Pacific Insects 12 (3): 543-627 30 October 1970

A REVISION OF THE DESMOPTERINI (Orthoptera: Acridoidea: Pyrgomorphidae) PART II. *DESMOPTERELLA* RAMME, 1941[1]

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Abstract: The primarily Papuan pyrgomorphid genus *Desmopterella* is revised, and a key to species and full synonymies and geographical distributions are given. The type material of each species is discussed and illustrated and errors in the literature are corrected. All species vary considerably and this variation extends to the copulatory structures. These latter are illustrated for both sexes of all species, except for one species of which the male is unknown.

Eighteen species and 1 subspecies are now recognized. The following new species are described: *D. keyensis, D. circe, D. esme, D. willemsei* and *D. curvata.* The first of these occurs in the Kai and Aru Is., the 2nd in SE Papua and the associated archipelagos, the remainder in limited areas of the New Guinea mainland. *D. sundaica,* previously regarded as Australian, is confined to western New Guinea, *steini* being regarded as a southern subspecies; the Australian species is *D. explicata* which also occurs in southern New Guinea and associated islands. *D. marginata* is a synonym, not of *D. haani,* as previously believed, but of *D. miles,* which falls as its junior synonym. A neotype is established for *Truxalis sylvaticus* Montrouzier (=*D. sylvatica*), a species apparently confined to Woodlark I.

The tribe Desmopterini constitutes a rather uniform group of Papuan Pyrgomorphidae, with species extending into the Moluccas and Philippines to the north and to northern Queensland and the Kai and Aru Islands in the south. The first comprehensive treatment of the group was that of Ramme (1941). Since then, Rehn (1951, 1953) and Kevan (1957, 1963, 1966a, 1966b, 1969) have contributed to their study. Kevan (1963) gives a revision of genera other than *Desmopterella* and modifies this slightly later (Kevan 1966a).

The genus *Desmopterella* was erected by Ramme (1941) to accommodate the smaller species previously placed in *Desmoptera* Bolívar, 1884, together with a considerable number of new species. The criteria upon which *Desmopterella* was based are not altogether satisfactory (Rehn 1953; Kevan 1963), but there is one character, namely, the shape of the prosternal tubercle, that separates the two genera (Kevan, 1963). In most instances, though not always, size and the shape of the apices of the tegmina will also distinguish between them.

It is clear from the present study, that *Desmopterella* (which includes over half of the known species in the Desmopterini) has undergone considerable speciation in New Guinea. The genus appears, however, to be confined to the Papuan subregion (includ-

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ing northeastern Australia), although some questionable records from Borneo. Halmahera and Mindanao exist (Kevan 1963, 1966b). On the basis of external morphology, some species are very difficult—females often virtually impossible (Ramme 1941)—to separate unless geographical distribution is considered. Certain species can, in fact, usually be separated by, for example, the form of the tegmina, but individual variation is often considerable, rendering such characters unreliable. Even the external genitalia of the males, which formed the basis of Ramme's (1941) and Rehn's (1951) diagnoses, vary and cannot be fully relied upon. The male phallic structures and, to a modest extent, female copulatory apparatus, however, provide characters adequately distinguishing the the species, although these, too, vary. In view of the considerable taxonomic problems involved, it is indeed surprising that so many previously described species remain valid. New species are mostly described from areas from which no male (or no material) had been examined by previous authors.

In the following revision, lengthy descriptions of each previously described species are omitted because, in view of the similarities of form between species and the intraspecific variation that occurs, no useful purpose would seem to be served by their inclusion. The salient differences are indicated in the key to species, and these are supplemented by the illustrations. Fortunately it is rather unusual for species with very similar external appearance to overlap geographically, although this does occur, rendering the identification very difficult without dissection. This is particularly true of *D. biroi* and *D. buergersi* females, both of which species are common and rather widely distributed. Of all species, *D. angustata* is the most readily distinguishable, although certain (but not all) individuals of *D. haani* may also be unmistakable. The generally small size of *D. explicata* and the large size of the new species, *D. esme*, usually distinguish these species from others.

Genus **Desmopterella** Ramme, 1941

Acridium (*Pyrgomorpha*): Haan, 1842, *In* Temminck, *Verh. Natuurl. Gesch. Nederl. Overz. Bezitt.* **18** (Zool. 7): 148, 149 (*partim*).

Truxalis: Montrouzier, 1855, *Ann. Soc. Agric. Lyon* **7**: 90 (*partim*) [generic name not used alone].

Pyrgomorpha: Karsch, 1888, *Ent. Nachr.* **14**: 340 (*partim*).

Desmoptera: Bolívar, *Ann. Mus. Stor. Nat. Genova* **39**: 83.—Brunner von Wattenwyl, 1898, *Abh. Senckenb. Naturf. Ges.* **24**: 233, 282 (*partim*).—Bolívar, 1905, *Bol. Soc. Esp. Hist. Nat.* **5**: 107 (*partim*); 1909, *Gen. Ins.* **90**: 34, 35.—Rehn, 1909, *Bull. Amer. Mus. Nat. Hist.* **26**: 188.—Kirby, 1910, *Syn. Cat. Orth.* **3**: 328 (*partim*).—Willemse, 1928, *Zool. Meded.* **11**: 7 (*partim*); 1930, *Tijdschr. Ent.* **73**: 74, 84 (*partim*); 1931, *Treubia* **12** (Suppl.): 222, 227 (*partim*).—Sjöstedt, 1931, *Arkiv Zool.* **22A** (7): 3 (*partim*).—Willemse, 1932, *Mém. Mus. Hist. Nat. Belg.* (hors Série) **4** (3): 45 (*partim*).—Sjöstedt, 1936, *K. Svensk. VetenskAkad. Handl.* ser. 3, **15** (2): 53, 175, 183 (*partim*).—Key, 1969, *Austral. J. Zool.* **17**: 363, 380, 404 (as synonym).

Atractomorpha: Kirby, 1910, *Syn. Cat. Orth.* **3**: 331 (*partim*).

Desmatoptera [*sic*] Sjöstedt, 1936, *K. Svensk. VetenskAkad. Handl.* ser. 3, **15** (2): 54 [generic name not used alone; typographical error indicated p. 183].

Desmopterella Ramme, 1941, *Mitt. Zool. Mus. Berl.* **25**: 39, 40 56, 217.—Neave, 1950, *Nomencl. Zool.* **5**: 72.—Rehn, 1951, *Proc. Acad. Nat. Sci. Philad.* **103**: 212, 229; 1953, *Grassh. Locusts Aust.* **2**: 16, 41, 42, 43, 44, 46, 47, 49, 268.—Banerjee & Kevan, 1960, *Treubia* **25**: 180, 181 (latter p. as *Demopterella* [*sic*]); 1961, *ibid.* **25**: 280 (*Demopterella* "corrected" to *Dosmopterella* [*sic*]).—Kevan, 1963, *Nova Guinea* (n. s.) **10**: 365, 383, 384, 385, 399.—Kevan & Akbar, 1964, *Can.*

Ent. **96**: 1525, 1528.—Chen, 1966, *Curr. Res. Orth.* (n. s.) **1966**: 3.—Kevan, 1966, *Eos, Madr.* **41**: 573; 1966, *Ent. Meddr.* **34**: 392, 393, 394, 396, 418; 1967, *Pacif. Ins. Newsletter*, **1** (2): 6; 1968, *Acrid. Abstr.* (n. s.) **1968**: 41.—Key, 1969, *Austral. J. Zool.* **17**: 363, 380, 404, 405, 412.

Type-species (by original designation): *Desmoptera biroi* Bolívar, 1905 = *Desmopterella biroi* (Bolívar).

The following key should be used with considerable caution, particularly for ♀♀, as there is much individual variation in all characters. The only reliable method of determining specimens is by examination of the phallic structures (which also vary within limits). For many species, geographical distribution is a very useful guide; ♀♀ are usually more readily determined by association with ♂♂ than directly. Certain terms used in the key are subjective and reference should be made to the text, and particularly to the figures, for each species when the meaning is unclear.

Key to species

1. Size range ca. average for genus (tegmina ♂, 19-21; ♀, 27.5-30.5 mm); head elongate, frontal profile more oblique than in other species (fig. 1B); pronotum with typical sulcus crossing disc at ca. 2/3 of its length; tegmina narrow (fig. 1F), distinctly tapered in ♀; ♂ cerci simple, about as long as epiproct, latter a little longer than its basal width (fig. 1D); ♂ subgenital plate simple, of average dimensions (fig. 1E); ♀ subgenital plate with posterior edge rather rounded, with slight notches on either side of egg-guide, latter of about average length and basal width (fig. 3A); phallic structures of moderate size, epiphallus with a rather narrow bridge, ectophallus rather short and pyriform, endophallus, in dorsal view, moderately stout, aedeagal valves short, simple, conical, somewhat oblique (fig. 2); spermatheca proper rather wide for genus, but not well differentiated from its apical appendix, latter rather short and thick (fig. 3B); northern New Guinea (E Vogelkop and Japen I. to northwestern NE New Guinea) [erroneously (?) reported from Halmahera] ..... **angustata**

   Size more variable; head less elongate, frontal profile less strongly oblique; pronotum with typical transverse sulcus crossing disc before 2/3 of its length, usually at slightly over 1/2; tegmina not distinctly tapered; other characters and distribution variable 2

2 (1). Woodlark I. only [no ♂ known, see Couplets 18 and 23] ..... **sylvatica**

   Otherwise distributed 3

3 (2). ♂ 4

   ♀ 19

4 (3). Cerci, in dorsal view, curved inwards or with an inner protuberance near or beyond middle, longer than epiproct, latter usually rather wide at base and with emarginate sides (fig. 44D, 47D, 50D, E; 53D, E; 56D); subgenital plate rather long (fig. 44E, 47E, 50F, G; 53F, G; 56C); northern New Guinea, except Vogelkop 5

   Cerci more or less straight, not inwardly curved, awl-like or conical, without inner protuberances except occasionally near base, not, or but little longer than epiproct, latter usually with straight sides; subgenital plate short or of moderate length 9

5 (4). Cerci strongly curved inwards, without inner protuberances (fig. 53D, E; 56D); ectophallus distinctly elongate (fig. 54, 57) 6

   Cerci straight or feebly curved inwards, with inner protuberances near or beyond middle (fig. 44D, 47D, 50D, E); ectophallus not, or only moderately elongate (fig.

45, 48, 51) 7

6 (5). Head moderately long (fig. 53A, B); tegmina only a little wider than average (fig. 53H, I); cerci gradually curved (fig. 53D, E); phallic structures only moderately large, epiphallus with a rather narrow bridge and lateral plates of moderate length, aedeagal valves fairly long, more or less verticaly directed and somewhat reminiscent of a duck's head in lateral view (fig. 54); Geelvink to eastern West Irian...**curvata***

Head rather short (fig. 56A, B), tegmina distinctly wider than average (fig. 56F); cerci abruptly curved apically (fig. 56D), phallic structures large, epiphallus with a short, wide bridge and long lateral plates, aedeagal valves large and helm-like (fig. 57); western NE New Guinea ..... **curvicercis**

7(5). Cerci feebly curved inwards and with inner protuberances beyond middle (fig. 50D, E); subgenital plate long (fig. 50D); endophallus, in dorsal view, somewhat less robust, aedeagal valves short and stout, in lateral view somewhat resembling a seal's head (fig. 51); NE West Irian, western NE New Guinea ..... **cercata**

Cerci more or less straight in dorsal view, with inner protuberances near middle (fig. 44D, 47D); subgenital plate slightly shorter (fig. 44E, 47E); endophallus, in dorsal view, usually rather short and stout, aedeagal valves rather elongate, or, if short and stout, then broadly truncated apically (fig. 45, 48) 8

8 (7). Head a little longer than average (fig. 47A, B); cerci, in lateral view, with narrower bases, inner protuberances rather rounded (fig. 47D); phallic structures somewhat smaller, epiphallus with narrower bridge placed rather far forwards, ectophallus somewhat shorter, aedeagal valves short, thick, broadly truncated apically, endophallic apodemes small and triangular (fig. 48); NE West Irian, western NE New Guinea ..... **willemsei***

Head of average length (fig. 44A, B); cerci, in lateral view, with broader bases, inner protuberances more angular (fig. 45D); phallic structures somewhat longer, epiphallus usually with a moderately wide bridge, not placed unusually far forwards, ectophallus somewhat longer, aedeagal valves rather long and sinuous, endophallic apodemes large, elongate-triangular (fig. 45); northern West Irian, except Vogelkop ..... **denticulata**

9 (4). Bismarck Archipelago (Umboi to Lavongai); size usually about average for genus; head, tegmina and subgenital plate of average form (fig. 31, 34); phallic structures of average size or slightly larger, epiphallus with narrow bridge, ectophallus ovoid or slightly pyriform, endophallus, in dorsal view, not elongate, aedeagal valves, in lateral view, comparatively short and stout, vertically directed (fig. 32, 35) 10

New Guinea and associated islands to NW and SE, Kai Is., Aru Is., N. Queensland [erroneously (?) recorded from Sumbawa, Borneo and S. Philippines]; morphological features various 11

10 (9). Antennae usually with distinct and more or less complete pale annulations; cerci usually slightly longer than epiproct (fig. 34D); phallic structures slightly smaller, endophallus, in dorsal view, less short and stout, aedeagal valves, in lateral view, somewhat resembling a duck's head (fig. 35); New Ireland, Lavongai, Tabar [and Lihir ?] Is..... **prasina**

Antennae usually with less distinct or incomplete pale annulations; cerci usually about equal to epiproct and sometimes with slight protuberances at base (fig. 31D); phallic structures a little larger, endophallus, in dorsal view, short and stout, aedeagal valves, in lateral view, thick, club-like (fig. 32); Umboi I., New Britain ..... **dahli**

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* Described as new.

11 (9). Size generally somewhat below average for the genus (body 18-20.5, tegmen 16.5-21 mm); tegmina usually rather narrower and with less sinuous margins than average (fig. 4H, I); cerci usually slightly longer than epiproct, the latter often a little longer than average (fig. 4D, E); subgenital plate of average size, but terminating in a pair of small papillae (fig. 4D, F) [these are sometimes indistinct, especially in eastern specimens (fig. 4E, G), in which case reliance should be placed in the form of the aedeagal valves]; phallic structures of moderate size, epiphallus with bridge of variable width, but tending to be a little wider than usual, ectophallus rather short, distinctly pyriform, endophallus of moderate stoutness, aedeagal valves short and hook-like (fig. 5, 6); Schouten Is (?), NE West Irian, NE New Guinea, NE Papua ..... **biroi**

Morphological characters various; subgenital plate without terminal papillae; aedeagal valves, if short, not hook-like [for most species, distribution and an examination of phallic structures are the only reliable means of determination] 12

12(11). Size (body 21-23, tegmen 20-22.5 mm), form of head and tegmina (fig. 37A, B, F) about average for genus; cerci usually slightly longer than epiproct, often with small inner protuberances at bases [this feature does not seem to be found in sympatric species] (fig. 37D); subgenital plate of moderate length (fig. 37E); phallic structures moderately large, epiphallus usually with a relatively wide bridge, ectophallus rather short, distinctly pyriform, aedeagal valves moderately long, in lateral view somewhat resembling a bird's neck and head (fig. 38); widely distributed, but not so far known from anywhere but the mainland of New Guinea, apparently absent from West Irian except NE and from Papua E of about 148°E ..... **buergersi**

Size, form of head and tegmina various; cerci often no longer, or shorter than epiproct; subgenital plate somewhat shorter; phallic structures in most species rather small, or, if larger, then elongate, not combining the above features, aedeagal valves of different form from above 13

13(12). Tegmina usually rather broad, or, if narrower, obliquely truncated or with a distinct apical denticle (fig. 9F, G, 19F, 28H, I); ectophallus and endophallus not elongate, aedeagal valves short, or moderately so, obliquely directed and rather straight, or gradually curved upward (fig. 10, 20, 29), not broadly truncated apically; Kai Is., central West Irian, E Papua 14

Tegmina narrower, usually without a distinct apical denticle and with more roundly truncated apices (fig. 12H, I, 16H, I, 22F, 25F, 41F); ectophallus and endophallus sometimes elongate, aedeagal valves of various forms, but often short and broadly truncated apically (fig. 13, 17), sometimes elongate (fig. 42) 16

14(13). Size (body 21-22.5, tegmen 21-22.5 mm) and form of head (fig. 28A, B) about average for genus; tegmina usually obliquely truncate apically (fig. 28H, I); cerci more slender, often slightly longer than epiproct, sometimes slightly swollen basally on inner faces (fig. 28D, E); phallic structures not much smaller than average, epiphallus with narrow bridge and short lateral plates, ectophallus less distinctly pyriform, aedeagal valves rather longer and distinctly curved vertically upwards, their apices slightly swollen to distinctly lobed; Papuan mainland, E of about 147°E ..... **haani**

Size often above average for genus; head sometimes rather short; tegmina more rounded apically; cerci rather thick and conical, not usually longer than epiproct (fig. 9D, 11D); phallic structures distinctly smaller than average, epiphallus rather variable, ectophallus distinctly pyriform, aedeagal valves shorter, less strongly curved or almost straight and directed obliquely backwards, apices not swollen or lobed (fig. 10, 20), central West Irian, Kai and Aru Is. 15

15(14). Size large for genus (body 23-25, tegmen 22-25 mm); head rather short (fig. 19A,

b); tegmina rather long and often slightly expanded apically (fig. 19F); epiproct of about average width (fig. 19D); phallic structures less small, epiphallus with narrow bridge and normal lateral plates, aedeagal valves a little longer and rather straight (fig. 20); central mountains of West Irian ..... **esme***

Size usually nearer average for genus (body 21-22, tegmen 21-22 mm); head of average length (fig. 9A, B); tegmina less elongate and not expanded apically (fig. 9F, G); epiproct rather broader than average (fig. 9D); phallic structures very small, epiphallus with variable bridge and somewhat wider lateral plates, aedeagal valves somewhat shorter, gradually curved and tapered (fig. 10); Kai and Aru Is. ..... **keyensis***

16(13). Size generally smaller than average (body 18-20.5, tegmen 15.5-19.5 mm); head short (fig. 16A, B); tegmina rather short with straight margins and rounded apices (fig. 16H, I); cerci conical, rather stout, about as long as epiproct, latter rather broad at base, sometimes with a longitudinal median furrow (fig. 16D, E); phallic structures rather small, epiphallus with a somewhat narrow but variable bridge, ectophallus pyriform, endophallus, in dorsal view, somewhat stouter than average, aedeagal valves short, stout, vertical, obliquely truncated on anterior aspect (fig. 17); northern Queensland, islands of Torres Strait, Papua W of about 148°E, southeastern NE New Guinea, southeastern West Irian, Kai and Aru Is. ..... **explicata**

Size variable but usually about average for genus; head usually rather longer; tegmina often with more sinuous margins and less rounded apices; cerci, epiproct and phallic structures of various forms, latter not combining above features; distribution (except for Kai and Aru Is. and northern parts of SE West Irian) to the west or east of above 17

17(16). Size about average for genus (body 20-22.5, tegmen 20.5-22 mm); antennae often rather thin with elongate segments; typical transverse sulcus crossing pronotal disc near middle; tegmina not narrower than average (fig. 22F, 25F); cerci sometimes with basal inner swellings, usually slightly longer than epiproct, latter tending to be narrower than average (fig. 22D, 25D); phallic structures moderately small, not elongate, epiphallus with narrow bridge, ectophallus pyriform, endophallus moderately robust in dorsal view, aedeagal valves rather short, curved, and usually with swollen or lobed apices, endophallic apodemes small and triangular (fig. 23, 26); Waigeu I., Vogelkop to southern parts of West Irian (except extreme SE), Kai and Aru Is. ..... **sundaica**

a. Antennae less frequently thin; aedeagal valves stout and trilobed apically (fig. 26); Vogelkop and Bombarai Peninsulas, SW Geelvink Isthmus (?) ..... subsp. **sundaica**

b. Antennae more frequently thin; aedeagal valves more variable, sometimes quite slender, not so distinctly trilobed apically (fig. 23); southern parts (including those of the central mountains) of West Irian E of Geelvink Isthmus, Aru and Kai Is..... subsp. **steini**

Size average to rather small; antennae not thin; typical transverse sulcus normally crossing pronotal disc distinctly beyond middle; tegmina as above or narrower; cerci of various lengths, but usually without inner basal swellings epiproct of variable width; phallic structures very small (fig. 13), or larger and elongate (fig. 42), epiphallus variable, ectophallus pyriform or elongate, endophallus as above or elongate, aedeagal valves not as above; Papua E of about 148°E, and associated archipelagos 18

18(17). Size generally smaller (body 18-20, tegmen 18-20 mm); head tending to be shorter (fig. 12A, B); tegmina with margins rather straight (fig. 12H, I); cerci of more normal form tending to be slightly longer than epiproct, latter usually rather narrower

than average (fig. 12D, E); subgenital plate more rounded (fig. 12E-G); phallic structures short, very small, epiphallus with bridge tending to be rather longer and narrower and lateral plates of normal form, ectophallus pyriform, endophallus short, aedeagal valves short, vertical, horizontally truncated apically, endophallic apodemes small and triangular (fig. 13) ..... **circe***

Size generally a little larger (body 20-21.5, tegmen 20-21 mm); head of average form (fig. 41A, B); tegmina with slightly sinuous margins (fig. 41F); cerci blunt, conical, no longer than epiproct, latter rather broad (fig. 41D); subgenital plate less rounded apically (fig. 41D, E); phallic structures larger and elongate, epiphallus with bridge tending to be rather short and wider than average and with lateral plates long, ectophallus and endophallus elongate; aedeagal valves rather long, fingerlike, directed backwards, endophallic apodemes long and narrow (fig. 42); [♂ of *D. sylvatica*, from Woodlark I. only, is unknown but may be similar] ..... **marginata**

19(3). Bismarck Archipelago (Umboi to Lavongai); posterior edge of subgenital plate rather rounded, slightly notched on either side of egg-guide; spermatheca proper and its apical appendix of moderate width, not well differentiated from each other (fig. 33, 36) 20

Other areas (see Couplet 9), subgenital plate and spermathecal characters various 21

20(19). Antennae usually with distinct, complete, pale annulations; posterior edge of subgenital plate rather more rounded, egg-guide tending to be a little longer (fig. 36A); New Ireland, Lavongai, Tabar [and Lihir ?] Is. ..... **prasina**

Antennae usually with less distinct or incomplete pale annulations; posterior edge of subgenital plate slightly less rounded, egg-guide tending to be a little shorter (fig. 33A); Umboi I., New Britain ..... **dahli**

21(19). Posterior edge of subgenital plate with rather deep or slit-like notches on either side of egg-guide, latter rather short and narrow (fig. 39, 40, 43) 22

Posterior edge of subgenital plate without or with only small notches on either side of the egg-guide, latter of more variable form, often somewhat longer or wider 24

22(21). Notches on either side of egg guide rather less deep (fig. 39A); spermatheca proper and its appendix wider (fig. 39B); northeastern West Irian, NE New Guinea, Papuan mainland W of about 148°E ..... **buergersi**

Notches on either side of egg-guide very deep and slit-like (fig. 40A, 43A); spermatheca proper narrow, its apical appendix very thin (fig. 40B, 43B); SE Papua E of about 148°E, D'Entrecasteaux and Louisiade archipelagos, Woodlark I. 23

23(22). Size slightly larger (body 29-33, tegmen 27.5-32 mm); posterior edge of subgenital plate distinctly transverse (fig. 43A); spermatheca proper and its appendix generally not quite so narrow (fig. 43B); distribution as above, except Woodlark I. ... **marginata**

Size slightly smaller (body 27-28, tegmen 27 mm); posterior edge of subgenital plate less distinctly transverse (fig. 40A); spermatheca proper and its appendix very narrow (fig. 40B); Woodlark I. only..... **sylvatica**

