and loræ rather thickly and coarsely punctate. Vertex but little depressed anteriorly and laterally, more strongly so near eyes and medially just before apex; median area very gently convex and more strongly and thickly punctured than in *maculata* and allies. Ocelli of medium size, equidistant from basal and antero-lateral margins, and about as near eyes as to each other. Pronotum with shallow separated punctures and with distinct indications of numerous transverse rugæ. Tegminal punctures well separated and with smooth interspaces. Genital segment broadly deeply marginate, this emargination with a second median subrectangular emargination.

Male.—Length, 4.25 millimeters. Color markings as in female. Genital segment subtriangular, the broad apex nearly equaling length and nearly truncate, without median extension. Plates together forming a long acute triangle, longer than genital segment.

LUZON, Laguna Province, Mount Banahao. The more heavily marked var. *montalbanensis* is from Montalban, Rizal Province.

Makilingia haightiana sp. nov. Plate 2, fig. 8.

Similar to *M. banahaensis*. Black, legs pale yellow; vertex (Plate 2, fig. 8, *a*) with two very large reddish lateral spots extending from eyes to two-thirds of lateral margins, and a transverse apical spot which is very rarely divided into two, and which is, in the male, completely coalesced with lateral spots forming a continuous red border to vertex except for small black spots left on lateral margin at one-third before apex. Cheeks broadly pale yellow bordered in the female; face entirely yellow in the male. Clavus bordered with reddish yellow, but stripes along suture and commissure very narrow, the apex of clavus not filled with color, and no discal markings. Entire apical area of tegmina subhyaline, with narrow dark apical margin.

Female.—Length, 6 millimeters. Front and clypeus as in *M. banahaensis*; gena and lorae shallowly and sparsely punctured. Vertex with shallow lateral depression, the entire median area from between ocelli forward strongly concave; median area strongly thickly punctured, entire basal area strongly wrinkled, some sharp and prominent curved wrinkles passing from outer margins of ocelli to basal margin. Ocelli large, nearly equidistant from basal margin, antero-lateral margins, eyes, and each other. Pronotum with separated punctures and strongly, thickly, transversely rugose over nearly entire surface. Tegminal punctures in great part larger and more thickly placed than usual, especially near claval suture. Genital segment subtruncate posteriorly.

Male.—Length, 5 to 5.5 millimeters. Sharply distinguished by the completely yellow face. Genital segment very large and swollen, oblong elliptical, half again as long as broad, as broad basally as apically, brown, and cross-striate, the apical margin broadly arcuate. Plates very small, obtuse apically, coalesced for almost entire length, and scarcely half length of genital segment.

LUZON, Benguet Subprovince, Pauai (Haight's place) 2,400 meters altitude (*Baker*).

Makilingia lineata sp. nov. Plate 2, fig. 9.

Female.—Length, 6 millimeters. Black; face and legs ochraceous; vertex (Plate 2, fig. 9, *a*) with broad lateral borders reddish yellow from eyes to apex, the inner margins of these marks

sinuate, and extending to behind the eyes. Tegmina dark smoky, the broad costal border from basal third, and entire apical area subhyaline; clavi broadly yellowish white, leaving between these areas and the sutures two longitudinal smoky stripes. Abdomen yellowish white, pygofers and disks of tergites darker.

Similar in appearance to the male of *M. haightiana* but distinct in the following diagnostic characters: Front and clypeus far more finely shagreened. Ocelli a little nearer to both basal and antero-lateral margins than to each other, and nearer to each other than to eyes. Genital segment broadly subrectangularly emarginate behind, the emargination with a broad median tooth.

LUZON, Nueva Vizcaya Province, Imugan (*Baker*).

Makilingia surigaotensis sp. nov. Plate 2, fig. 10.

Black; legs ochraceous; vertex (Plate 2, fig. 10) with two elongate yellowish spots extending from eyes to near apex, the inner margins of which are sinuate. Clavus with a very fine commissural yellowish line. Segmental margins of abdomen pale.

Female.—Length, 5 millimeters. Front and clypeus finely granulate shagreened. Genæ and loræ rugose-punctate. Vertex gently evenly concave anteriorly, deeply depressed between ocellus and eye, basal border laterally rather strongly wrinkled; median area with small sparse punctures. Ocelli slightly nearer to basal and antero-lateral margins than to each other, nearer to each other than to eyes, and remarkable in being little less distant from anterior than from basal margins. Pronotum with well-separated shallow punctures and without transverse rugæ. Tegminal punctures shallow, sparse, and inconspicuous. Genital segment with a broad subrectangular emargination, this having a large median tooth.