24(21). Tegmina often rather wide, usually with a truncated, sinuous apical margin (Pl. VI, fig. C, D, G, H); posterior edge of subgenital plate transverse, small notches usually present on either side of egg-guide (fig. 30A, B); spermatheca proper rather narrow, but sometimes with a slight tendency to inflation, apical appendix rather thin (fig. 30 C, D); SE Papua, except extreme SE and associated archipelagos... **haani**

Tegminal apices not truncated nor distinctly sinuous; other features and distribution various, most species not occurring in area indicated above 25

25(24). Size generally above average for genus (body and tegmen at least 30 mm); tegmina

typically rather broad (Pl. II, fig. C-E; Pl. IV, fig. G, H; Pl. IX, fig. G, H); known distribution restricted to Kai and Aru Is. (apices of tegmina rather transverse) or to central mountains of western NE New Guinea, or to central mountains above about 700 m in eastern West Irian 26

Size about or below average for genus (body and tegmen often less than 30 mm); tegmina of about average width or narrower; distribution of most species less restricted and outside the areas indicated above, although there is some overlap (Kai and Aru Is. specimens with tegminal apices more oblique) 28

26(25). Body 30-34, tegmen 30-35 mm; head of about average proportions (Pl. II, fig. C-E); apices of tegmina rather transverse; posterior edge of subgenital plate transverse, egg-guide usually comparatively long (fig. 11A); spermatheca proper narrow, its apical appendix very thin (fig. 11B); Kai and Aru Is. ..... **keyensis***

Size generally either larger or smaller than average for above; head shorter (Pl. IV, IX, fig. G, H); apices of tegmina rather more oblique; posterior edge of subgenital plate transverse or rounded, egg-guide usually rather shorter (fig. 21A, 58A); spermatheca proper rather wide, somewhat inflated, or its apical appendix rather thick (fig. 21B, 58B); mountains of northern middle New Guinea 27

27(26). Body 30-31, tegmen 32-32.5 mm; head not so short (Pl. IX, fig. G, H); posterior edge of subgenital plate rounded, egg-guide short (fig. 21A); spermatheca proper rather wide, but not inflated, tapering to a rather thick apical appendix (fig. 21B); mountains of western NE New Guinea ..... **curvicercis**

Body 31-35, tegmen 35.5-37 mm; head shorter (Pl. IV, fig. G, H); posterior edge of subgenital plate transverse, egg-guide usually a little longer (fig. 58A); spermatheca proper inflated, rapidly narrowing to a comparatively thin apical appendix (fig. 58B); central mountains of eastern West Irian ..... **esme***

28(25). Size rather small (body 24-31, tegmen 24-30 mm); head usually rather short (Pl. IV, fig. C, D); tegmina often very slightly tapered with straight margins; posterior edge of subgenital plate somewhat transverse or very broadly rounded, very slightly notched on either side of egg-guide, latter variable but usually fairly short (fig. 14A, B, 15A); spermatheca proper narrow, tapering gradually to a very thin apical appendix (fig. 14C, D, 15B); Papua E of about 148°E and associated archipelagos ..... **circe***

Size variable; morphological characters and distribution various, but not known east of about 148°E 29

29(28). Size small (body 25.5-29.5, tegmen 23-27 mm); head usually quite short (Pl. III, fig. A, B, G, H); tegmina usually rather short and narrow, very slightly tapered, with straight margins; posterior edge of subgenital plate rounded, without notches on either side of egg-guide, latter rather short (fig. 18A, B); spermatheca proper rather narrow, tapering to a thin apical appendix (fig. 18C, D); southern New Guinea between about 138 and 148°E, islands of Torres Strait, northern Queensland, Kai and Aru Is. ..... **explicata**

Size usually at least a little larger; head of average length; tegmina usually longer and often parallel-sided with slightly sinuous margins; differently distributed except for northern parts of southwestern West Irian and Kai and Aru Is. [where differences indicated are valid, posterior edge of subgenital plate more transverse and spermatheca proper narrows more abruptly to its apical appendix] 30

30(29). Size generally a little smaller than average for genus (body 28-31, tegmen 26-30 mm); tegmina generally rather narrow, very slightly tapered with straight margins; posterior edge of subgenital plate transverse to slightly rounded, notches on either side of egg-guide very small or absent, latter rather short (fig. 7A, 8A); spermatheca proper rather narrow and tapering gradually to a rather narrow apical appendix

(fig. 7B, 8B); northern West Irian except Geelvink Isthmus and westwards, Japen I. ?, Schouten Is.?, NE New Guinea, northeastern Papua [erroneously (?) recorded from Sumbawa, Borneo and S. Philippines] ..... **biroi**

Size generally a little larger than above; tegmina of about average width, not tapered and often with somewhat sinuous margins; other morphological characters variable but not usually in same combination; variously distributed, but not known E of about 142°E 31

31(30). Antennae sometimes unusually long and thin; subgenital plate transverse or very slightly rounded, egg-guide rather broad at base (fig. 24A, 27A, B); spermatheca proper rather narrow but sometimes feebly inflated, abruptly narrowed to a moderately thin apical appendix (fig. 24B, 27C); Waigeu I., Vogelkop and Bombarai Peninsulas, S. Geelvink Isthmus, other parts of West Irian S of the central mountains, except extreme SE, Aru and Kai Is. ..... **sundaica**

a. Waigeu I., Vogelkop and Bombarai Peninsulas, SW Geelvink Isthmus (?); antennae rarely unusually long and thin; spermatheca proper not usually distinctly inflated ..... subsp. **sundaica**

b. Other parts of distribution; antennae more frequently long and thin; sperma-

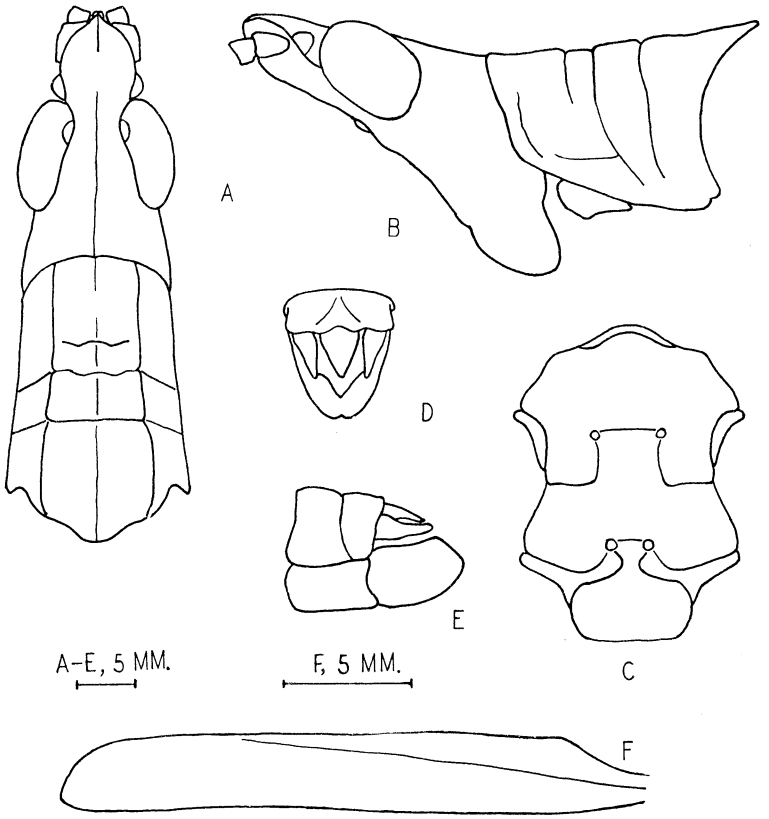


Fig. 1. *Desmopterella angustata* Ramme, ♂. A, head and pronotum, dorsal; B, the same, lateral; C, sternal lamina; D, abdominal terminalia, dorsal; E, the same, lateral, from left; F, left tegmen.

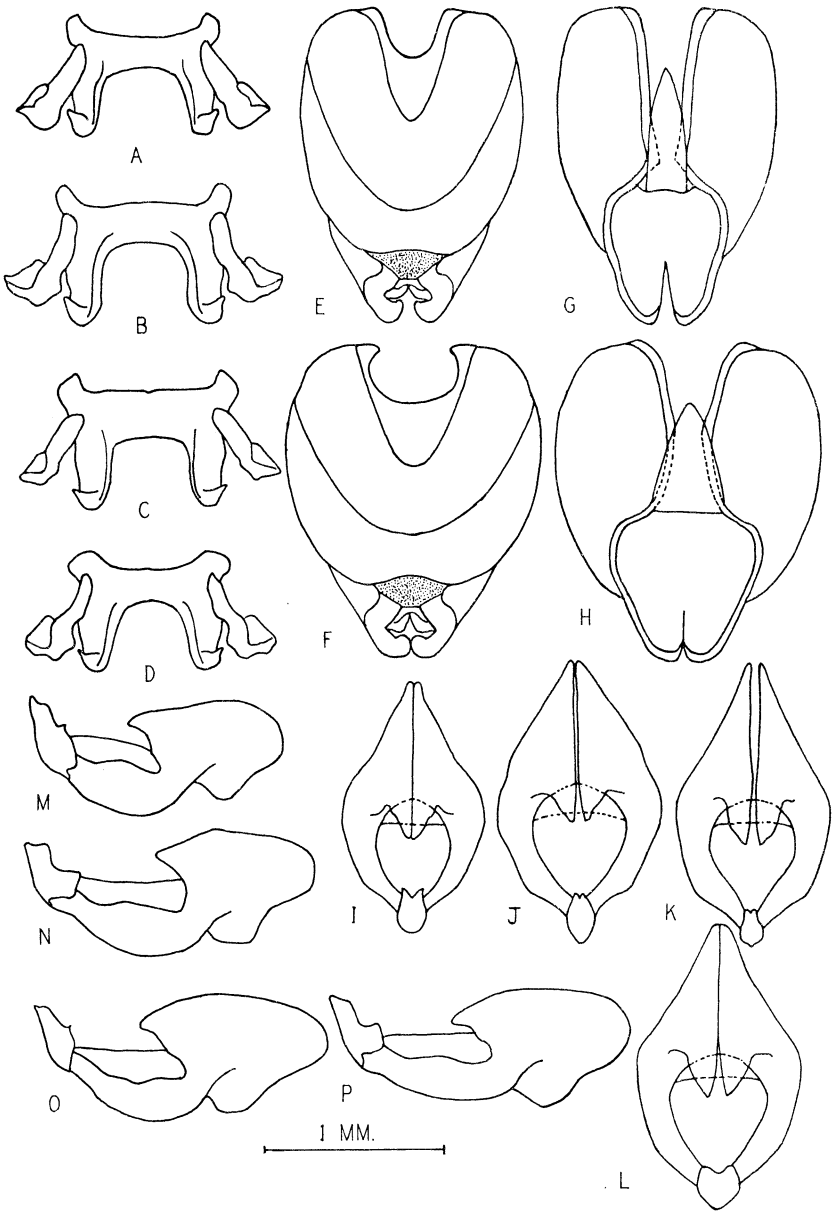


Fig. 2. *Desmopterella angustata* Ramme, phallic structures showing variation. A–D, epiphallus, dorsal; E, F, ectophallus, dorsal; G, H, ectophallus, ventral; I–L, endophallus, dorsal; M–P, endophallus, lateral from right.

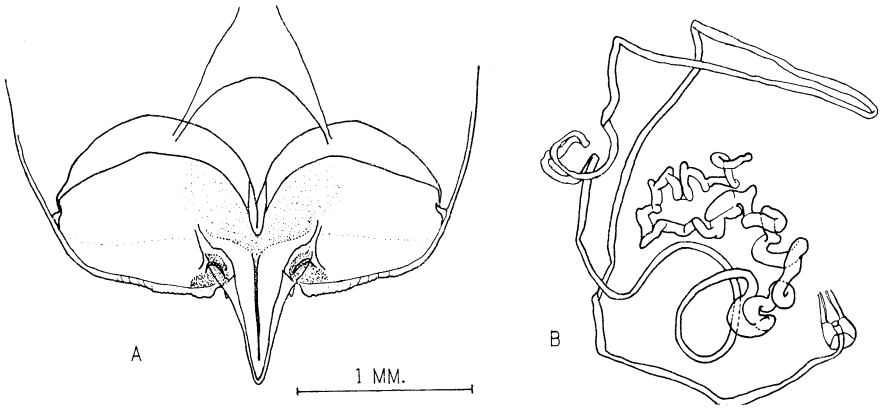


Fig. 3. *Desmopterella angustata* Ramme, ♀ structures. A, subgenital plate, dorsal; B, receptaculum seminis.

theca proper sometimes distinctly, if moderately, inflated .....subsp. **steini**

Morphological characters various, but antennae not unusually long or thin; egg-guide usually narrower at base; spermatheca proper not inflated, its apical appendix thicker; differently distributed from above, northern Geelvink Isthmus, West Irian N of central mountains 32

32(31). Tegmina tending to be slightly wider (Pl. VIII, fig. G, H; Pl. XI, fig. C, D); posterior edge of subgenital plate transverse or nearly so (fig. 46A, 55A, B); spermatheca proper tapering to its apical appendix (fig. 46B, 55C, D); distribution more westerly, Geelvink Isthmus to NE West Irian 33

Tegmina tending to be slightly narrower (Pl. X, fig. C, D, G, H); posterior edge of subgenital plate slightly or distinctly rounded (fig. 46A, 55A, B); spermatheca proper well differentiated from its apical appendix (fig. 46B, 55C, D); distribution more easterly, West Irian to western NE New Guinea 34

33(32). Head of average length (Pl. VIII, fig. G, H); tegmina with rather less tendency to be wider; posterior edge of subgenital plate distinctly transverse, notches on either side of egg-guide very small, latter rather short (fig. 46A); distribution including western Geelvink and (?) Japen I. ..... **dènticulata**

Head a little longer than average (Pl. XI, fig. C, D); tegmina with greater tendency to be wider; posterior edge of subgenital plate less distinctly transverse, notches on either side of egg-guide more distinct, latter a little larger (fig. 55A, B); distribution not known to include western Geelvink or Japen I. ..... **curvata***

34(32). Head moderately long (Pl. X, fig. C, D); posterior edge of subgenital plate only slightly rounded, without, or with only minute notches on either side of egg-guide (fig. 49A); apical appendix of spermatheca a little shorter and thicker; distribution as in Couplet 32 ..... **willemsei***

Head of average length (Pl. X, fig. G, H); posterior edge of subgenital plate distinctly rounded, usually with small, distinct notches on either side of egg-guide (fig. 52A); apical appendix of spermatheca less short and thick; distribution similar to above ..... **cercata**

1. **Desmopterella angustata** Ramme, 1941. Fig. 1-3 ; Pl. I, fig. A-E.

D[*esmoptera*] *Biroi* Bolívar, 1905, *Bol. Soc. Esp. Hist. Nat.* **5**: 109 (*partim*) [Gilolo (erroneously recorded) specimen only].

Desmoptera media (*nec* Bolívar): Willemse, 1932, *Mém. Mus. Nat. Belg.* (hors Série) **4** (3): 45 (*partim*) [specimens except 1 ♀ from Manoi and 1 ♂ from Sakoemi which are *Desmopterella sundaica, s. str*].

Desmoptera marginata (*nec* Bolívar): Willemse, 1932, *Mém. Mus. Nat. Belg.* (hors Série) **4** (3): 46 (*partim*) [Siwi specimens].

Desmopterella angustata Ramme, 1941, *Mitt. Zool. Mus. Berl.* **25**: 57 (*angustata* only), 63 fig. 30a [♂ terminalia], 64, 65 (*angustata* only), 217, Pl. IX, fig. 5a, b [♂, ♀].

D[*esmopterella*] *angustata*: Kevan, 1963, *Nova Guinea* (n. s.) **10**: 390n ; 1966, *Ent. Meddr.* **34**: 396.

This species was described from several localities in West Irian : ♂ holotype, ♀ allotype, 4 ♂ and 7 ♀ paratypes from Siwi, Arfak Mts ; 1 ♀ paratype from Ditschi, Arfak Mts, 4 ♂ and 2 ♀ paratypes from Wasior, Wandamen Peninsula, and 1 ♂ and 6 ♀ paratypes from the Weyland Mountains. Ramme (1941 : pl. IX, fig. 5a, b) illustrates the allotype and a ♂ paratype. He gives (not very accurately) only a range of measurements for the species, the body length of the ♂ being at least 10 mm too short. The holotype and allotype bear the following data : (1) Neu-Guinea Siwi (Arfak), 21.4-25.5.28 Mayr leg. ; (2) Typus *or* Allotypus. The measurements are respectively : body 22 and 32, pronotum 4.3 and 6.5, tegmen 21 and 29, hind femur 10 and 14.5 mm.

DISTRIBUTION (fig. 59) [localities marked with an asterisk have been previously recorded although not necessarily under the correct name] :

? HALMAHERA : Gilolo* [probably an error in labeling - Pl. I, fig. E].

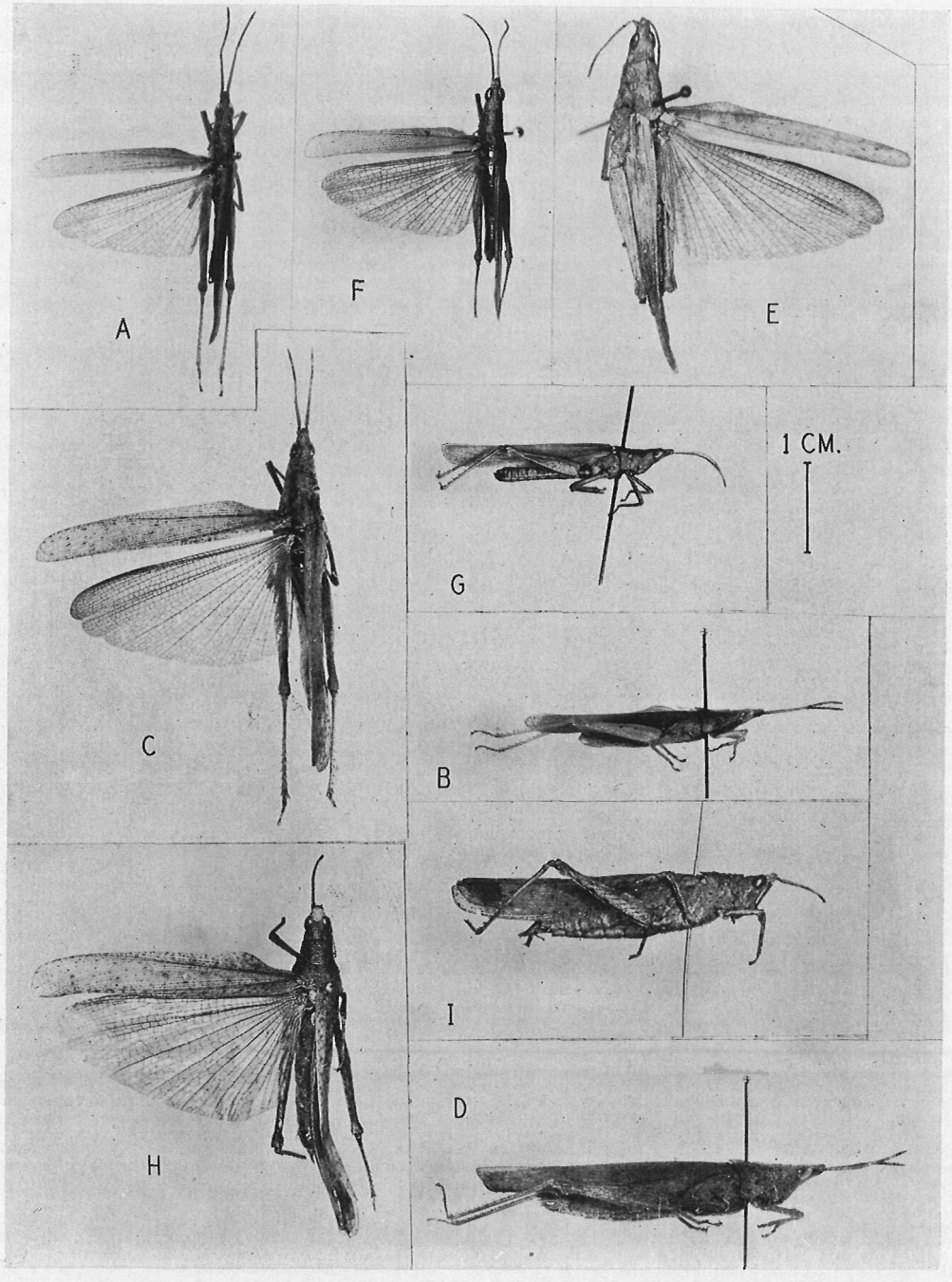
WEST IRIAN : Japen I., SSE of Sumberbaba, Dawai R. ; Japen I., Sewan ; Archbold Lake (Cyclops Mts) ; Bodem, 11 km SE of Oerberfaren ; Ditshi (Arfak Mts)* ; Dorey [=Dore Bay]; Genjam, 40 km W of Hollandia ; Hollandia ; noord Hollandia ; Ifer (Cyclops Mts) ; Karubaka (Swart Valley) ; Kebar Valley W of Manokwari ; Maffin Bay ; Mamberamo ; Manikion ; Manoi*; Manokware ; Moemi [=Momi]*; Nabire ; Pioneerbivak ; Prauwenbivak ; Rouffaer R. ; Sabron (Cyclops Mts) ; Sakoemi [=Sakum]* ; Siwi (Arfak Mts)* ; R. Tor (mouth) ; Waris S of Hollandia [=Sukarnapura]; Wasior (Wandamen Peninsula)* ; Weyland Mts*.

NE NEW GUINEA : Dreikikir (Sepik Dist.) ; Krisa, Vanimo ; Mobitei (Torricelli Mts) ; Nengian village (Torricelli Mts) ; Sigoitel (Torricelli Mts) ; Torricelli Mts (only) ; Wewak ; Wewak - Passam rd nr Wewak.

This species is readily distinguishable from all others on account of its longer head and narrow, tapering tegmina.

Size Range: Body, ♂ 21-24, ♀ 31.5-35.5 ; tegmen, ♂ 19-21, ♀ 27.5-30.5 mm.

Plate I. *Desmopterella angustata* Ramme and *D. biroi* (Bolívar), type material. A, B, *D. angustata* ♂, holotype (Berlin) [photo Dr K. K. Günther, 1966] ; C, D, the same, ♀ allotype (Berlin) [photo Günther, 1966] ; E , the same, ♀ paralectotype of *Desmoptera biroi* Bolívar allegedly from Gilolo (Paris) [not conspecific with lectotype of that species] ; F, G, *D. biroi*, ♂ holotype of *D. rammei* Kevan (Berlin) ; H, I, *D. biroi*, ♀ lectotype (Stockholm).


A
F
E
1 CM.
G
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D

2. **Desmopterella biroi** (Bolívar, 1905) Fig. 4–8 ; Pl. I, fig. F–I.

D[esmoptera] media (*nec* Bolívar) ; Krauss, 1902, *In* Semon, *Zool. Forschungsr. Aust. Mal. Arch.*, Jena, **5** (5): 117 (*partim*) [Sumbava (erroneous) and Dtsch. N. Guinea specimens] ; 1903. *Denkschr. Med.-Nat. Ges. Jena* **8**: 759 (*partim*) [as last].

D[esmoptera] Biroi Bolívar, 1905, *Bol. Soc. Esp. Hist. Nat.* **5**: 108 (*Biroi* only), 109 (*partim*) [not Gilolo (erroneous locality ?) specimen which is *Desmopterella angustata*] ; 1909, *Gen. Ins.* **90**: 36.—Kirby, 1910, *Syn. Cat. Orth.* **3**: 329.— Willemse, 1928, *Zool. Meded.* **11**: 7.

Desmoptera birói: International Council (Minchin ed.), 1907, *Int. Cat. Sci. Lit.* (N, Zool.) **5**: 785.

Desmoptera Biroi: Sjöstedt, 1932, *Arkiv Zool.* **24**A (1): 27.—Rehn, 1953, *Grassh. Locusts Aust.* **2** 47 (*biroi*—citing type).

Desmopterella biroi: Ramme, 1941, *Mitt. Zool. Mus. Berl.* **25**: 48 (*Desmoptera*—citing type), 56, 57, 62 (no generic name on these 3p.), 63 fig. 30b [♂ terminalia], 65 (no generic name), Pl, IX, fig. 4a, b (name attributed to Kuthy) [♂, ♀].—Rehn, 1951, *Proc. Acad. Nat. Sci. Philad.* **103**: 229.—Kevan, 1963, *Nova Guinea* (n. s.) **10**: 390 (*partim*—mostly refers to *Desmopterella buergersi*) ; 1966, *Ent. Meddr.* **34**: 393, fig. 5A-C (*D. biroi*) [phallic structures], 396.

Desmopterella bürgersi (*nec* Ramme) Ramme, 1941, *Mitt. Zool. Mus. Berl.* **25**: 64, 65 (*partim*-latter p. as *bürgersi* only) [at least 1 ♀ from New Guinea (*Lauterbach*) in Stockholm Museum].

Desmopterella rammei Kevan, 1963, *Nova Guinea* (n. s.) **10**: 390. **New Synonymy.**

[Other references to *D. biroi* are for *Desmoptera novaeguineae* (Haan) — see Kevan (1963 : 390) — or to other species of *Desmopterella* — *q. v.*].

As indicated by Kevan (1963), this species was described from 3 ♀ syntypes : 1 in Budapest, from Friedrich Wilhelmshafen, which was subsequently destroyed in a fire at the Museum in 1956 ; 1 in Paris, allegedly from Gilolo, which, in fact, belongs to *D. angustata* and presumably was from New Guinea ; and 1 in Stockholm from "N. Guinea." The last was designated as lectotype by Kevan (*l. c.*), for, as explained by Rehn (1951), Ramme (1941) made an erroneous type designation. The lectotype bears the following labels : (1) N. Guinea [printed] ; (2) *Nyman* [printed] ; (3) 477/59 ; (4) 156/65 ; (5) Desmoptera Biroi Bo. ♀ [in Bolívar's hand, originally marked '♂' but changed in pencil] ; (6) Cotypus [printed, black on red]. The measurements differ slightly from those given by Bolívar and are as follows : body 30, pronotum 5.0, tegmen 38, hind femur 13 mm.

Kevan (1963) was erroneously of the opinion that this specimen did not conform with Ramme's (1941) concept of *D. biroi*, but rather with that author's *D. buergersi*, and renamed the former species *D. rammei*, designating as holotype one of Ramme's so-called paratypes in the Berlin Museum. This specimen bears the following labels : (1) N. Guinea Biro '97 ; (2) Stephansort Astrolobe Bai ; (3) Desmopterella biroi Paratypus [in Ramme's hand] : (4) Paratypus [printed, on brick red] ; (5) Desmopterella rammei n. sp. Det. D. K. McE. Kevan, 1963, Type ; (7) erroneously called paratype of D. biroi by Ramme 1941, det. D. K. McE. Kevan, 1963 ; (8) red-bordered Holotype disc. Its measurements are : body 21, pronotum 4.0, tegmen 20.4, hind femur 9.3 mm.

DISTRIBUTION (fig. 59) [localities marked with an asterisk have been recorded previously] :

[MALAYSIA (BORNEO), SARAWAK : Kapit Distr., Merirai* - presumably based on erroneous labeling].

[INDONESIA, LESSER SUNDA IS. : Sumbava* - presumably also wrongly labelled].

[PHILIPPINE IS., MINDANAO : Agusan, San Francisco* ; Zamboanga del Sur, Lemeshan* - again probably due to faulty labeling].

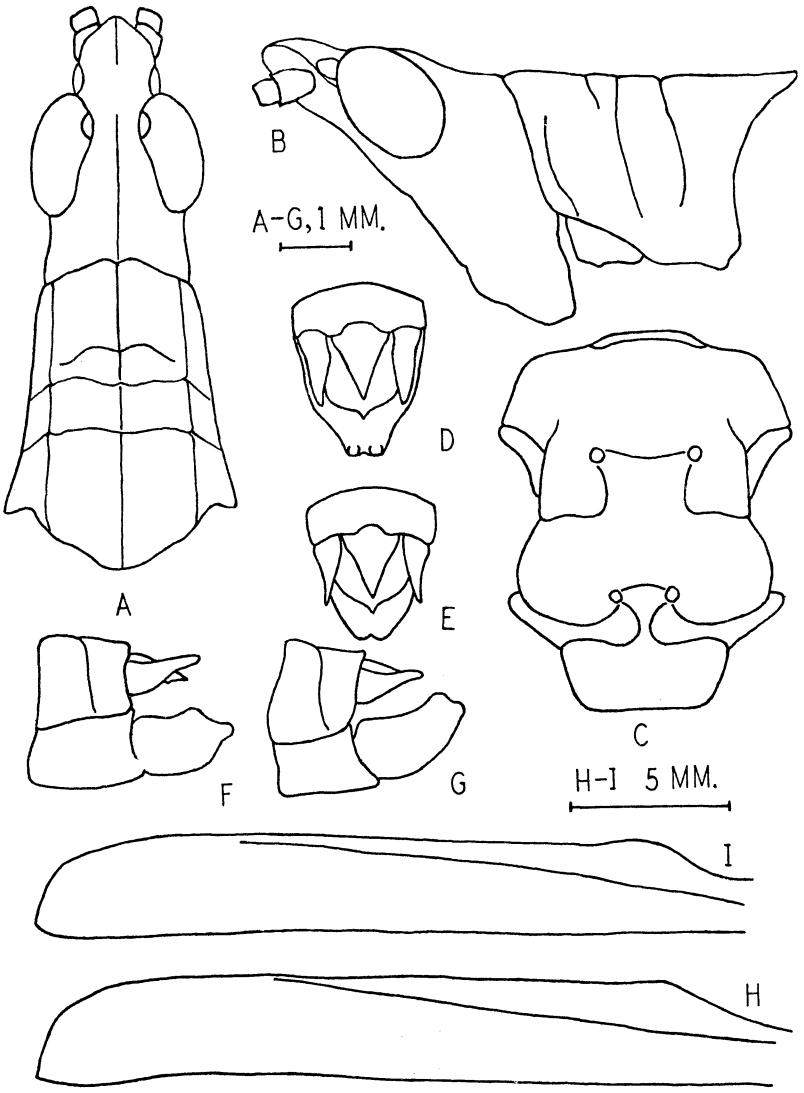


Fig. 4. *Desmopterella biroi* (Bolívar), ♂. A-C, as in fig. 1 ; D-G, abdominal terminalia (D, E, dorsal ; F, G, lateral, from left ; D, F, typical, from westerly population ; E, G, from easterly population) ; H, I, left tegmina (H, from westerly population ; I, from easterly population).

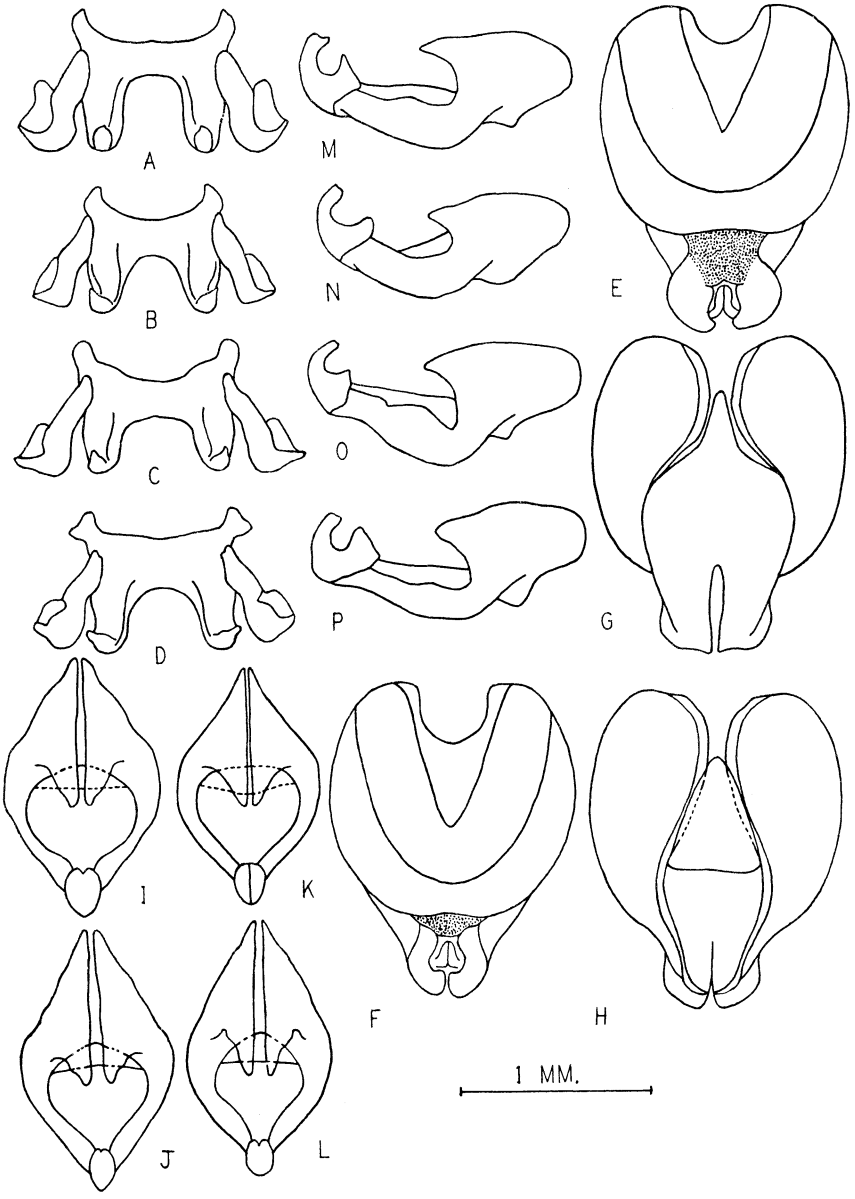


Fig. 5. *Desmopterella biroi* (Bolívar), phallic structures showing variation in typical, westerly populations. A-P, as in fig. 2. B, K, N, from holotype of *D. rammei* Kevan.

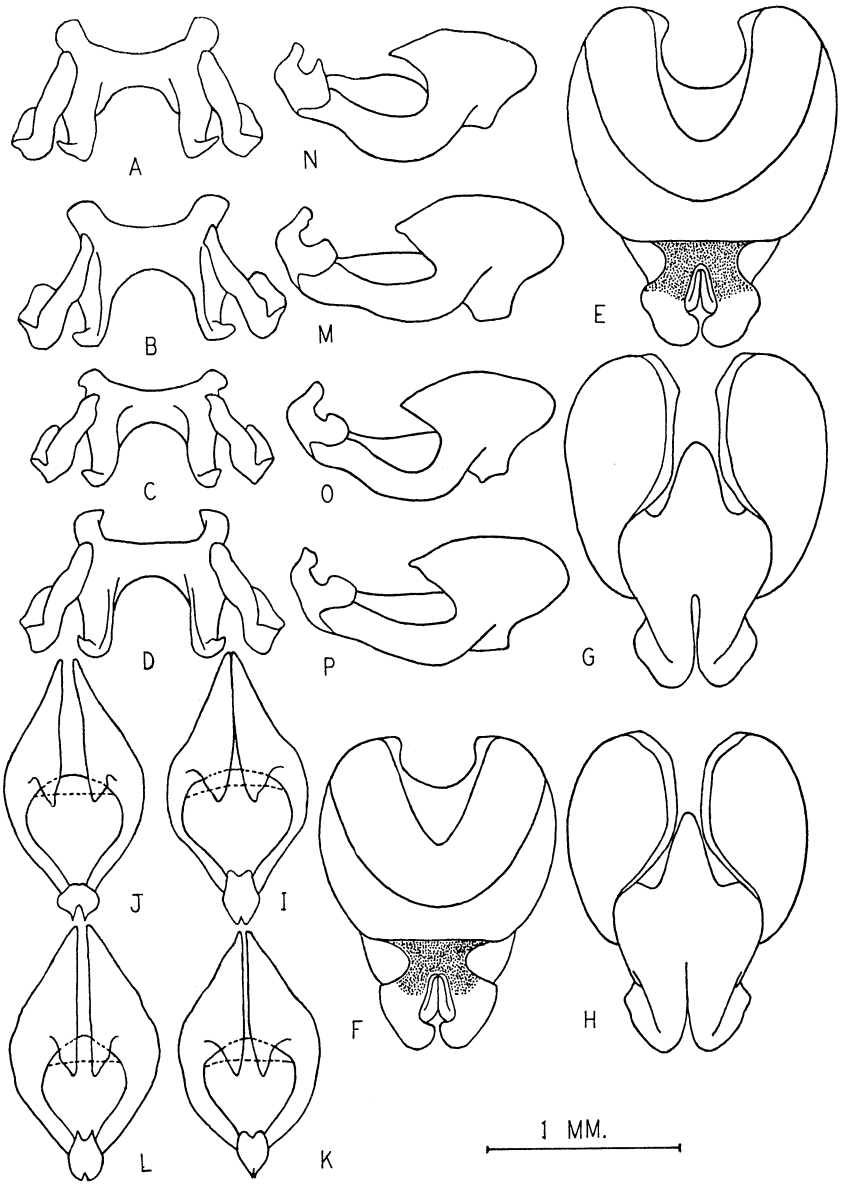


Fig. 6. *Desmopterella biroi* (Bolívar), phallic structures showing variation in easterly populations. A–P, as in fig. 2.

NEW GUINEA (unspecified region) : New Guinea, Nouvelle Guinée or N. G. only*.

WEST IRIAN : Schouten Is, Wageo [♀ only, ? this species] ; Nieuw Guinea only ; "Noord" [="north", not Noord R. in SW West Irian] ; Cyclops Mts or Cycloop Geb. ; W Cyclops Mts, ; Hollandia ; New Hollandia area (W Sentani) ; Maffin Bay ; "ter

Porten" [= at the port? =Hollandia ; ? this species, juvenile only] ; Sabron (Cyclops Mts) ; Sentani ; R. Tor (mouth) ; Waris [S of Sukarnapura].

NE NEW GUINEA : Neu-Guinea only; Kaiser Wilhelmsland only ; Aitape ; Aitape, Tadji' drome ; Alexishafen - Matuka rd. nr. Madang ; Amele ; Amele village plantation, Madang Distr, in cacao block, mainly on undergrowth ; Ami nr Maprik ; Amok ; "Lager am Aprilfluss" [camp on April R.]* ; Arop ; Baindep (Salawaket [=Saruwaged] Range); Baindoan (Salawaket Range) ; Bainyik ; Bainyik Agr. Sta., Maprik Subd., Sepik Dist. ; Berlinhafen [=Arop] ; Boangi, Finschhafen ; Blumajong, Finschhafen ; Bongu (Torricelli Mts) ; Bubia (Markham Valley) ; Bubia, Lae, in native gardens, on oil palm and in rain forest ; Bulu Plantation ; Bulolo ; Bulolo R. ; Bulolo-Vatut [=Watut] ; Busu R., E of Lae ; Didyman's Creek, Botanical Gardens, Lae, secondary forest ; Dreikikir (Sepik Dist.) ; Erap, on rice ; Erima (Astrolabe Bay)* ; Finschhafen ; "Flusslager" [river camp on Kaiserin-Augusta (=Sepik) R.]* ; Friedrich Wilhelmshafen [=Madang]* ; Gabensis to Markham R. nr Lae ; Gewak (Salawaket Range) ; Jimmi R. ; Jimmi R., West

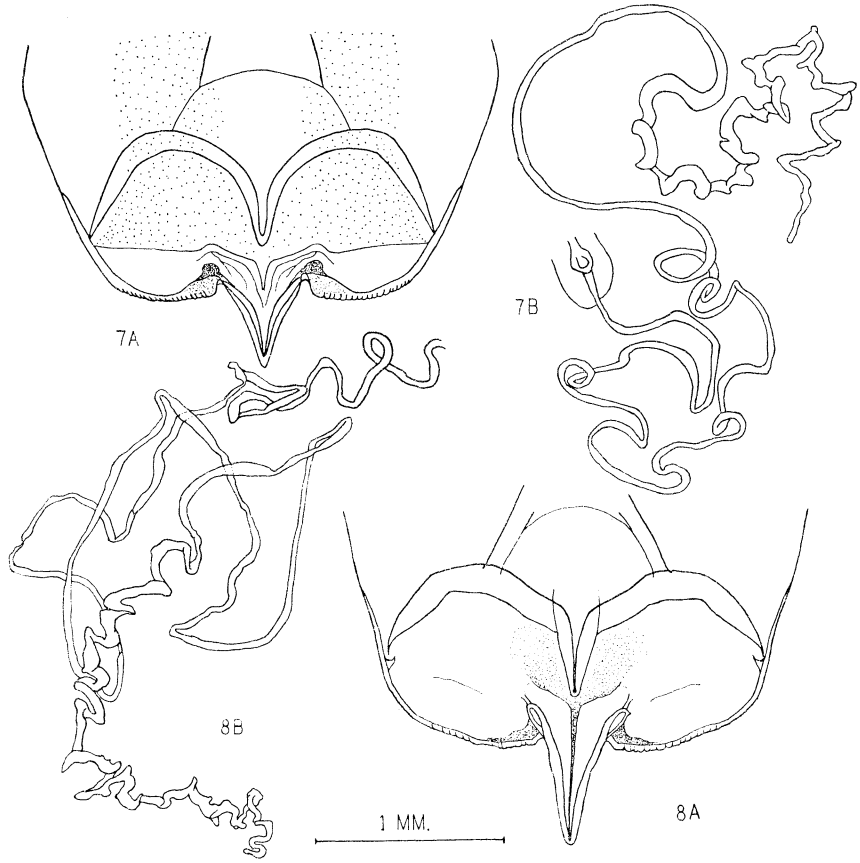


Fig. 7, 8. *Desmopterella biroi* (Bolívar), ♀ structures. 7, from westerly population ; 8, from easterly population. A, B, as in fig. 3. 7A from lectotype.

Highlands, 1410 m; Kilolo Creek, Morobe Dist.; Kamiatam Village, Morobe Dist., ex *Coffea canephora*; Kumur, Upper Jimmi Valley; Lae; Lagoweng; Finschhafen; Madang; Madang Agr. Sta., feeding on sweet potato; Madang-Amela rd nr Madang; "Hauptlager bei [= base camp nr] Malu"*; Maprik; Mirilunga Village, Melambi R., Lae., 1350 m; Mt Missim (Wau)[3]; Mutuka [=Matoko, W. Finisterre Range]; Nadzab (Markham Valley); Paup; Pindiu (Huon Peninsula); "Lager am Rosensee [= camp at Rose Lake]*; Sangeman Village E of Lae; Siaute, sea level nr Torricelli Mts; Simbang; Singana Plantation, Lae, on secondary growth; Singuwa [= Singuau] R., Lae, 6°45′S, 147°10′E; Stephansort*; "Lager am Töpferfluss" [=camp on Pot R.]*; Tsenga (Upper Jimi Valley); Tuwep (Salawaket Range); Wampit Valley nr Wau; Wanuma (Adelbert Mts); Wewak; Wodra[4]; Wum (Jimi V.); Zenag-Lae.

PAPUA; Kokoda; Kokoda-Pitoki; Mt Lamington; Mangalese area, 750–900 m [♀ only, ? this sp.]; Popondetta; Mt Tafa.

The characteristic feature of this species is the possession of terminal papillae on the subgenital plate of the ♂, but these may not be well developed. Male specimens from the easterly part of the range, from the Huon Peninsula southwards, tend to differ from other material in lacking distinct terminal papillae and in having somewhat swollen bases to the aedeagal valves (fig. 4E, G, 7). It would probably serve little purpose at present to recognize two subspecies on the basis of these slight and not altogether consistent differences, particularly as no available name already exists.

Size range: Body, ♂ 18–20.5, ♀ 28–31; tegmen, ♂ 16.5 (unusually short)–21, ♀ 26–30 mm.

3. **Desmopterella keyensis**[5] Kevan, new species Fig. 9–11; Pl. II.

D[esmoptera] degenerata Bunner von Wattenwyl, *Abh. Senckenb. Naturf. Ges.* **24**: 233 (locality p. 234) (*partim*). — Krauss, 1902, *In* Semon, *Zool. Forschungsr. Aust. Mal. Arch.*, Jena, **5** (5): 117 (*partim*); 1903, *Denkschr. Med.-Nat. Ges. Jena* **8**: 759 (*partim*).—Kirby, 1910, *Syn. Cat. Orth.* **3**: 329 (*Degenerata - partim*).—Willemse, 1931, *Treubia* **12** (Suppl.): 228 (generic name in full — *partim*).

Desmopterella biroi (*nec* (Bolívar)) [dubious]: Kevan, 1963, *Nova Guinea* (n. s.) **10**: 395.

In all the above references only Key (= Kai) Is. material is involved.

Holotype ♂, Kai Is., labelled (1) "H. C. Siebers, Kei Eil. 1922, G[u]n[ung] Daab 153"; (2) "Key Islands, Goenoeng Daab, 1922" (Collection of late Dr C. J. M. Willemse, deposited in the Natural History Museum, Maastricht, Netherlands).

Head (fig. 9A, B) of average proportions for genus, frontal profile moderately oblique, fastigium of vertex rather broad and obtuse, about as long as wide. *Antennae* rather slender with 15 segments in addition to scape and pedicel, middle segments more than 3 × as long as wide. *Eyes* oval, abut 2× as long as wide, interocular space at narrowest point just over 1/4 of maximum distance between outer faces of eyes. *Thorax* (fig. 9A-C) of average proportions for

3. Tegmina of the single ♂ specimen are distinctly greenish, which is very unusual for the genus.
4. "Wodra, Hochwald, 600 m" written on a scrap of paper on a "paratype" of *D. buergersi* collected by Lauterbach, otherwise labelled only "Neu-Guinea."
5. This name is attributable to the late Dr C. J. M. Willemse, who recognized the species as new but never described it.

genus; pronotum with lateral carinae rather straight, scarcely divergent distad, typical transverse sulcus crossing disc just behind middle; mesosternal lobes quadrate, their interspace a little wider than long. *Tegmina* (fig. 9F) rather broad, slightly widening towards apices; costal margin rather broadly rounded to an indistinct point; scapular region rather abruptly convex. *Abdominal terminalia* (fig. 9D, E) with epiproct triangular, about as broad as long and with more or less straight margins; cerci rather short, simple, subconical, their apices slightly excurved, barely surpassing apex of epiproct; subgenital plate rather short, simple, somewhat compressed in dorsal view, somewhat narrowly rounded in profile. *Phallic structures* (fig. 10) very small; epiphallus with short, wide divergent lateral plates; aedeagal valves simple, short, upwardly curved and tapered apically, apices subtruncate; endophallic apodemes small and subtriangular.