Male.—Length, 4.5 millimeters. With identical color markings. Genital segment yellow, large, subcircular, swollen, constricted before apex, the broadly rounded hind margin strongly reflexed. Plates black, shining, forming together an acute triangle about as long as genital segment, the acuminate tips strongly curved dorsad.

MINDANAO, Surigao (*Baker*).

Makilingia panayensis sp. nov. Plate 2, fig. 11.

Female.—Length, 5.25 millimeters. Black; legs, upper border of face, two small apical and two large lateral spots on

vertex (Plate 2, fig. 11) pale yellowish; narrow costal border from middle of tegmina decolorated, this extended more broadly around apex to claval angle. Body above, in fresh specimens, with bluish white waxy pruinosity.

Front and clypeus thickly granulate shagreened. Genæ and loræ rather thickly, coarsely punctate. Vertex large, nearly as long as pronotum, evenly depressed back of sharp fore margin, from eye to eye; median area broadly convex and sparsely minutely punctured. Ocelli nearer to basal than to antero-lateral margins, and a little farther from each other than from eyes. Pronotum with coarse separated punctures and thickly transversely rugose. Tegminal punctures well separated, the interspaces smooth. Genital segment with a broad subrectangular emargination behind, this having a broad median tooth.

PANAY, Capiz Province, Navas (*Baker*).

Makilingia bimaculata sp. nov. Plate 2, fig. 12.

Black, shining; legs ochraceous; front, basal half of clypeus (all of the clypeus in the male), and two large lateral spots on vertex, yellowish (Plate 2, fig. 12, *a*).

Female.—Length, 7.5 millimeters. Front and clypeus very minutely granulate shagreened; lateral borders of clypeus nearly straight, anterior margins laterally reflexed. Genæ and loræ coarsely rugose-punctate. Vertex, in addition to the usual depressions, with a deep subrectangular median excavation reaching from apex halfway to ocellar line, the interior of this being finely longitudinally wrinkled; the median area is a little depressed along median line, convex either side to ocelli, the surface with coarse irregularly separated punctures. Ocelli large, nearer to basal than to antero-lateral margins and equidistant from eyes and from each other. Pronotum with coarse separated punctures and numerous, not sharply marked, transverse rugæ. Tegminal punctures coarse and crowded and extending beyond middle of tegmina. Genital segment (Plate 2, fig. 12, *c*) evenly arcuately emarginate behind.

Male.—Length, 5.5 to 6 millimeters. Genitalia similar to those of *M. surigaensis* but the reflexed hind border of genital segment is very broad and whitish in color, the plates being testaceous (Plate 2, fig. 12, *b*).

LUZON, Benguet Subprovince, Baguio: Nueva Vizcaya Province, Imugan. MINDANAO, Zamboanga Province, Dapitan (*Baker*).

Makilingia pallida Baker.

Described originally only from Mount Maquiling, this species has also been taken at Malinao, Tayabas Province. A distinct variety (var. *bengueteensis*), having an arcuate smoky line passing from tip of clavus to costal margin, has been collected at Baguio, Benguet Subprovince.

Makilingia woodworthi sp. nov. Plate 2, fig. 13.

Male.—Length, 6.5 millimeters. Black; legs ochraceous; front, basal portion of clypeus, borders of genæ, and two very large lateral spots on vertex (Plate 2, fig. 13, *a*) reaching to ocelli, yellow. Tegmina with a pale spot just beyond tip of clavus, and another larger one opposite to it on the costal border, the apical border decolorated. Borders of abdominal segments yellowish.

Front and clypeus very finely granulate shagreened. Genæ and loræ coarsely rugose-punctate. Vertex with whole surface, except basal border, deeply evenly concave, the sharp anterior margin more strongly reflexed than in other known species; surface smooth, opaque, practically without punctures or wrinkles. Ocelli large, much nearer to basal than to anterolateral margins and equidistant from each other and from eyes. Pronotum with large separated punctures and strongly, thickly, transversely rugose. Tegminal punctures large, thick set and extending to middle of tegmina (Plate 2, fig. 13, *b*). Plates large, together forming an acute triangle as long as the very broad genital segment, the latter being as broad apically as long, strongly swollen basally, the apical margin broadly arcuate.

LUZON, Laguna Province, Mount Maquiling (*Baker*). This very stout and well-marked species is named for Prof. H. E. Woodworth, who spent two very profitable years of entomological work at the foot of Mount Maquiling.

Makilingia pruinosa Baker.

This species was originally described from Mount Maquiling. It has since been taken on Mount Banahao, Laguna Province; at Baguio, Mountain Province; at Imugan, Nueva Vizcaya Province; and at Dapitan, Zamboanga Province, Mindanao.

Makilingia nigra Baker.