Coloration: Body generally sepia-brown; eyes darker; antennae with irregular and incomplete pale bands; dorsum of head and pronotum and scapular area of tegmina pale ochreous; hind femora pale with a dark dorsal fascia about middle, dark knees and dark maculae along inferior

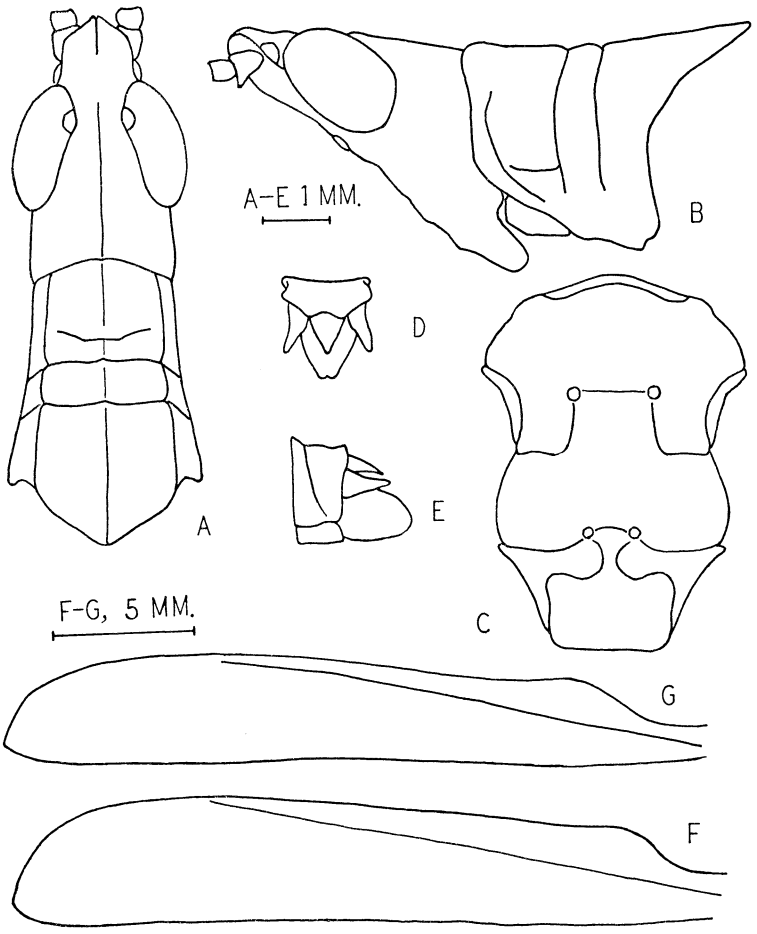


Fig. 9. *Desmopterella keyensis*, n. sp., ♂. A-F, as in fig. 1; G, narrower form of tegmen.

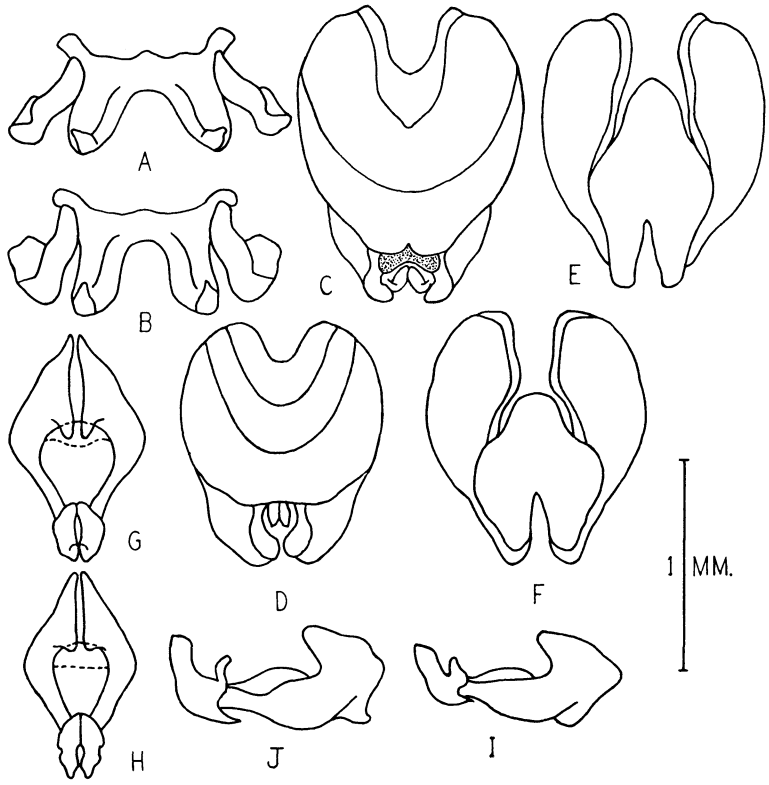


Fig. 10. *Desmopterella keyensis*, n. sp., phallic structures showing variation. A, B, epiphallus, dorsal; C, D, ectophallus, dorsal; E, F, ectophallus, ventral; G, H, endophallus, dorsal; I, J, endophallus, lateral, from right.

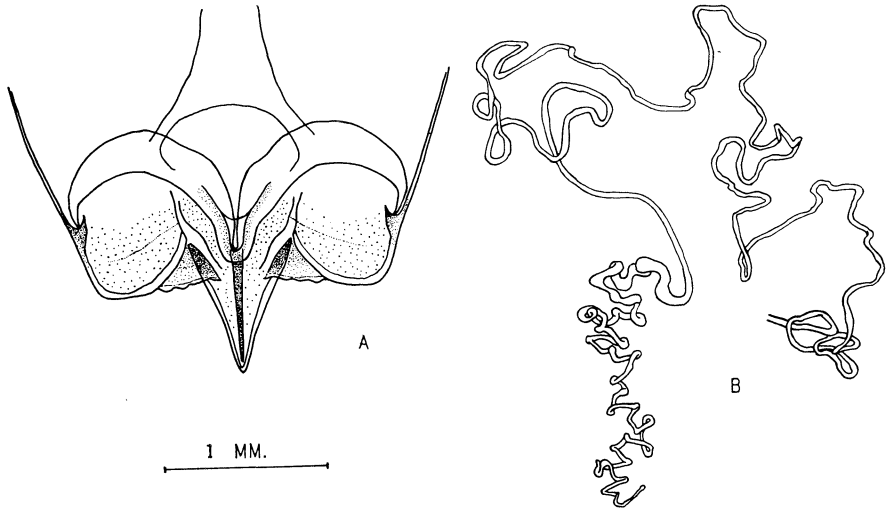


Fig. 11. *Desmopterella keyensis*, n. sp., ♀ structures. A, B, as in fig. 3.

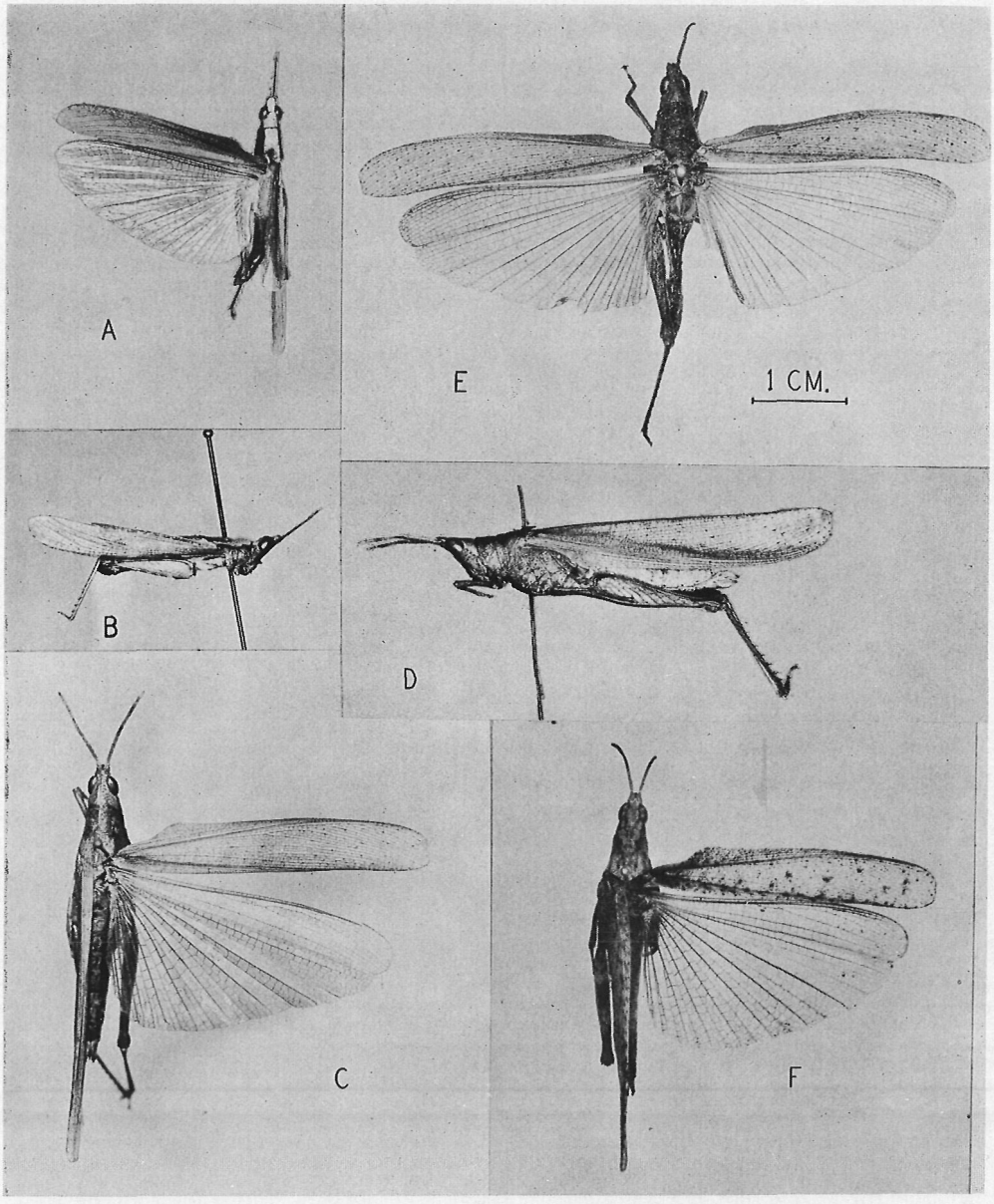


Plate II. *Desmopterella keyensis*, n. sp., type material. A, B, ♂ holotype (Maastricht); C, D, ♀ allotype (Maastricht); E, ♀ paratype=paralectotype of *Desmoptera degenerata* Brunner von Wattenwyl (Vienna) [not conspecific with lectotype of that species]; F, ♀ paratype from Aru Is. (Vienna).

external carina; hind tibiae pale with brown-tipped spines; hind wings hyaline.

Measurements: body (apex of fastigium to end of abdomen) 22, antenna 10.0, pronotum 4.2, tegmen 21.5, hind femur 10.8 mm.

Allotype ♀, Kai Is., labeled as holotype (1), but numbered "138" [Maastricht].

Differing from the holotype as follows: considerably larger, antenna shorter, and distinctly triquetrous at base, middle segments about 2× as long as wide; lateral pronotal carinae divergent posteriorly; interspace between mesosternal lobes about 2× as wide as long; tegmina rather broad but not widening apically, costal margin rather abruptly rounded to a rather subtruncate apex; abdominal terminalia undistinguished, as in females of other species. Concealed copulatory apparatus [from a paratype] as in fig. 11; subgenital plate with transversely truncated posterior edges, egg-guide moderately long; spermatheca gradually tapered to a very narrow appendix.

Coloration: almost uniform brown, tegmina with a few minute darker flecks towards apices; antennae with paler apices and an indistinct, pale band in the apical 1/2.

Measurements: body 33, antenna 10.0, pronotum 6.8, tegmen 33, hind femur 14.5 mm.

Paratypes: Kai Is.: same data as holotype label (1), but with different numbers, 1♂, 8 ♀♀ [2 ♀♀ give month of capture as IV; 1 ♂, 2 ♀♀ in author's collection in Lyman Entomological Museum, rest in Willemse collection]; Elat, 1922, H. C. Siebers, 2 ♂♂ [Willemse collection]; Toeal [= Tual], H. Heyne vend., 23.V.1900, 1 ♂ [Natural History Museum, Vienna - det. Brunner von Wattenwyl as *Desmoptera degenerata* - Pl. II, Fig. e]; Toeal, 1922, H. C. Siebers, 1 ♀ [Willemse collection]; "Key Inseln, Ribbe [collector], Coll. Br. v. W.", 2 ♀♀ [Vienna Museum-paralectotypes of *Desmoptera degenerata* Brunner v. W., one with additional labels as discussed by Kevan (1963: 394-95)].

Aru Is.: "Coll. Br. v. W., Aru Inseln, C. Ribbe [collector]" and Brunner von Wattenwyl's number "26.647", 1 ♀ [Vienna Museum]. Although this specimen is a single ♀ (Pl. II, fig. F), it seems to belong undoubtedly to the same species as the Kai material.

The paratypes are somewhat variable in coloration and size. Only 1 ♂ is colored more or less as in the holotype; the others agree more with the allotype. Most of the females are similar in pigmentation to the allotype although a few have somewhat infumated hind wings. One has the subcostal area of the tegmina pale, and several have much more distinctly mottled tegmina.

The following is the size range of the paratypes: Body, ♂ 21-22, ♀ 30-34; tegmen, ♂ 21-22, ♀ 30-35 mm. Distribution is shown in fig. 60.

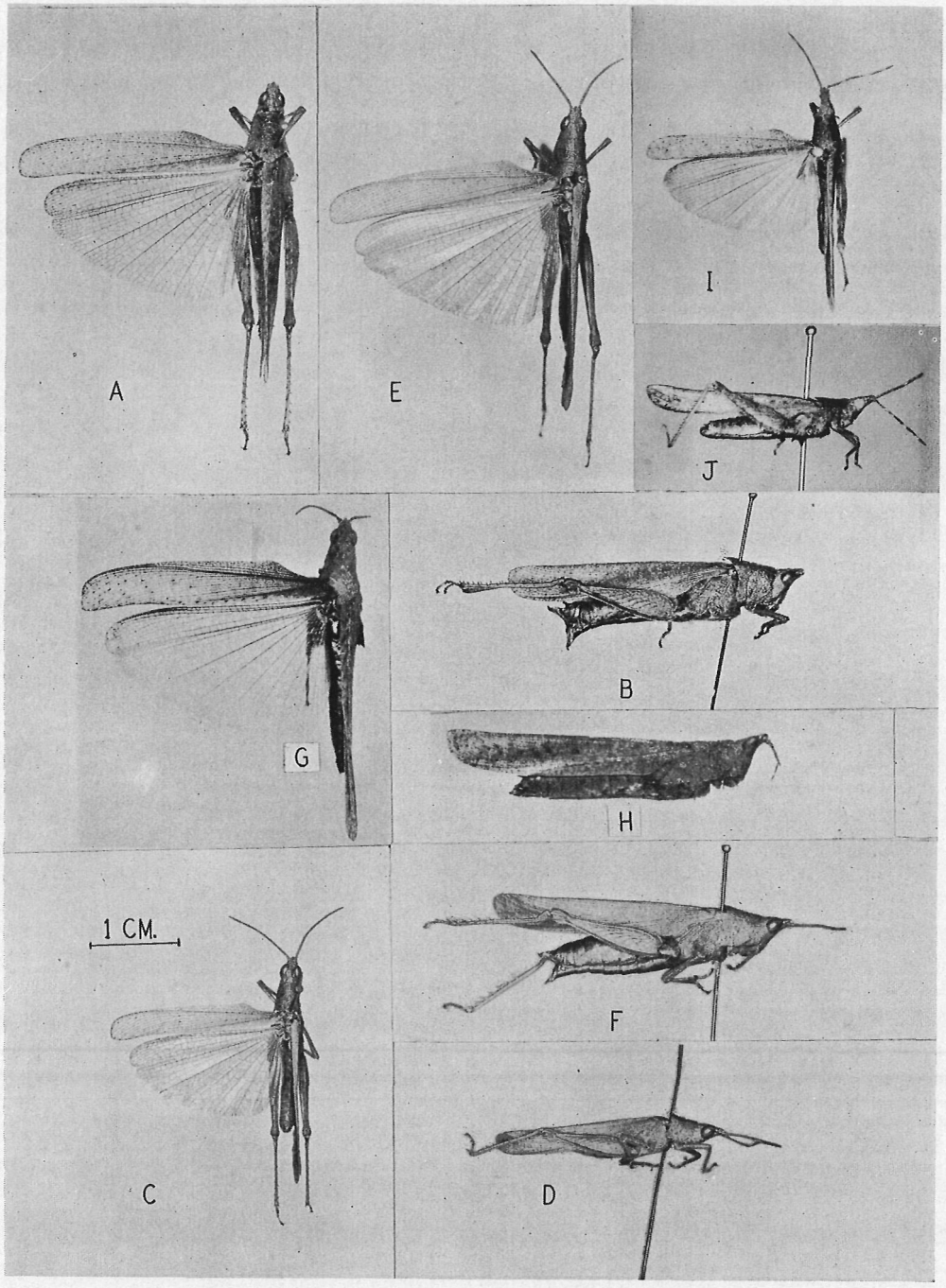
4. **Desmopterella circe**[6] Kevan, new species Fig. 12-15; Pl. IV, fig. A-D.

Desmoptera media Bolívar, 1898, *Ann. Mus. Stor. Nat. Genova*, **39**: 85 (*partim*) [Barabara specimen only].

Desmopterella haani (*nec* Bolívar): Rehn, 1951, *Proc. Acad. Nat. Sci. Philad.* **103**: 221, fig. 3-5, 230 (*partim*) [2 ♀♀ are *D. marginata*], 232, 233 (last 2 p. with generic initial only).

It is unfortunate that Ramme (1941), when referring to *D. media*, did not see and

6. After an enchantress from another distant island.


A
E
I
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1 CM.
F
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D

designate the ♀ syntype from "Bara Bara", southern Normanby I., as lectotype of that species. By failing to do so, he established the synonymy of *D. media* with *D. explicata*, since Dilo, the lectotype locality, as well as the other syntypic localities of the former (except for Barabara) lie in the area occupied by the latter species. A name, which would otherwise have been available for the present species, thus cannot be

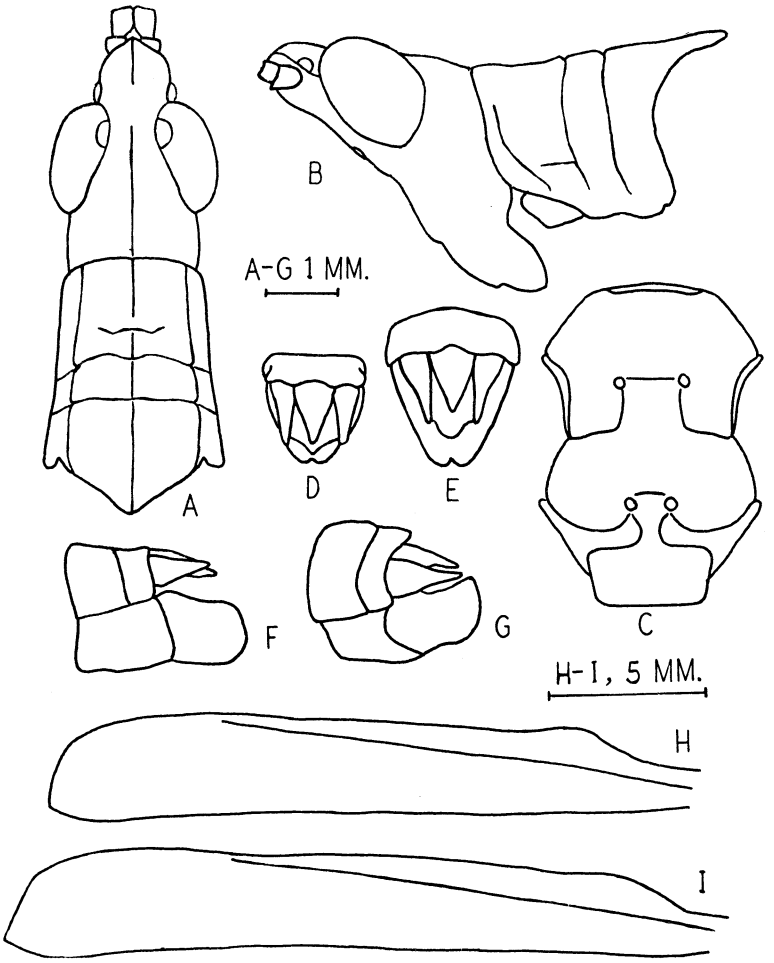


Fig. 12. *Desmopterella circe*, n. sp., ♂. A-C, as in fig. 1; D-G, abdominal terminalia (D, E, dorsal; F, G, lateral, from left; D, F, from small specimen; E, G, from larger, Hihilai, specimen); H, left tegmen from small specimen; I, the same from larger, Hihilai, specimen.

Plate III. *Desmopterella explicata* (Karsch), type material. A, B, ♀ holotype (Berlin); C, D, ♂ paralectotype of *Desmoptera media* Bolívar (Genoa); E, F, ♀ lectotype of the same (Genoa); G, H, ♀ holotype of *Desmoptera insularis* Sjöstedt (Canberra); I, J, ♂ holotype of *Desmoptera bunki* Sjöstedt (Stockholm).

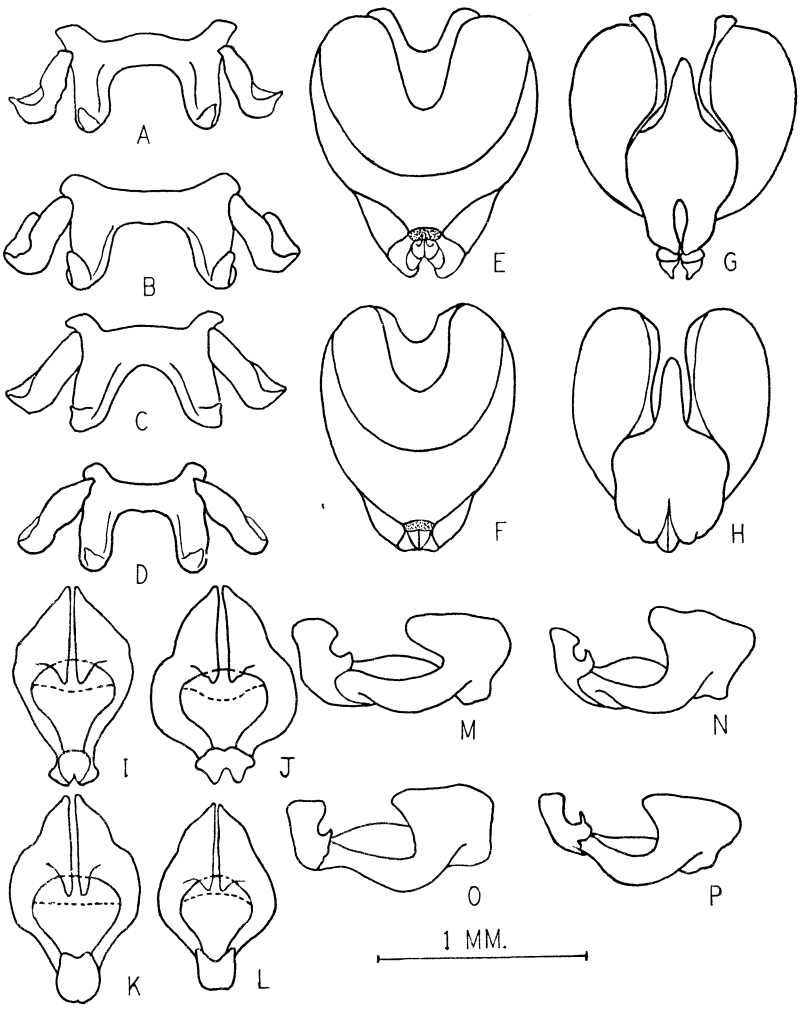


Fig. 13. *Desmopterella circe*, n. sp., phallic structures showing variation. A–P, as in fig. 2.

used. The specimen in question (probably the first of its species to be collected) is in the Stockholm Museum and is labelled as follows: (1) N. Guinea Mer. Bara-Bara, Genn.-Febbr. 1890, L. Loria ; (2) Desmoptera media Bol. [in red] ; (3) Bol. = explicata Karsch teste Bolívar 1905 ; (4) 253/60. As it is a ♀, it is inadvisable to designate it as holotype of the species, although it is in excellent condition. No other material from Normanby I. and certainly belonging to this species is available, but a pair from an associated member of the enchanting d'Entrecasteaux group, Goodenough I., seem the obvious choice for holotype and allotype.

Holotype ♂ (ANIC 8694), Papua, d'Entrecasteaux Archipelago, labelled "Goodenough Is., Milne Bay Dist., Papua, 19.II.67. G. Baker" [A.N.I.C., C.S.I.R.O., Canberra].

Head (fig. 12A, B) somewhat short for the genus, frontal profile moderately oblique, fastigium of vertex rather broadly pointed, about as long as wide. *Antennae* of average thickness for the genus, with 15 segments in addition to scape and pedicel, basal ones somewhat flattened, middle segments about 3× as long as wide. *Eyes* ovoid, not quite 2× as long as wide, interocular space at narrowest point just over 1/4 of maximum distance between outer faces of eyes. *Thorax* (fig. 12 A, B) of average proportions for genus; pronotum with lateral carinae rather straight, scarcely divergent distad, typical transverse sulcus crossing disc some distance behind middle; mesosternal lobes quadrate, their interspace also quadrate and of approximately equivalent size. *Tegmina* (fig. 12H) of average width for genus, not distinctly widened towards apex; costal margin gradually rounded to a blunt point; scapular region not very abruptly convex. *Abdominal terminalia* (fig. 12D, F) with epiproct triangular, having rather straight margins, slightly longer than wide; cerci simple, elongate-conical, just surpassing apex of epiproct; subgenital plate of moderate length, simple, blunt in dorsal view, abruptly rounded in profile. *Phallic structures* (fig. 13) small; epiphallus broad with a rather narrow bridge; aedeagal valves short, upwardly curved and broadly truncated apically; endophallic apodemes short and broadly triangular.

Coloration: Body generally light brown; lower part of eyes, subcostal area, and some small maculations on tegmina and lateral streaks on pronotum darker; hind tibiae paler; hind wings faintly infumated apically.

Measurements: Body (apex of fastigium to end of abdomen) 20.5, antenna 9.5, pronotum 3.8, tegmen 18, hind femur 10.0 mm.

Allotype ♀, Papua, d'Entrecasteaux Archipelago, labelled as holotype [Canberra].

Differs from holotype as follows: considerably larger; antennae shorter and distinctly triquetrous at base, middle segments barely 2× as long as wide; lateral pronotal carinae poorly defined, divergent posteriorly; interspace between mesosternal lobes about 1.5× as wide as long; tegmina very slightly tapered towards apices, costal margin more abruptly rounded into an obliquely subtruncate apex; abdominal terminalia undistinguished, as in ♀♀ of other species. Concealed copulatory apparatus as in fig. 14 A, C; subgenital plate with somewhat obliquely truncated posterior edges, egg-guide moderately long: spermatheca gradually tapered to a very narrow appendix.

Coloration: Body, including tegmina, more or less uniform sepia-brown, latter with numerous small, dark maculae: hind wings faintly infumated.

Measurements: Body 28, antenna 8.0, pronotum 6.0, tegmen 25, hind femur 14.5 mm.

Paratypes: Papua, d'Entrecasteaux Archipelago: Normanby I., Barabara, 1 ♀ [paralectotype of *Desmoptera media* Bolívar-details given above]. Papua, Louisiade Archipelago: Misima I., Umana Camp. 150 m, 6.XI.-7.XII.63, W. W. Brandt, 2 ♀♀ [Canberra and author's collection, Lyman Entomological Museum]; Roessel I., Abaleti, 2.X-2.XI.1963, W. W. Brandt, 1 ♀ (a rather large, light cinnamon-colored specimen in which the hind femora are light red on both faces, a condition unknown in any other specimen of *Desmopterella*; although only a single ♀, there seems little doubt that this is conspecific with other material, although from such an isolated locality, it might prove to belong to a distinct subspecies when more material is available; the genitalic characters conform with those of the present species, but the posterior edge of the subgenital plate is rather more rounded than usual). Papua, mainland: Kokoda, 360 m, IX.1933, L. E. Cheesman, 1 ♂ (BMNH); Morda, Buna District, 23.I.1944, W. G. Bodenstein, 1 ♀ (bases of tegmina with a slightly olivaceous sheen) [Cornell University, Ithaca, N. Y.]; Milne

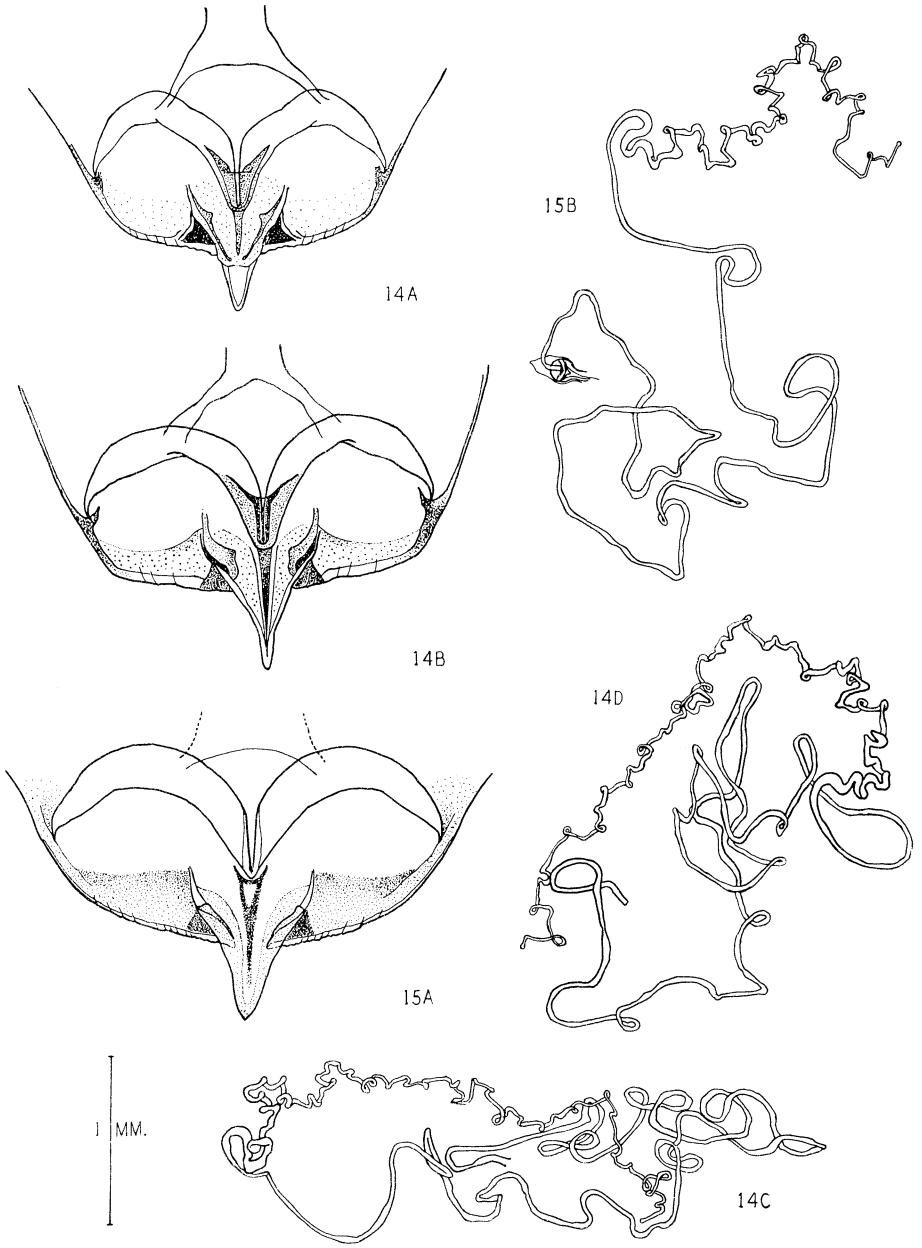


Fig. 14, 15. *Desmopterella circe*, n. sp., ♀ structures showing variation. 14A, C, from typical specimens; 14 B, D, from larger, Hihilai, specimen ; 15, from large isolated Roessel I. specimen. 14A, B, 15A, subgenital plate, dorsal ; 14C, D, 15B, receptaculum seminis.

Bay, 12.II.1944, Helwig, 2 ♀♀ [Academy of Natural Sciences, Philadelphia and USNM, Washington] ; the same, 13.II.1944, 5 ♀♀ [Philadelphia and 1 (very small) in author's collection] ; the same, 11.III.1944, 1 ♀ [Philadelphia] ; the same,14–23.II.1969, 1♀, J. & M. Sedlacek [BISHOP]; K. B. Mission, Milne Bay, 14.II.1944, Helwig, 7♂♂ [Philadelphia and 1 in author's collection] ; the same, 25–28.III.1944, K. V. Krombein, 1♀ [USNM]; Hihilai Plantation, Milne Bay, 18.II.1944, Helwig, 1 ♀ [Philadelphia] ; the same, 28.II.1944, 1 ♀ [Museum of Comparative Zoology, Cambridge, Mass.] ; the same, 1.III.1944, 4 ♂♂, 3 ♀♀ [Philadelphia and 1 ♂ in author's collection] ; the same, 2.III.1944, 1♂ [USNM] ; the same, 3 and 7.III.1944, 2 ♂♂ [author's collection]; the same, 20.III.1944, 2 ♀♀ and 25.III.1944, 1 ♀ [Philadelphia]; the same, 14.IV.1944, 1♂ [Cambridge, Mass.] ; the same, 15.IV.1944, 2♂♂, and 2.V.1944, 1♀ [Philadelphia][7]; Kokoda-Pitoki, 400 m, 23.III.1956, J. L. Gressitt, 2 ♂♂ [BISHOP Museum and author's coll.] ; Bismarck Plantation, Milne Bay Dist. (mainly coconut), X.1959, K. S. Cole, 3 ♂♂ [Canberra and 1 in author's coll.]; Cape Rodney, 10 m, 2–4.XI.1960, Gressitt, 2 ♀♀ [BISHOP and author's coll.] ; Otomata Plant'n [Cape Rodney], E of [Port] Moresby, C. District, 1 m, 2.XI.1960, Gressitt, 1 ♂ [BISHOP] ; Keria, Amazon Bay area, 480 m, 29.VI. –22.VII.1962. W. W. Brandt, 2 ♂♂, 1 ♀ [Canberra and 1 ♂ in author's coll.] ; Deria, Amazon Bay area, 210 m, 11.XII.1962–9.I.1963, W. W. Brandt, 2 ♂♂, 8 ♀♀ [Canberra and 1 ♂, 2 ♀♀ in author's coll.] ; Taruma, Musa R. plain, N. Distr. ca. 60 m, 7.VIII.1963, R. D. Hoogland, 1 ♂, 7 ♀♀ [Canberra and 2 ♀♀ in author's coll.] ; Popondetta, 60 m, light trap, 1–4.IX.1963, J. Sedlacek, 1 ♂ [author's coll.] ; Popondetta, 25 m, light trap, V.1966, Shanahan & Lippert, 2♂♂ [BISHOP].

In addition to the paratypes, there is a ♀ from Sewa Bay, Wakeuma, Normanby I., which probably belongs to this species, although it closely resembles *D. biroi*, and a young juvenile from the Mangalese area near Toma, SSW of Popondetta, ca 600 m, IX.1964, R. Pullen, which may also be conspecific.

The paratypes vary somewhat in size, those from Hihilai Plantation averaging a little larger than usual. There is also considerable variation in color pattern, other than that indicated against unusual individual specimens ; several are more strongly mottled than usual, especially one from Taruma ; 1 ♀ from Deria has a strongly contrasting pale dorsal aspect similar to that found in the holotype of *D. marginata*, as well as in occasional individuals of most other species. One female from Hihilai Plantation is similar but less striking, and another ♀ from Deria has a generally streaky appearance.

The following is the size range of the paratypes : Body, ♂ 18–20, ♀ 24–31 ; tegmina, ♂ 18–20, ♀ 24–30 mm (measurementsin upper part of range for female are rare). Distribution is shown in fig. 59.

5. **Desmopterella explicata** (Karsch, 1888) Fig. 16–18 ; Pl. III.

Pyrgomorpha explicata Karsch, 1888, *Ent. Nachr.* **14**: 341.

7. All the specimens collected by Helwig were determined by Rehn (1951) as *Desmopterella haani* (Bolívar) and stated to be in Philadelphia ; some as indicated, however, were subsequently dispersed. The month of collection given by Rehn for the K. B. Mission specimens was XI, but this was due to his misreading the labels. It will be noticed that 2♀♀ less than the number recorded by Rehn are mentioned here ; this is because these (dated 5. V. 1944) belong to his *D. miles=D. marginata* Bolívar.

[*Pyrgomorpha*] *explicata*: Bolívar, 1894, *Act. Soc. Esp. Hist. Nat.* **23**: 87.

Desmoptera media Bolívar, 1898, *Ann. Mus. Stor. Nat. Genova* **39**: 85 (*partim*) [all but Bara Bara paralectotype, which is *D. circe, q. v.*].

D[*esmoptera*] *media*: Krauss, 1902, *In* Semon, *Zool. Forschungsr. Aust. Mal. Arch.*, Jena **5**: 105, 107 (*partim*) ["Sumbawa" (erroneous) and Deutsch. N. G. references are to *D. biroi* (Bolívar)]; 1903, *Denkschr. Med.-Nat. Ges. Jena* **8**: 747, 759 (*partim*) [as last].—Bolívar, 1905, *Bol. Soc. Esp. Hist. Nat.* **5**: 108; 1909, *Gen. Ins.* **90**: 36.—Rehn, 1909, *Bull. Amer. Mus. Nat. Hist.* **26**: 188.—Kirby, 1910, *Syn. Cat. Orth.* **3**: 329 (*Media*).

D[*esmoptera*] *explicata*: Bolívar, 1905, *Bol. Soc. Esp. Hist. Nat.* 5: 108 (no generic initial), 110; 1909, *Gen. Ins.* **90**: 36.—Rehn, 1909, *Bull. Amer. Mus. Nat. Hist.* **26**: 188.—Kirby, *Syn. Cat. Orth.* **3**: 329 (*Explicata*).

Desmoptera insularis Sjöstedt, 1931, *Arkiv Zool.* **22A** (7): 3, fig. 1 [♀ wings]; 1932, ibid. **24A** (1): 27; 1936, *K. Svensk. VetenskAkad. Handl.* ser. 3, **15** (2): 53 (*insularis* only), 54 (*Desmatoptera* [*sic*]), 175, 185.—Rehn, 1953, *Grassh. Locusts Aust.* **2**: 47, 48, 49, 50, 268, captions to pl. 2, fig. 13, 14 [♀] (erroneously as a synonym of *D. sundaica* (Rehn), p. 47, 49, 50 omit generic name).—Key, 1969, *Austral. J. Zool.* **17**: 404 (in discussion).

Desmoptera sp. (indéterminable) Willemse, 1932, *Mém. Mus. Nat. Belg.* (hors Série) **4** (3): 46.

Desmoptera bunki Sjöstedt, 1936, *K. Svensk. VetenskAkad. Handl.* ser. 3, **15** (2): 53 (*bunki* only), 54 (*Desmatoptera* [*sic*]), 175, 178.

Desmopterella insularis: Ramme, 1941, *Mitt. Zool. Mus. Berl.* **25**: 57 (no generic name), 66 fig. 31 i [♂ terminalia]. pl. VIII, fig. 8 [♂].

[*Desmopterella*] *bunki*: Ramme, 1941, *Mitt. Zool. Mus. Berl.* **25**: 66, 67 (as synonym of *D. insularis*).—Rehn, 1953, *Grassh. Locusts Aust.* **2**: 47, 48n, 49, 50 (erroneously as synonym of *D. sundaica* (Rehn)).

Desmopterella explicata: Ramme, 1941, *Mitt. Zool. Mus. Berl.* **25**: 57 (no generic name), 66 fig. 31 e [♂ terminalia], pl. VIII, fig. 6a, b [♂,♀].—Rehn, 1953, *Grassh. Locusts Aust.* **2**: 51 (*D. explicata*), 268.

[*Desmopterella*] *media*: Ramme, 1941, *Mitt. Zool. Mus. Berl.* **25**: 66 (as synonym).—Rehn, 1953, *Grassh. Locusts Aust.* **2**: 51 (as synonym).

Desmopterella sundaica (*nec* (Rehn)): Rehn, 1953, *Grassh. Locusts Austral.* **2**: 46, 47, 49 (this p. with generic initial only), 50 (*sundaica* only) (all *partim*, except p. 46), pl. 2, fig. 11-14 [♂, ♀], pl. 27, fig. 204-206 [♂ terminalia] (other p. and figs refer only to *D. sundaica, s. str.*).—Key, 1959, *Monogr. biol.* **8**: 203 [ecology].

Dermopterella onplicata Karsch [error for *Desmopterella explicata* Karsch] Szent-Ivany, 1961, *Papua New Guinea Agric. J.* **13**: 140 [economic].—Simon Thomas, 1962, *Meded. Econ. Zak.* (*Landbouwk. Ser.*) **1**: 44, 104 [economic].

De[*r*]*mopterella onplicata* Karsch: Szent-Ivany & Dun, 1964, *Proc. Conf. Mir. Oth. Pests Cacao*, Ibadan, Nigeria, 1964: 85 [economic].

"*bunki* Sjöst., 1935, *Desmoptera* [*Desmopterella*]": Key, 1969, *Austral. J. Zool.* **17**: 363 (in discussion).

D[*esmopterella*] *insularis*: Key, 1969, *Austral. J. Zool.* **17**: 363, 405 (in discussion, latter p. without generic initial).

"*insularis* Sjöst., 1931, *Desmoptera* [*Desmopterella*]": Key, *Austral. J. Zool.* **17**: 380 (in discussion).

D[*esmopterela*] *bunki*: Key, 1969, *Austral. J. Zool.* **17**: 380 (in discussion).

"*bunki* Sjöst., *Desmoptera*": Key, 1969, *Austral. J. Zool.* **17**: 410 (erroneously as synonym of *D. sundaica*).

"*sundaica* Rehn, *Desmoptera*" (*nec* Rehn): Key, *Austral. J. Zool.* **17**: 410, 411.

"*insularis* Sjöst., *Desmoptera*": Key, 1969, *Austral. J. Zool.* **17**: 411 (erroneously as synonym of *D. sundaica*).

D[*esmopterella*] *sundaica* (*nec* (Rehn)), *D. bunki* and *D. insularis* (last 2 names erroneously as synonyms of first): Key, 1969, *Austral. J. Zool.* **17**: 412.

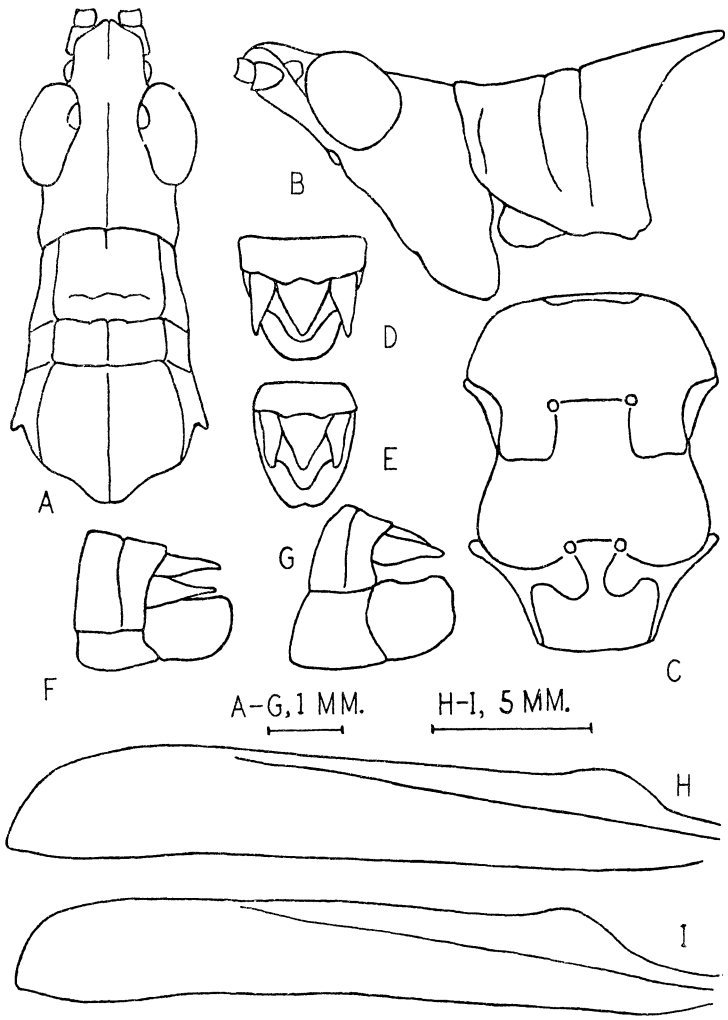


Fig. 16. *Desmopterella explicata* (Karsch), ♂. A-C, as in fig. 1. D-G, abdominal terminalia (D, E, dorsal; F, G, lateral from left; D, F, from Papuan mainland; E, G, from Banks I.); H, I, left tegmen (H, from Papuan mainland; I, from Banks I.).

This species was described from a single ♀ from SE New Guinea, but without a more precise locality. The holotype, which is in Berlin, bears the following labels: (1) S. O. Neu-Guinea P. Moresby, Finsch. [a comparatively modern purple label]; (2) explicata Karsch [an old handwritten label,? in Karsch's writing; "granulata*" pencilled on the reverse, referring to Karsch's (1888) suggestion that the species belongs to the *Pyrgomorpha granulata - dispar* group]; (3) Typus [printed, on brick red]. The specimen is figured by Ramme (1941).

In Genoa are several specimens belonging to the syntypic series of *D. media*. Ramme (1941) designated a ♀ from Dilo as [lecto]type. This bears the following labels: (1) N. Guinea, Dilo, Loria VI-VII.90; (2) D. media Bol. Co-type [in F. Capra's hand]; (3) Desmopterella explicata K. Ramme det; (4) Typus [in red on white]. This specimen has slightly lesser measurements than those given for the ♀ in the original description, but it must nevertheless stand as lectotype. With this specimen is a female of comparable size and with labels similar to the last, except that (4) reads "Mus. Civico di Genova" instead of "Typus"; also present are a ♀ of slightly larger size than the original measurements, and a ♂, both with the following labels: (1) N. Guinea, Mt. Astrolabe Loria, II.93; (2) and (3) as above. The ♂ has the measurements given for that sex in the original description.