This species was originally described from Mount Banahao. It has since been taken on Mount Maquiling, Laguna Province; in the Cuernos Mountains of Negros; in northwestern Panay;

in Surigao, Surigao Province, Mindanao; and in Basilan. The punctures of front are much more crowded along the median line basally, in the female.

Makilingia costalis sp. nov. Plate 2, fig. 14.

Male.—Length, 5.5 millimeters. Velvety black; legs pale yellowish; tegmina black at extreme base, remainder dark smoky, an elongate whitish translucent costal area extending from basal third to apical cross veins, occupying entire area of subcostal cell.

Front finely shagreened and with numerous small deep punctures scattered sparsely over its surface; clypeus with punctures only at sides. Genæ and loræ with large scattered punctures. Vertex (Plate 2, fig. 14) nearly uniformly deeply depressed over entire surface, the median area with sparse minute punctures, the lateral areas with larger punctures and irregular wrinkles. Ocelli large, equidistant from basal and antero-lateral margins, and farther from each other than from eyes. Pronotum with shallow separated punctures but no indication of transverse rugæ. Tegminal punctures well separated and extending to one-third the length of tegmina.

MINDANAO, Surigao Province, Surigao (*Baker*).

Makilingia frontalis sp. nov. Plate 2, fig. 15.

Black, shining; covered with bluish white waxy powder when fresh; legs and abdomen (except for a spot on genital segment) ochraceous. Tegmina with the subcostal cell whitish translucent from basal fourth to apical three-fourths of tegmina, this area widest at middle.

Female.—Length, 6 millimeters. Head large and subtriangular; front and clypeus (except a small median basal granulate shagreened area) without shagreening, but covered with large, deep, separated punctures (like those of vertex and pronotum), the interspaces smooth and shining. Genæ and loræ thickly coarsely punctate. Vertex (Plate 2, fig. 15, a) with median area strongly convexly raised, a narrow and shallow submarginal depression extending around the vertex from eye to eye, the lateral depressions also being shallow; entire surface with large separated punctures; the sharp anterior margin but slightly raised. Ocelli large, a little nearer to antero-lateral than to basal margin, and nearer to eyes than to each other. Pronotum with very large, rather thickset punctures, the interspaces smooth and shining and with no indication of transverse rugæ.

Tegminal punctures close set and extending to two-thirds the length of tegmina. Genital segment with a deep roundly bisinuate median emargination (Plate 2, fig. 15, b).

Male.—Length, 5 millimeters. Coloring same as in female. The genitalia are most remarkable. The inflated genital segment, instead of being shortly acute medially, as usual, is here extended caudad in a long stout rapidly narrowing prolongation (Plate 2, fig. 15, c). The valves are also remarkable, being spatulate, covered with a dense short silvery pile, the apical margin with a row of short stiffly erect white hairs.

MINDANAO, Davao Province, Davao (*Baker*). This unique species represents as great a departure from the common type in one direction as *M. tettigonoides* does in another.

ILLUSTRATIONS

PLATE I

- FIG. 1. *Makilingia tettigonoides* sp. nov.; a, ordinary type of female; b, female from Baguio with malelike markings; c, male from Baguio; d, male from Dapitan.
2. *Makilingia speciosus* sp. nov.; a, vertex and pronotum; b, head and pronotum, lateral view; c, face; d, male genitalia; e, female genital segment; f, tegmen; g, wing.
3. *Makilingia sibuyanensis* sp. nov.; a, vertex and pronotum; b, male genitalia.
4. *Makilingia variabilis* sp. nov., vertex and pronotum; a, female; b, male.
5. *Makilingia variabilis* var. *simillima* var. nov., vertex and pronotum; a, female; b, male.

PLATE 2

- FIG. 6. *Makilingia banghaensis* sp. nov.; a, vertex and pronotum; b, face; c, tegmen.
7. *Makilingia banahaensis* var. *montalbanensis* var. nov.; a, vertex and pronotum; b, head and thorax, lateral view; c, part of tegmen, showing two small interpolated abnormal cells.
8. *Makilingia heightiana* sp. nov., female; a, head and pronotum; b, upper part of face.
9. *Makilingia lineata* sp. nov.; a, vertex and pronotum; b, tegmen, apical portion.
10. *Makilingia surigaonensis* sp. nov., vertex and pronotum.
11. *Makilingia panayensis* sp. nov., vertex and pronotum.
12. *Makilingia bimaculata* sp. nov.; a, vertex and pronotum; b, male genitalia; c, female genital segment.
13. *Makilingia woodworthi* sp. nov., male; a, vertex and pronotum; b, genitalia.
14. *Makilingia costalis* sp. nov., vertex and pronotum.
15. *Makilingia frontalis* sp. nov.; a, vertex and pronotum; b, female genitalia; c, male genitalia.