Other syntypes have been dispersed to different museums. In Madrid is a ♀ labeled: (1) as (1) immediately above; (2) Museo Civ. Genova; (3) Desmoptera media Bol. [in Bolívar's hand, green border]; there are also a ♂ and ♀ with similar labels

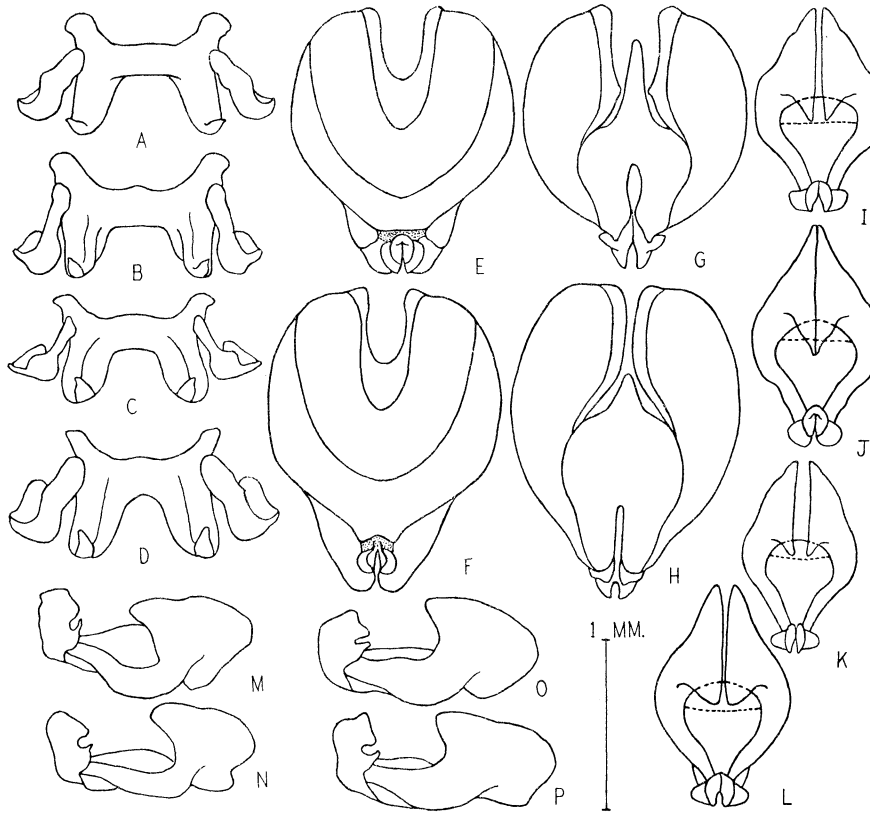


Fig. 17. *Desmopterella explicata* (Karsch), phallic structures showing variation. A-P, as in fig. 2. D, F, H, L, P, from Iron Range, Queensland; O, from Darnley I.; remainder from Papuan mainland. (The Queensland specimen is a little larger than usual but is matched by some Papuan material).

to those of the lectotype (1) and the last specimen mentioned (2); the ♀ is also labelled "Media Desmoptera" in Bolívar's hand. The first ♀ has the same body length as is given for the ♀ in the original description, but its other measurements differ somewhat; the other ♀ and the ♂ have lesser measurements than given (26 and 17.5 mm body length, respectively). There is also a further ♀ in the Paris Museum with a similar label to (1) of the lectotype and a determination label "D. media" in an unknown hand.

There were also syntypes from "Ighibirei," "Haveri" and "Bara-Bara." I have no record of where those from the first two localities now are, but that from the last is in Stockholm and belongs to *D. circe* and not to the present species (see p. 567).

D. insularis was described from the ♀ (2 specimens), but measurements for a ♂ were also recorded. Sjöstedt (1931) indicates that the [holo]type [♀] is in Canberra. A photograph of it is given by Rehn (1953), who notes that Sjöstedt's (1932) claim that the holotype is in Stockholm is erroneous. A ♂ and a ♀ paratype are, however, in Stockholm. The 3 type specimens all bear the following labels: (1) Darnley Isld. Queensland Elgner 1910; (2) W. W. Froggatt Collection; (3) Desmoptera insularis Sj. n. sp. [sex of each is indicated]. The holotype also has a "Typus", and the paratypes "Co-

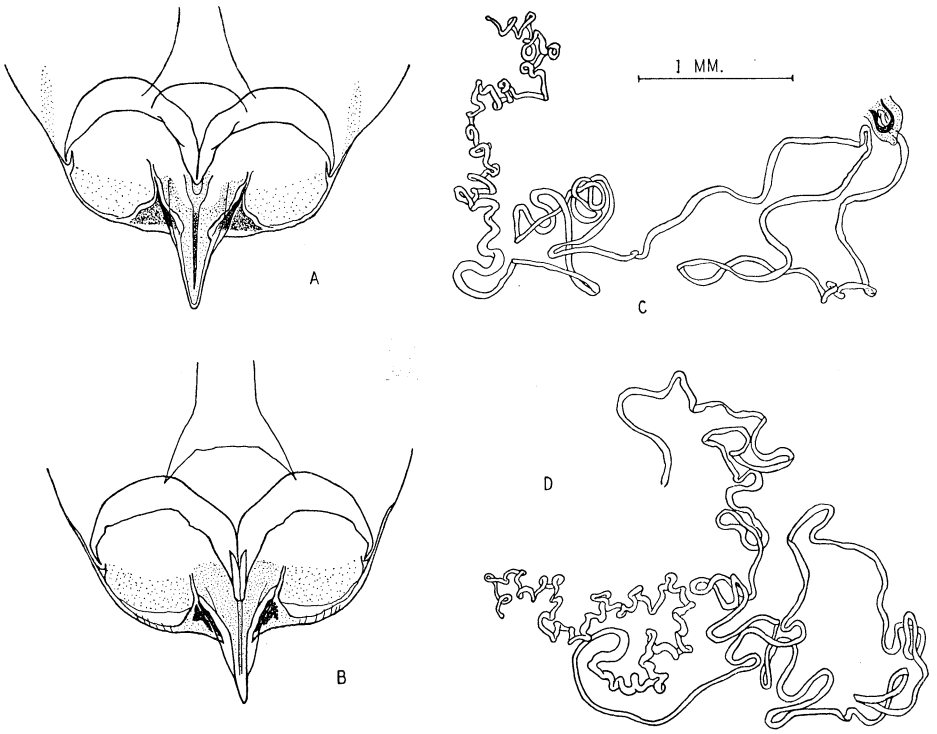


Fig. 18. *Desmopterella explicata* (Karsch), ♀ structures. A, B, subgenital plate, dorsal; C, D, receptaculum seminis. (Both specimens from Papua, but Australian specimens are quite comparable).

typus" labels [black on red with black border]. The ♂ also bears the number "257", and the ♀ paratype "258/60" [loan numbers]. Full details and a discussion of the holotype are given by Key (1969).

The male holotype of *D. bunki* is also in Stockholm. It is labeled: (1) Banks Isd. Elgner 1910; (2) W. W. Froggatt Collection; (3) Desmoptera bunki n. sp. ♂ Yngve Sjöstedt det.; (4) Typus. It may be noted that Sjöstedt (1936) misread the data label as "Bunks Isl.", which led Rehn (1953) into a lengthy and unnecessary discussion of the locality name and Key (1969) into a further explanation. Rehn (*l. c.*) illustrates a ♂ topotype from the ANIC, Canberra, which has similar labels to (1) above. Key (*l. c.*) discusses and gives full details of the holotype. He retains the synonymy of both *insularis* and *bunki* with *D. sundaica* (Rehn), pending the publication of the present revision.

DISTRIBUTION (fig. 59) [Localities marked with an asterisk have previously been recorded even if under an incorrect name]:

AUSTRALIA (QUEENSLAND): Mainland: Cape York*; Lockerbie (Cape York); Iron Range. Islands of Torres Strait: Banks I.*; Darnley I.*; Murray I.; Prince of Wales I.

PAPUA: SE Neu-Guinea, or S. O. or Britisch Neu-Guinea only*; Mt Astrolabe*; Bisianamu, NE of Port Moresby; Brown R.; Brown R. nr Port Moresby, secondary growth nr rain forest; Daradai nr Jawarere, Musgrave R.; Daradai plains 80 km N of Port Moresby; Dilo*; Goilala (Owen Stanley Range); Gulf District (only); Haveri*; Ig(h)ibirei*; Iriri Village nr Kerema, secondary forest; Kapagere nr Rigo; Koitaki; Koitaki Estate, 480 m (1600 ft.); Koitakikinumu (Sogeri Plateau); Kokoda; Kololavava, Goilala Subdist., 1950 m (6500 ft.), native garden in grass; Kubuna, 29 km W of Mafulu; Mt Lawes, Port Moresby; Laloki; Laloki R., NNE of Port Moresby; between Laloki R. and Brown R.; Mafulu; Murua Agr. Station (nr. Kerema), some on cassava or in rain forest; Murua R. nr Kerema; Musgrave R., Astrolabe [Range], 280 m; Oriomo Govt. Sta.; Oriomo R.; Orocolo [= Orokolo]; Port Moresby*; Red Shield Farm, Central District; Reigiawa, Goilala Subdiv., C. Dist., village garden, 1200 m (4000 ft.), pest on "European potato"; Rouku, Morehead R.; Subitana; Mt Tafa; 1.6 km. from Tapini, Kovatapa hamlet (Bafiki), Goilala Subdiv., C. Dist., 900 m (3000 ft.), pests on Chinese cabbage and on Brussels sprouts in native garden; nr Tatupiti Village area, Goilala Subdiv., C. Dist., 1080-1140 m (3600-3800 ft.), mixed vegetation in secondary forest; Vailala R., Vaiviri Plantation, on cacao; Vanapa R.[nr. Brown R.].

NE NEW GUINEA [♀♀ only, thus need confirmation although the specimens seem to be correctly identified]: Bulolo; Mirilunga Village, Saluwaged Mts; Wau; Wau, 1000-1100m (1♀); Wau, Hospital Creek, 1250 m (1♀). Wontoat, Morobe Dist. [06°08′S, 146°27′E] village garden.

WEST IRIAN (SE): Nieuw Guinea (only); Eramboe, 80 km from Merauke; Getenteri, Res. Boven [=upper] Digoel; Homlikia, Res. Boven Digoel; Kloofb[ivak] (♀ only, needs confirmation in view of the locality being the most northwesterly known, but determination probably correct); Kouh [= R. Kach] a.d. [= at the R.] Digoel (♀ only, needs confirmation); Mindiptana.

ARU IS.: Kobroör I., Fonum (♀ only); Trangan I., Ngaigoeli (♀ only) and Popjetoer (♀ only); Wokam I., S. Manoembai [=Manum Bay]* (♀ only).

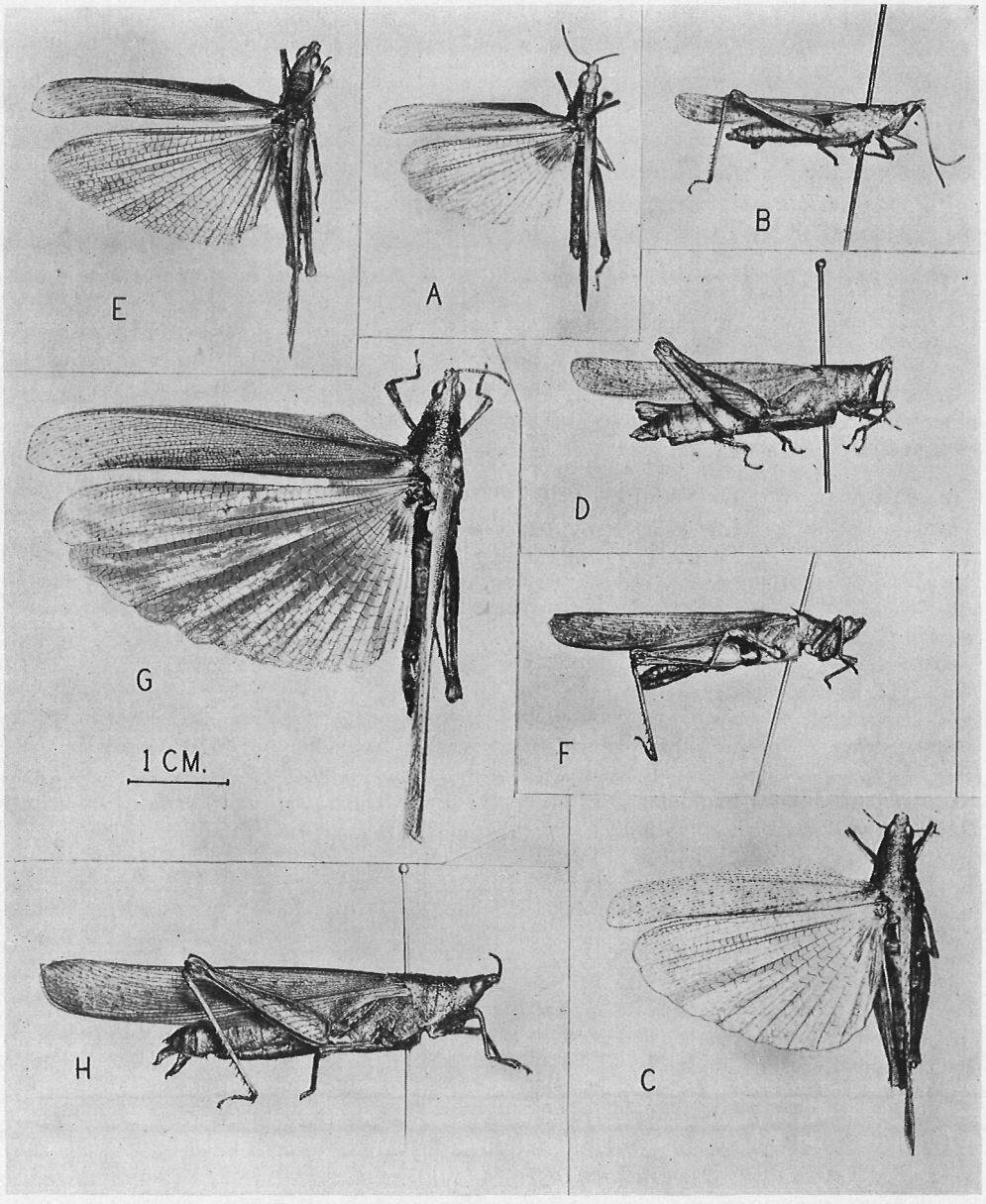


Plate IV. *Desmopterella circe*, n. sp., and *D. esme*, n. sp., type material. A, B, *D. circe*, ♂ holotype (Canberra); C, D, the same, ♀allotype (Canberra); E, F, *D. esme*, ♂ holotype (Leiden); G, H, the same, ♀ allotype (Leiden).

KAI IS.: "Key" (only—♂)

This species is generally recognizable by its rather small size and by its short head and tegmina. A ♀ specimen from the Froggatt collection (now in Philadelphia), without data and referred to *D. sundaica* [*nec* (Rehn) = *explicata*] by Rehn (1953), does not appear to be conspecific with the above material (it is a little too large), but, although atypical, to belong instead to the variable Papuan species, *D. haani*. Dr K. H. L. Key (personal communication, 1968) sees no reason to assume that the specimen is Australian. As it is of unknown origin, it need not concern us further.

Size range: Body, ♂ 18-20.5, ♀ 25.5-29.5; tegmen, ♂ 15.5-19.5, ♀ 23-27 mm.

6. **Desmopterella esme**[8] Kevan, new species Fig. 19-21; Pl. IV, fig. E-H.

Holotype, ♂, West Irian, labeled (1) "E.S.M.E."; (2) "Neth.-Ind.-American New Guinea Exped. Mountain slope above Bernhard Camp, 750 m, 19.III.1939, L. J. Toxopeus" [Rijksmuseum van Natuurlijke Historie, Leiden].

Size larger than other species of the genus. *Head* (fig. 19A, B) of average proportions for the genus, frontal profile moderately oblique, fastigium of vertex of moderate width, rather blunt, about as long as wide. *Antennae* with 16 segments in addition to scape and pedical, segments 5-7 slender about 4× as long as wide, segment 8 and subsequent segments shorter; somewhat incrassated. *Eyes* oval, rather prominent, not 2× as long as wide, interocular space at narrowest point not quite 1/4 of the maximum distance between outer faces of eyes. *Thorax* (fig. 19A, B) of average proportions; pronotum with lateral carinae slightly divergent distad; typical transverse sulcus crossing disc near middle; mesosternal lobes quadrate, a little longer than wide, their interspace distinctly wider than long. *Tegmina* (fig. 19F) broad and somewhat expanded towards their apices, costal margin gradually rounded to a distinct point, scapular region rather abruptly convex. *Abdominal terminalia* (fig. 19D, E) with epiproct triangular, about as broad as long and with more or less straight margins; cerci large, conical, distinctly surpassing apex of epiproct; subgenital plate of moderate length, simple, parabolic apically in dorsal view and narrowly rounded in profile. *Phallic structures* (fig. 20) of moderate size; epiphallus with rather narrow lateral plates and bridge; aedeagal valves rather short, simple, rather straight and directed upwards, obliquely truncate apically; endophallic apodemes comparatively small, triangular.

Coloration: Rather uniformly dark brown, pleura and femora paler, latter with a few darker maculae: hind wings infumated.

Measurements: Body (apex of fastigium to end of abdomen) 24.5, antenna 11, pronotum 4.8, tegmen 25, hind femur 11.7 mm.

Allotype ♀, West Irian, labeled "Neth.-Ind. American New Guinea Exped. Araucaria Camp, 800 m, 2.IV.1939, L. J. Toxopeus [Leiden].

Differing from holotype as follows: Much larger; antennae considerably shorter with shorter segments, the middle ones little more than 2× as long as wide, the apical ones ony feebly incrassated; lateral pronotal carinae more divergent posteriorly: mesosternal lobes and the interspace between them somewhat wider; tegmina not expanded apically, costal margin rather abruptly rounded to a rather pointed apex; abdominal terminalia undistinguished, as in ♀♀ of other species. Concealed copulatory structures as in fig. 21; subgenital plate with even, trans-

8. A woman's forename, coincidentally that of a colleagne, formed by the initials, of unknown significance, on one of the holotype labels.

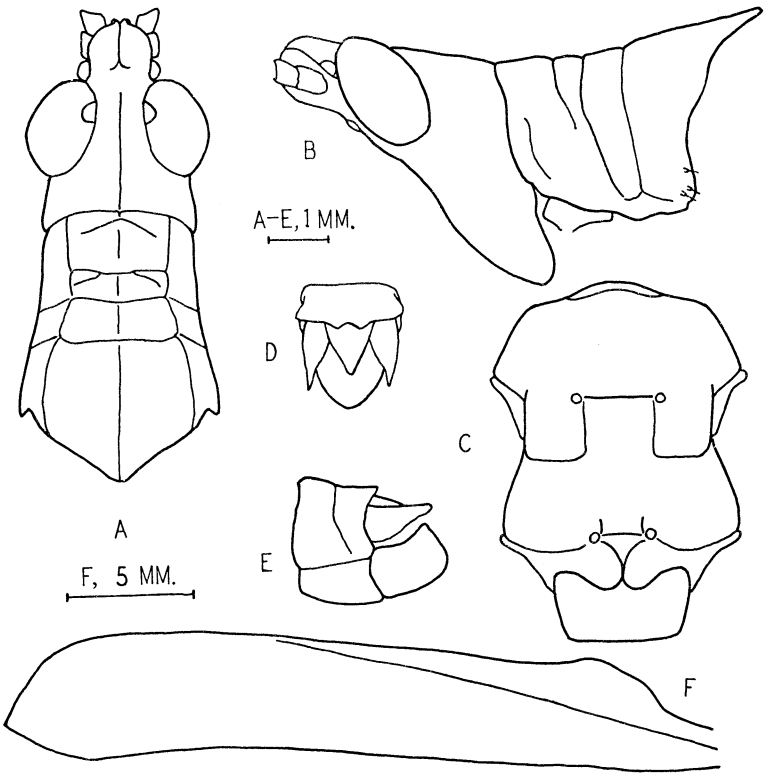


Fig. 19. *Desmopterella esme*, n. sp., ♂. A-F, as in fig. 1.

versely truncated posterior edges, egg-guide somewhat acute ; spermatheca proper rather inflated, narrowing abruptly at first and then gradually to a very narrow appendix.

Coloration: Rather uniform brown with inferior margins of lateral pronotal lobes and hind tibiae paler, hind femora slightly speckled ; hind wings only very feebly infumated.

Measurements: Body 35.5, antenna 10, pronotum 7.0, tegmen 37, hind femur 16 mm.

Paratypes : West Irian: Same data as holotype (2), but differently dated, as follows: 21.III.1939, 1♂, 1♀ ; 23.III.1939, 2♂♂, ♀ ; same data as allotype, but differently dated, as follows : 5.III.1939, 1♀ ; 8.III.1939, 1♀; 10.III.1939, 1♂ ; 14.III.1939, 1♂ ; 18.III.1939, 1♀ ; 24.III.1939, 1♀ ; Neth. Ind. American New Guinea Exped. Rattan Camp, 1200 m, 24.II.1939, L. J. Toxopeus, 1♀ [Leiden and author's coll., Lyman Entomological Museum (1st, 5th, 6th, 9th, and 11th specimens)].

The first ♀ paratype differs from the others in having the dorsum paler than the rest of the insect in the manner exemplified by the holotype of *D. marginata* but occurring infrequently in all species. Other paratypes vary only slightly in the shade of brown, extent of maculation of legs and tegmina and in the degree of infumation of the hind wings.

The size range is as follows : Body, ♂ 23-25, ♀ 31-35 ; tegmen, ♂ 22-25, ♀ 35.5-37 mm.

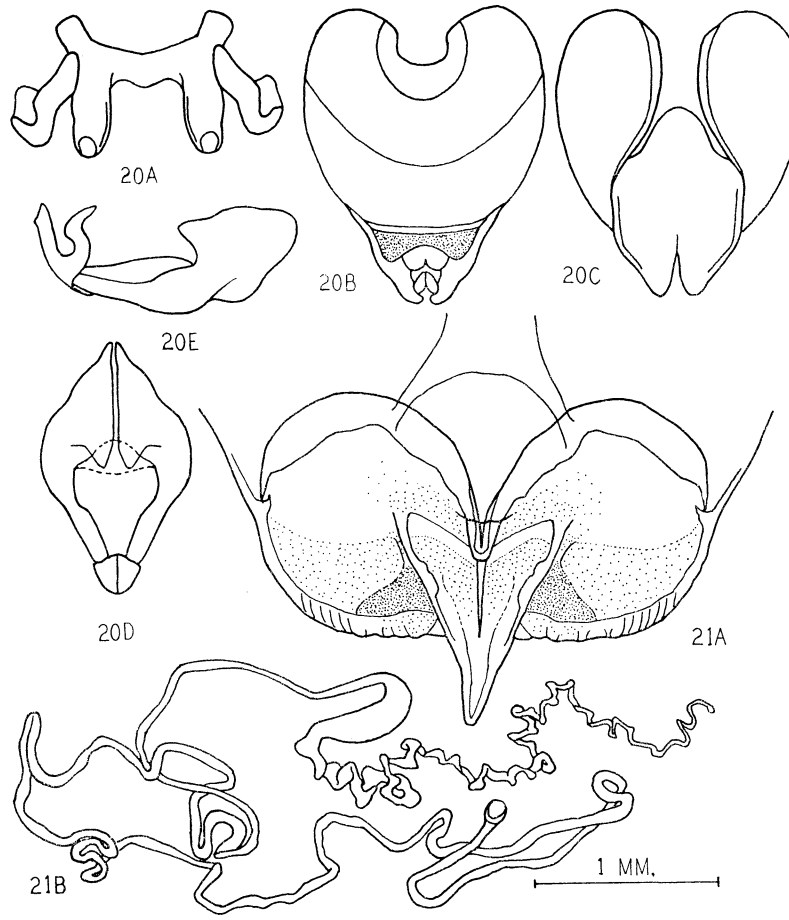


Fig. 20, 21. *Desmopterella esme*, n. sp., 20, phallic structures; A, epiphallus, dorsal; B, ectophallus, dorsal; C, ectophallus, ventral; D, endophallus, dorsal; E, endophallus, lateral, from right; 21, ♀ structures; A, subgenital plate, dorsal; B, receptaculum seminis.

This species appears to have a restricted distribution in the eastern central mountains of West Irian above about 700 m elevation (fig. 60). Below this altitude it is replaced by *D. denticulata*, although *Desmoptera novaeguineae* (Haan) may be found with it [1♂ from type locality of *D. esme*, 21.III.1939, not previously recorded, and 1 ♀ from Archbold Lake, 760 m, recorded by Kevan (1969)]. *D. esme* is truly a handsome species.

7. **Desmopterella sundaica** (Rehn, 1909) Fig. 22-27; Pl. V.

For synonymy, see typical subspecies (p. 585, 587).

The unique ♀ type of this species, now returned from Philadelphia (where it was on loan until quite recently) to the American Museum of Natural History, New York,

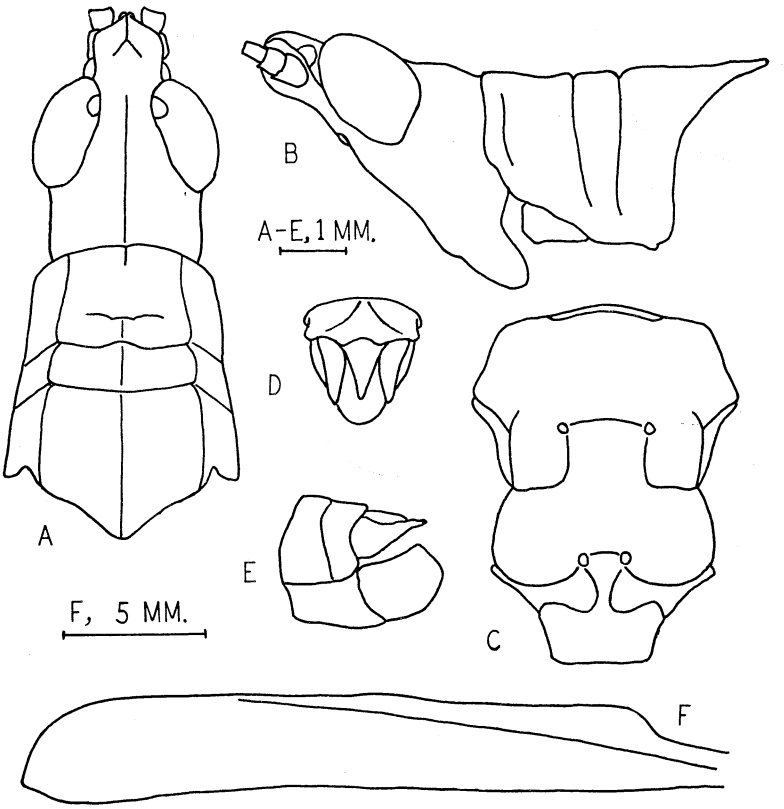


Fig. 22. *Desmopterella sundaica steini* Ramme, ♂ (holotype). A-F, as in fig. 1.

has been the subject of discussion by Ramme (1941), Rehn (1953) and Key (1969). When last examined by me it bore the following labels: (1) Sumatra [in error]; (2) No. 225 Collection Hy. Edwards; (3) Am. Mus. Nat. Hist. Dept. Invert. Zool. No. 20466; (4) Desmoptera sundaica Rehn. 5783 [handwritten], TYPE [printed, black on red]; (5) the same without the number [in Rehn's hand, black on white]; (6) Figured Rehn 1951 [referring to Rehn (1953)]. Its measurements are given by Rehn (1909, 1953), who also gives drawings (1909) and photographs (1953) of dorsal and lateral aspects, and are discussed by Key (1969). Key notes some degree of deterioration that has occurred between the time that the holotype was first examined by me in Philadelphia (see Pl. V, fig. E, F) and when I recently borrowed it before its return to New York.

Ramme (1941), who misquoted the date and page number of the original reference, doubted that the specimen was from Sumatra and implied a New Guinea origin. Rehn (1953) agreed that the specimen could not have come from Sumatra, but was convinced—on very flimsy grounds (Key 1960) — that it was from Queensland, partially because much of the collector's material was Australian, a small proportion of it from Queens-

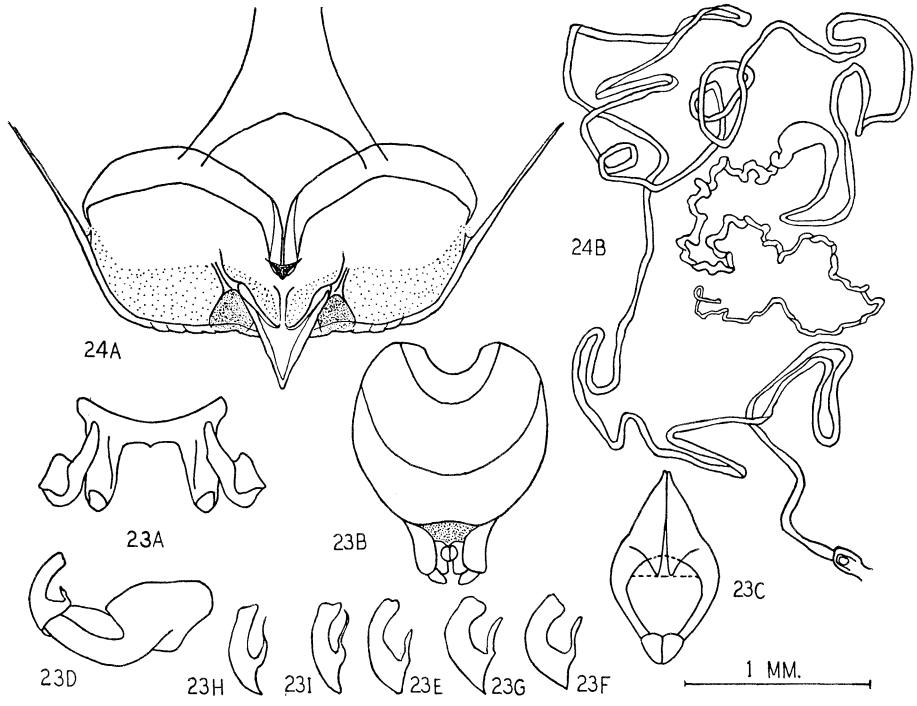


Fig. 23, 24. *Desmopterella sundaica steini* Ramme, 23, phallic structures; A, epiphallus, dorsal; B, ectophallus, dorsal; C, endophallus, dorsal; D, endophallus, lateral, from right; E-I, aedeagal valves, lateral, from right, showing variation. (A-D, holotype; E, from Kloofbivak; F, from Mindiptana; G, from Stang; H, I, from Kai Is). 24, ♀ structures (allotype), A, subgenital plate, dorsal; B, receptaculum seminis.

land, but also because he was unable to differentiate between the type of *sundaica* and other Queensland material.

However, whilst ♀♀ of *Desmopterella* species are often very difficult to identify with any degree of certainty, it is reasonably clear, from the measurements and illustrations given by Rehn (1909, 1953), that the tegmina of the holotype of *sundaica* are above average in length and width for Australian - see also Key (1969) - and conspecific southern New Guinea material (*Desmopterella explicata*). Further, a comparison of this and other characters, including the concealed copulatory structures, of the holotype of *sundaica* with previously undiscussed specimens from northwestern New Guinea, indicate that the type locality of *sundaica* was probably rather less distant from Sumatra than Rehn supposed. The name *sundaica* is not applicable to Australian material (if it were, it would fall as a junior synonym of *explicata*), but to an otherwise undescribed *Desmopterella* known from Waigeu I. and the Vogelkop and Onin Peninsulas of New Guinea. Key (*l. c.*) retains the name *sundaica* for the Australian species, but only provisionally, pending the publication of the present revision.

Desmopterella material, similar to that from the above areas, also occurs further to

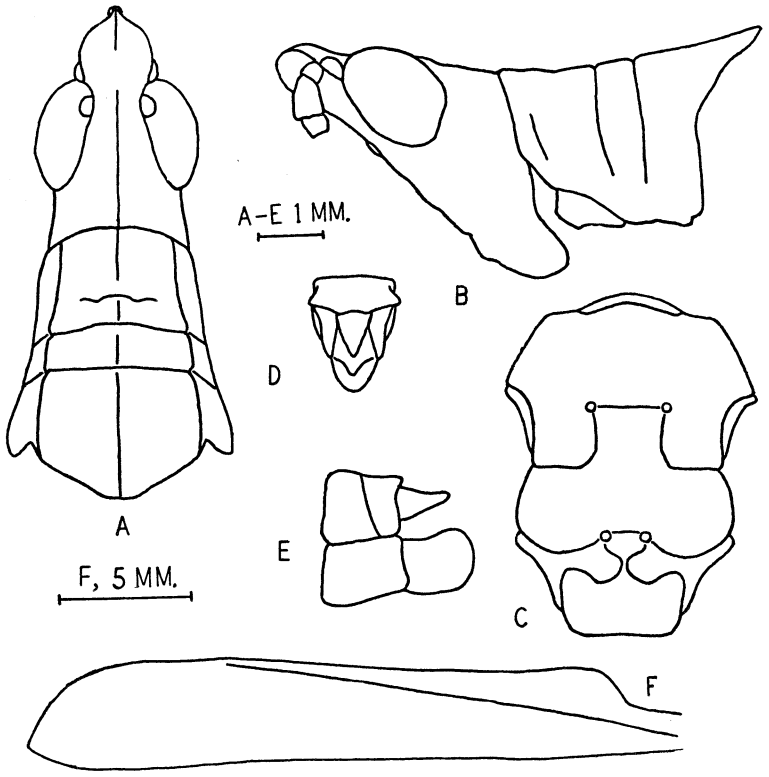


Fig. 25. *Desmopterella sundaica sundaica* (Rehn), ♂. A-F, as in fig. 1.

the southeast, as well as in the Kai and Aru Is. In these specimens however, there is a tendency for the aedeagal valves (which vary considerably) to be somewhat less robust and for the antennae to be more slender than in those from more northwesterly localities. These differences are not constant, but they agree with those found in the type specimens of *Desmopterella steini*, the main distinguishing feature of which is given by Ramme (1941) as the possession of long, slender antennae with elongate segments. Antennae in Pyrgomorphidae are, however, notoriously variable. The phallic structures of the holotype of *D. steini* are very similar to those of the other material referred to above, the aedeagal valves, however, being of the most slender form found among these. As there appears to be no absolute difference between *D. sundaica* and *D. steini*, the two should be regarded as being conspecific. However, since sufficiently large series are unavailable, I prefer, for the present, to recognize the more southerly population (*steini*) as a subspecies, separable from typical *D. sundaica* as indicated in the key to species. Were a name not already available, however, one might hesitate to adopt this course, particularly as, on zoogeographical grounds, it might be anticipated that the Kai Is. population would have more in common with the more northerly populations than with those from the Aru Is. and the more southerly New Guinea localities – which does not appear to be the case.

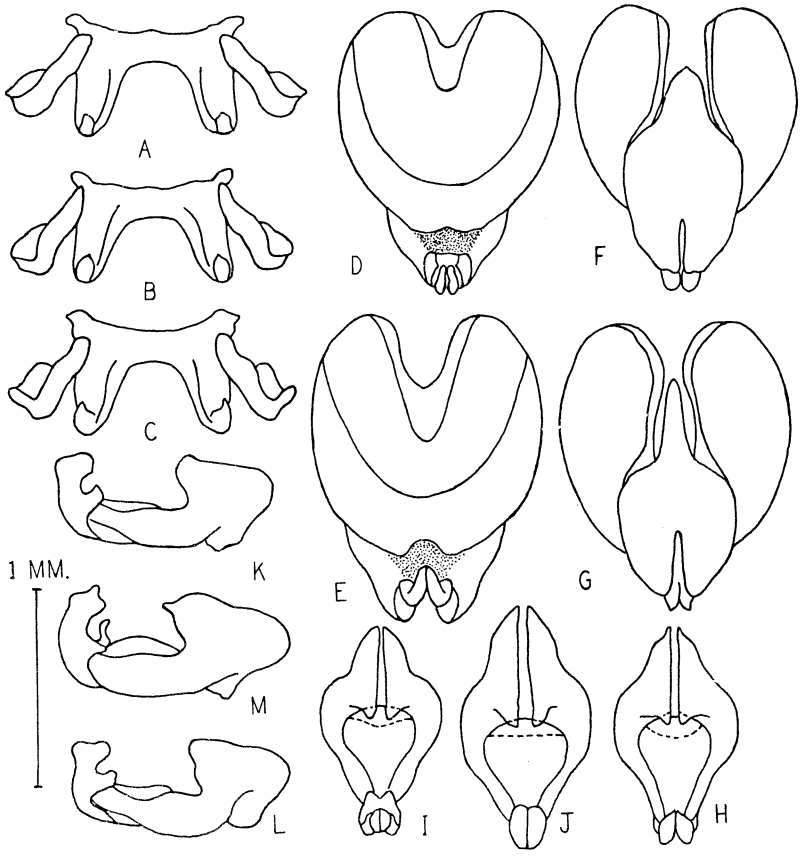


Fig. 26 *Desmopterella sundaica sundaica* (Rehn), phallic structures showing variation. A-C, epiphallus, dorsal; D, E, ectophallus dorsal; F, G, ectophallus, ventral; H-J, endophallus, dorsal; K-M, endophallus, lateral, from right. A, D, F, H, K, from Waigeu; remainder from Vogelkop Peninsula.

D. sundaica is not a very distinctive species and from its external morphology is distinguishable from species occurring in the same geographical areas by largely negative characters. Its distribution is shown in fig. 60.

(a). **Desmopterella sundaica steini** Ramme, 1941 Fig. 22-24; Pl. V, fig. A-D.

Desmopterella steini Ramme, 1941, *Mitt. Zool. Mus. Berl.* **25**: 57, 60, fig. 28, 61, 62, pl. IX, fig. 2a, b [♂, ♀].

Desmopterella steini was described from a ♂ holotype, ♀ allotype and 2 ♀ paratypes (all in Berlin). They bear the following labels: Neu-Guinea, Weyland-Gebirge, 1500 m. 1931, G. Stein leg. [printed]. They also have brick-red "Typus", "Allotypus" and "Paratypus" labels, as appropriate. The body of the holotype is about 2 mm greater than indicated in the original description, and that of the allotype about 1.5 mm greater than

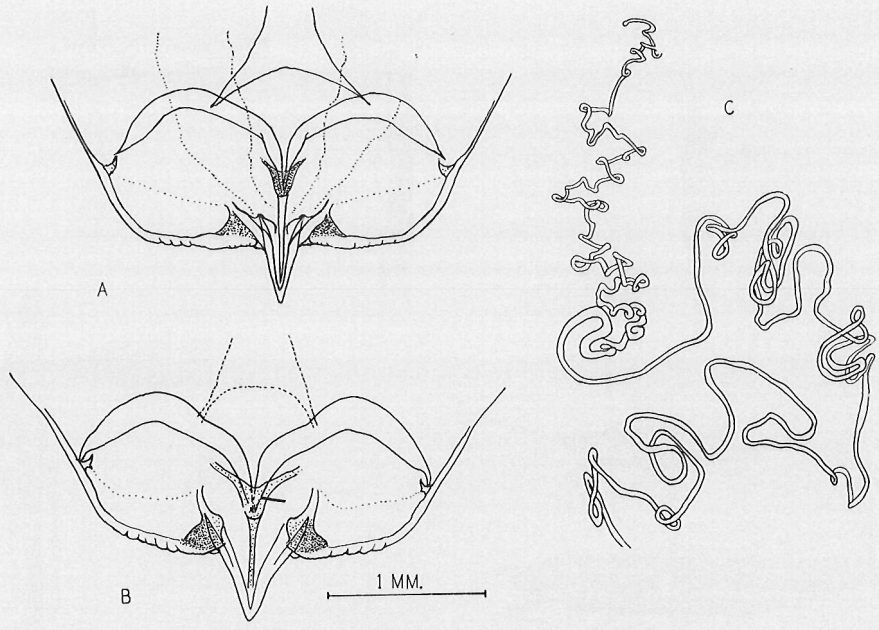


Fig. 27. *Desmopterella sundaica sundaica* (Rehn), ♀ structures. A, subgenital plate, dorsal (holotype); B, the same (specimen from Kebar Valley, Vogelkop); C, receptaculum seminis.

the largest measurement given. The latter specimen is unusual in that it possesses a conspicuous pale spot on the hind femur. Holotype and allotype are illustrated by Ramme (1941).

DISTRIBUTION (fig. 60): WEST IRIAN (S & SW): Alkmaar, Lorenz [R.] (♀ only); Bivak Eiland [05° 00′S, 183° 39′ E]; Bokondini, 40 km N of Baliem Valley (♀ only); Enarotali, Wisselmeren (juv. only, ? this species); Kloofbivak; Mindiptana; Oranje Gebergte [= Orange Mts]; Sabang; R. Siera W of Oeta; Utakwa R., Base Camp to Canoe Camp, sea-level to foothills (♀ only); Weyland Mts [type locality].

ARU IS.: Wokam I., Dobbo and Sungi (Manoembai [= Manum Bay]).

KAI IS.: Kei Is (only); Papakua.

Size Range: body, ♂ 20-22.5, ♀ 28.5-29.5; tegmen, ♂ 20.5-21.5, ♀ 29-32.5 mm.

(b). **Desmopterella sundaica sundaica** (Rehn, 1909) Fig. 25-27; Pl. V, fig. E-I.

A[cridium] (Pyrgomorpha) Novae Guineae Haan, 1802, *In* Temminck, *Verh. Natuurl. Gesch. Ned. Overz. Bezitt.* **18** (Zool.7): 143, 149 (no generic or subgeneric name on this p.), 150 (*partim*) [♂♂ from New Guinea discussed by other authors, including Kevan (1963), who refers them to *D. biroi* — see below].

Desmoptera sundaica Rehn, 1909, *Bull. Amer. Mus. Nat. Hist.* **26**: 188. — Willemse, 1930, *Tijdschr. Ent.* **73**: 85, 208. — Ramme, 1941, *Mitt. Zool. Mus. Berl.* **25**: 39 (transfer to *Desmopterella* implied). — Rehn, 1953, *Grassh. Locusts Aust.* **2**: 48 (in discussion).

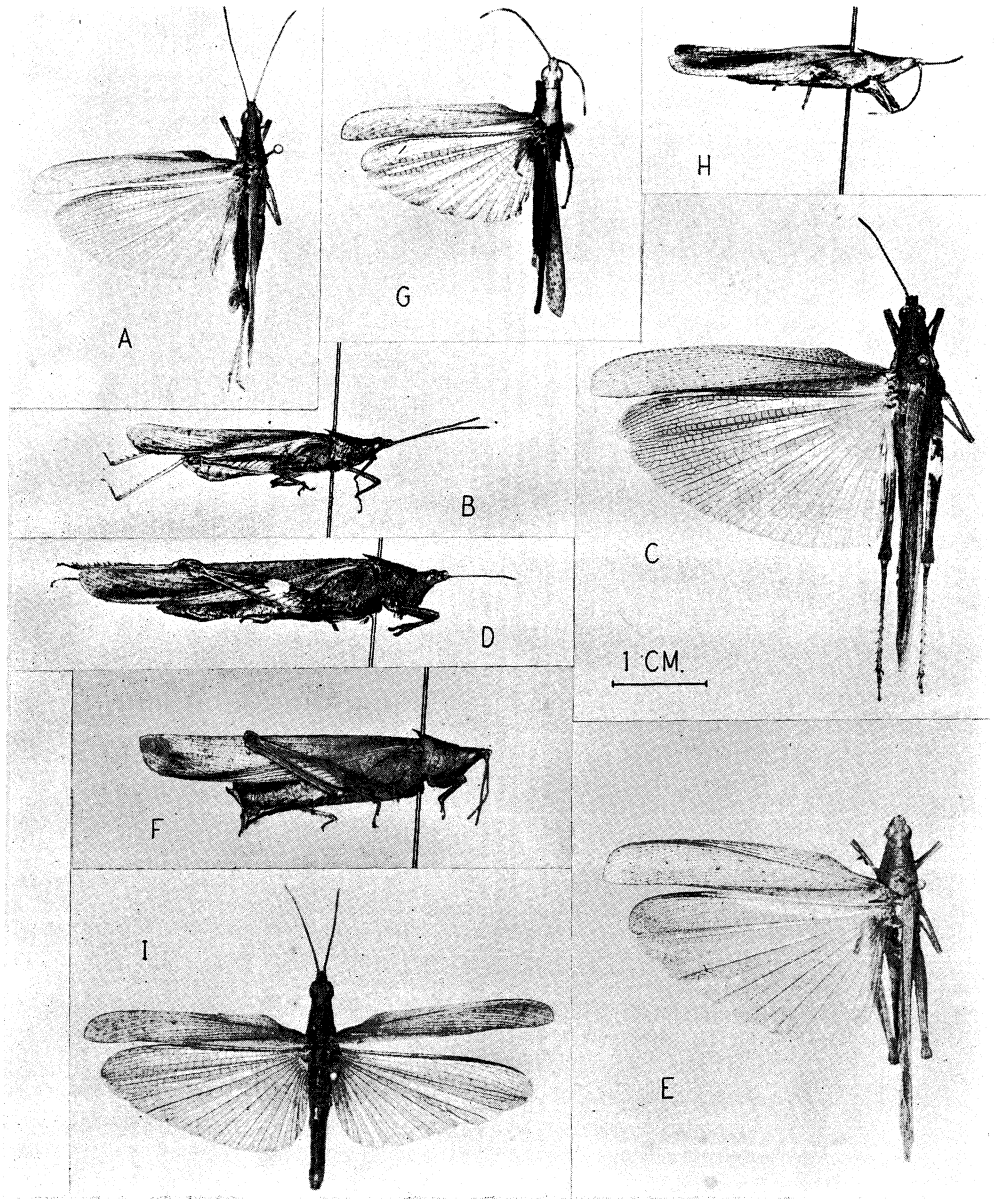


Plate V. *Desmopterella sundaica* (Rehn), type and other material. A, B, *D. sundaica steini* Ramme, ♂ holotype (Berlin); C, D, the same, ♀ allotype (Berlin); E, F, *D. sundaica sundaica* (Rehn), ♀ holotype (New York); G, H, the same, ♂ from Fak-Fak, Onin Peninsula, West Irian; I, ♂ paralectotype of *Acridium* (*Pyrgomorpha*) *Novae Guineae* Haan (Leiden) [not conspecific or congeneric with lectotype of that species=*Desmoptera novaeguineae*].

Desmoptera sundiaca [*sic*] Rehn, 1909, *Bull. Amer. Mus. Nat. Hist.* **26**: 188, fig. 12 [♀ lateral], 189 fig. 13 [♀ head and pronotum, dorsal].—Key, 1969, *Austral. J. Zool.* **17**: 404 (indicating error).

Desmoptera [sp.] Willemse, 1928, *Zool. Meded.* **11**: 7 [referring to Haan's specimens—see above].

Desmoptera media (*nec* Bolívar): Willemse, 1932, *Mém. Mus. Hist. Nat. Belg.* (hors Série) **4** (3): 45 (*partim*) [1 ♀ from Manoi and 1 ♂ from Sakoemi; other specimens are *Desmopterella angustata*].

Desmoptera Haani (*nec* Bolívar): Willemse, 1932, *Mém. Mus. Hist. Nat. Belg.* (hors Série) **4** (3): 46.

Desmoptera marginata (*nec* Bolívar): Willemse, 1932, *Mém. Mus. Hist. Nat. Belg.* (hors Série) **4** (3): 46 (*partim*) [not specimens from Siwi (*Desmopterella angustata*) or Halmahera (*Desmoptera d. degenerata*)].

Desmopterella sundaica: Rehn, 1953, *Grassh. Locusts Aust.* **2**: 42n, 47, 48 (without generic name or in combination with *Desmoptera*), 49 (generic initial only), 50 (no generic name), 51, 268 (all *partim*, except p. 42, 48, 50 - other p. not cited refer only to *D. explicata*), pl. 2, fig. 15, 16 [♀—not 11-14, nor pl. 27, fig. 204-206=*D. explicata*; reference by Key (1959) also refers to *D. explicata*, *q. v.*].

Desmopterella biroi (*nec* Bolívar): Kevan, 1963, *Nova Guinea* **10**: 390 (*partim*) [referring to Haan's specimens].

D[*esmopterella*] *sundaica*: Key, 1969, *Austral. J. Zool.* **17**: 363, 380, 405, 412 (last p. really refers to *D. explicata*).

"*sundaica* Rehn, 1909, *Desmoptera* [*Desmopterella*]"; Key, 1969, *Austral. J. Zool.* **17**: 404.

"*sundaica* Rehn, *Desmoptera*": Key, *Austral. J. Zool.* **17**: 411 (really refers to *D. explicata*).

The holotype of *D. sundaica* has already been discussed (p. 580-581).

DISTRIBUTION (fig. 60) [localities marked with an asterisk have been recorded previously, although (except for the type specimen) a different name for the insect was used] : [SUMATRA (erroneous) : "Sumatra" only (holotype)*].

WAIGEU I.: Camp Nok ; Mt Nok ; Waifoi.

WEST IRIAN (W) : W New Guinea (no more precise locality)*. Vogelkop Peninsula: Kebar Valley ; Manikion (juvenile only, ? this species) ; Manoi (♀ only)*, Manokwari; Moemi [=Momi] (♀ only)* ; Oran(g)sbari [S of Manokwari] ; [Sakoemi [=Sakum]*; Sorong. Bombarai Peninsula: "Bomberi (Vogelkop)" [Bomberi itself is at approximately 02° 48′ S, 132° 50′ E] ; Fak-fak ; Skroe [=Sekru] (♀ only). Geelvink Isthmus (SW) : "forêt entre Lac de Kamankahwalla et Lomira" [= forest between Lake Kamakawator and Loemida] (♀ only, presumably this species)*.

Size Range: Body, ♂ 21-22.5, ♀ 29-32.5; tegmen, ♂ 21-22, ♀ 29-32.5 mm.

8. **Desmopterella haani** (Bolívar, 1898) Fig. 28-30 ; Pl. VI.

Desmoptera Haani Bolívar, 1898, *Ann. Mus. Stor. Nat. Genova* **39**: 84.

Desmoptera marginata Bolívar, 1898, *Ann. Mus. Stor. Nat. Genova* **39**: 84 (locality p. 85) (*partim*) [Mt Astrolobe only].

[*Desmoptera*] *Haani*: Bolívar, 1905, *Ann. Soc. Esp. Hist. Nat.* **5**: 107.

D[*esmoptera*] *Haani*: Bolívar, 1909, *Gen. Ins.* **90**: 36.—Kirby, 1910, *Syn. Cat. Orth.* **3**: 329.

Desmopterella haani: Ramme, 1941, *Mitt. Zool. Mus. Berl.* **25**: 57, 60 (*partim* [incorrect synonymy

with *D. marginata*]) fig. 28h [♂ terminalia and antennae], 61, 62 (no generic name except p. 60), pl. IX, fig. a, b [♂, ♀].—Rehn, 1951, *Proc. Acad. Nat. Sci. Philad.* **103**: 230 (*partim* [reference to type material only]).—Kevan, 1963, *Nova Guinea* (n. s.) **10**: 384 [not 396].

[*Desmopterella*] *marginata*: Ramme, 1941, *Mitt. Zool. Mus. Berl.* **25**: 60, 61 (*partim*) [Mt Astrolobe and Moroka specimens only].

This species was described from an undisclosed number of specimens of both sexes from the Genoa Civic Museum. Ramme (1941) indicates that there are in Genoa 2♂♂ and 1 ♀, but that only 1 ♂ has the correct data. Thus, his selection of the ♀ as [lecto] type is erroneous. I therefore designate the correctly labeled ♂ as lectotype. This has measurements as given in the original description and the following labels: (1) N.

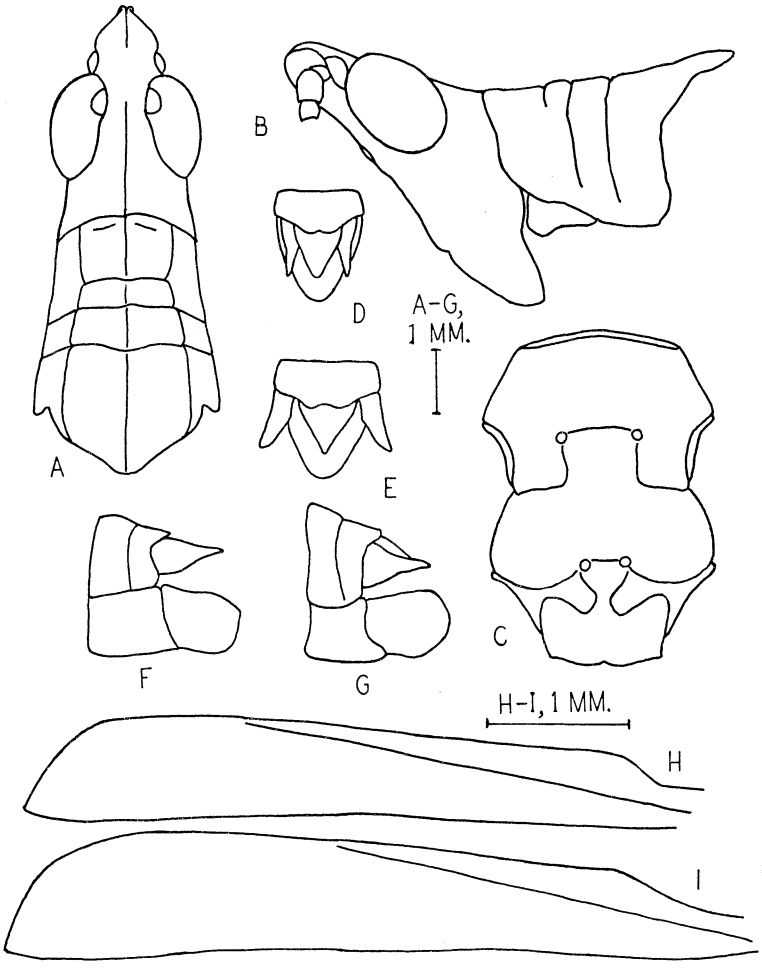


Fig. 28. *Desmopterella haani* (Bolívar), ♂. A-C, as in fig. 1; D, E, abdominal terminalia, dorsal; F, G, the same, lateral, from left; H, left tegmen, usual form; I, the same, broad form.

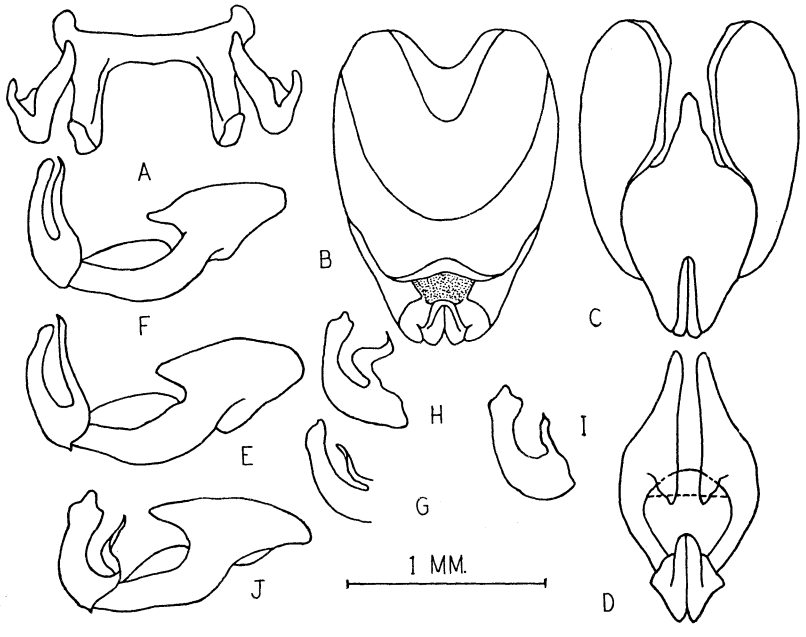


Fig. 29. *Desmopterella haani* (Bolívar), phallic structures showing variation in aedeagal valves. A, epiphallus, dorsal; B, ectophallus, dorsal; C, ectophallus, ventral; D, endophallus, dorsal; E, F, J, endophallus, lateral, from right; G, H, I, aedeagal valves, from right. A-E, from Orrori; F, from Kokoda; G, from Deria; H, from Orrori (Ishurava and Deria similar); I, from Ishurava (Kokoda similar); J, from Orrori (Ishurava and Deria similar).

Guinea S. E., Moroka, 1300 m. Loria, VII-XI.93[9]; (2) Museo Civico di Genova; (3) Desmoptera Haani Bol. [in Bolívar's hand, green border; label above specimen, not on its pin]; (4) Desmoptera haani Bol. Cotypus [in F. Capra's hand]; (5) Desmoptera haani I. Bol. Ramme det. 1940. Ramme's (1941) so-called ♀ type and ♂ co-type are labeled merely "N. Guinea S. E., Loria, IX-XII, 92." This agrees with the data given by him, but not with those of the original description. These 2 specimens are those for which Ramme (*l. c.*) published photographs. The other syntypic material of *D. haani* is not now in Genova, but in Madrid, having been retained by Bolívar. This comprises a ♂ and a ♀ paralectotype with similar labels to (1) of the lectotype, together with "Museo Civ. Genova." The ♀, but not the ♂, is also labeled "Desmopt. Haani Bol." in Bolívar's writing. Both have measurements agreeing with the original description, the ♂ thus being similar in this respect to the lectotype, although the tegmina are a little broader, almost as in Ramme's photograph of the 'non-type' ♂. The lectotype has tegmina of a width more representative for the species as a whole.

DISTRIBUTION (fig. 60) : PAPUA : Mt Astrolobe [paralectotypes of *D. marginata*];

9. Bolívar (1898) gives the date as "Juillet-Septembre 1893", but he obviously misread the month, "XI" as "IX", for no specimen has the latter on the label. Ramme (1941) correctly gives the months as "7-11".

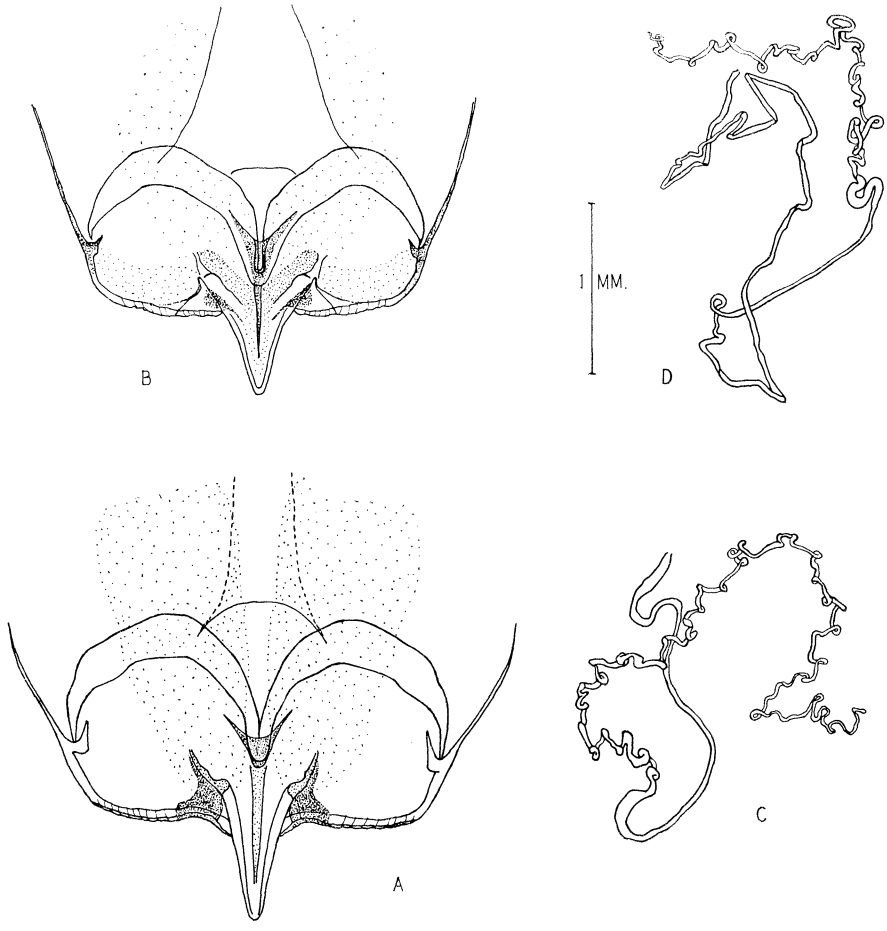


Fig. 30. *Desmopterella haani* (Bolívar), ♀ structures showing variation. A, B, subgenital plate, dorsal; C, D, receptaculum seminis. A, E, from Mafulu; B, D, from Cape Rodney.

Deria, Amazon Bay area; Doveta, Amazon Bay area (♀ only); Ishurave [=Isurava]; Isurava, Biage Valley, Kokoda Subdiv., N. Dist., 1260–1320 m (♂ only); Mt Lamington; Kokoda; Mafulu (large ♀ only); Managalese area, 750–900 m (♀ only); Moroka [type locality]; Orrori; Popondetta (♀ only); Cape Rodney (♀ only); Mt Tafa (♀ only).

The coloration in this species is quite variable. Very frequently the tegmina are distinctly mottled brownish gray. In some males the dorsum is pale and in one (from Deria) the paler parts, particularly the hind femora, are of a distinctive light yellow color unlike any other known specimen of the genus. There is also considerable morphological variation in this material, particularly in the width of the tegmina and in the stoutness of the aedeagal valves. Variation also occurs in the relative length of the tegmina and in the degree of truncation or emargination of their apices in the

♀, as well as in the obliqueness of the frons of the ♂. Commonly the tegmina are rather long and wide, with oblique apices in the ♂, or truncated with usually emarginate apices in the ♀. The aedeagal valves are typically rather slender as in fig. 29E–G, although they may be somewhat, or distinctly stouter with lobed apices (fig. 29H–J).

At first it might appear that 2 species are involved : one with narrower tegmina

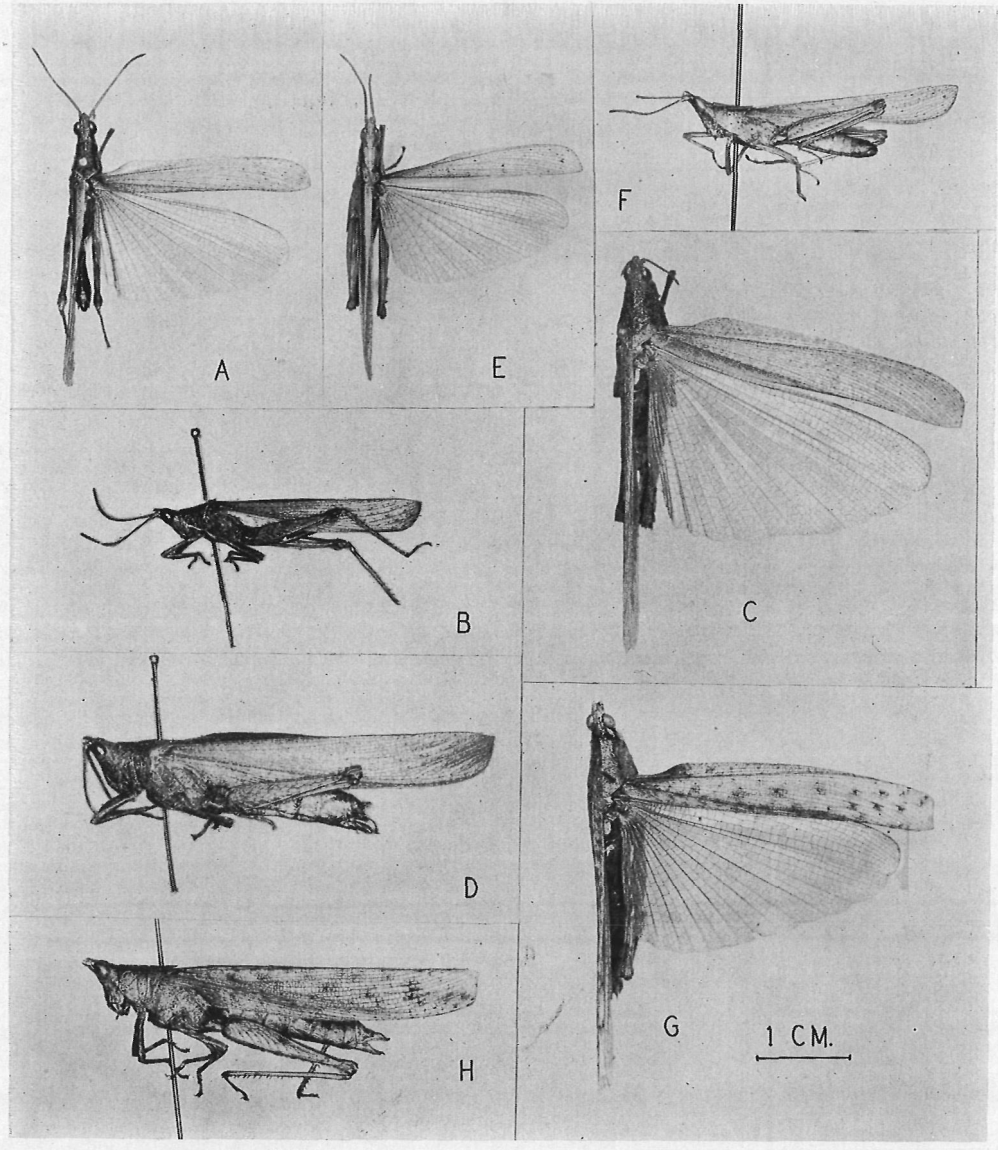


Plate VI. *Desmopterella haani* (Bolívar), type and other material. A, B, ♂ lectotype (Genoa) ; C, D, ♀ paralectotype (Madrid) ; E, F, ♂ from Orrori, Papua ; G, H, ♀ from Kokoda, Papua [E–H indicate some of the tegminal variation in the species].

having less characteristically formed apices (as in the lectotype), a more oblique frons and stouter, apically lobed aedeagal valves ; and the other with opposite characters. The former includes all known specimens from Ishurava (1 ♂, 1 ♀ and ? 1 juv.) and Biage Village (4♂♂) , and 2 of the 3 (♂) specimens from Orrori, but the remaining ♂ from the last locality is clearly of the latter group, which may be considered typical and for which males are known from Moroka (type) and Kokoda. It might be that 2 distinct species occur together at Orrori, but males from the Amazon Bay area (4 ♂♂ from Deria) have aedeagal valves of variable form, from intermediate to lobed, and tegmina of intermediate form. Females from the Amazon Bay area and Cape Rodney are also somewhat intermediate in general form, tending, like the males, to be a little smaller than average in size. It would therefore seem that there is but a single, variable species. There is insufficient evidence for recognizing 2 subspecies because of the geographical overlap. It may be noted that the phallic structures vary in a similar manner to those of *D. sundaica*.

Although this species in rather variable, it may usually be distinguished from others occurring in the same geographical area by the apices of the tegmina which are characteristically obliquely (♂) or subtransversely (♀) truncated or subtruncated.

Size range: Body, ♂ 21–22.5 ; ♀ 30.5–36 ; tegmen, ♂ 21–22.5, ♀ 30–33 mm.

9. **Desmopterella dahli** Ramme, 1941 Fig. 31–33 ; Pl. VII, fig. A–D.

Desmopterella dahli Ramme, 1941, *Mitt. Zool. Mus. Berl.* **25**: 57 (no generic name), 61, 62 fig. 29 [♂ terminalia], pl. X, fig. 3a, b [♂, ♀].—Rehn, 1951, *Proc. Acad. Nat. Sci. Philad.* **103**: 231 (generic name used only in footnote), 232 (no generic name).—Kevan, 1966, *Ent. Meddr.* **34**: 392, 393 fig. 3A–C [phallic structures], 394, 395 (last 3 p. with generic initial only, last also misprinted *B. dahli*).

Desmopterella bürgersi Ramme, 1941, *Mitt. Zool. Mus. Berl.* **25**: 65 (*partim*) [Simpsonhafen and Neupommern specimens only].

This species was described from a ♂ holotype, a ♀ allotype and 2 female paratypes from Ralum, New Britain. These are all in Berlin. The holotype bears the following labels: (1) Bismarck Arch., Ralum, Dahl S. 1896–97 [printed] ; (2) Kabakaul Vulk. Boden, Hochwald [handwritten] ; (3) Ramme's determination label ; (4) Typus [printed on brick red]. The allotype is similarly labeled, but (2) has the date "30/8/96" added to it, and (4) has "Allo-" added by hand before "typus." The measurements agree more or less with the upper limits given by Ramme (1941), except that the body length given by him is incorrect ; for the holotype it is 21.5, and for the allotype, 32 mm. These two specimens are those illustrated by Ramme (*l. c.*).

DISTRIBUTION (fig. 59) [all localities previously recorded, *except* those marked with an asterisk] : UMBOI I. : ca. 8 km WNW of Lablab*.

NEW BRITAIN : New Britain* or Neu Pommern* (only) ; Akanglo I. nr Kandrian (S. Coast) ; Baining, St. Paul's (Gazelle Pen.) ; Bialla (N. Coast) ; Gaulim and 16 km S of same (Gazelle Pen.) ; Gisiluve (Nakanai Mts) ; Karlei (Wide Bay) ; Illugi, upper Warangoi (Gazelle Pen.) ; Keravat (Gazelle Pen.) ; Kinigunang*; nr Lowl. Agric. Exp. Sta. Keravat, rain forest*; Mövehafen ; Puktas, Baining Mts (Gazelle Pen.) ; Rabaul [as Simpsonhafen] ; Ralum (N. Coast) [type locality] ; Silanga (Nakanai Mts) ; Mt

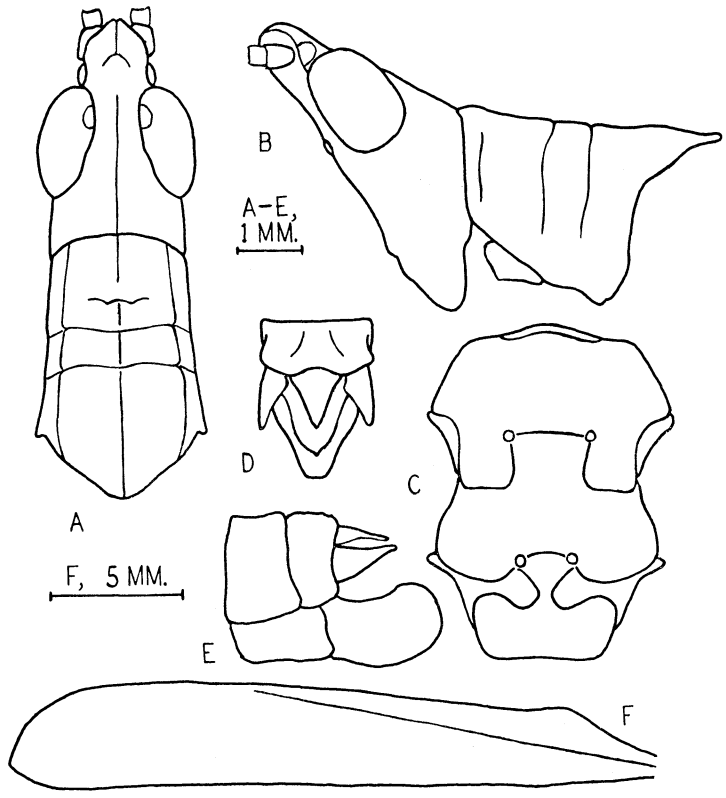


Fig. 31. *Desmopterella dahli* Ramme, ♂. A-F, as in fig. 1.

Sinewit (Gazelle Pen.) ; Ti (Nakanai Mts) ; Vaisisi (Cape Hoskins) ; Valoka ; Vudal, SW of Keravat ; Vanabakan, 16 km E of Keravat ; Warangoi Valley (Gazelle Pen.) ; upper Warangoi, 250-600 and 1250-1450 m.

This species is another without very diagnostic external features except that the ♂ subgenital plate is rather long, but, as it seems to be the only species occurring in New Britain (and on Umboi I.), it should not be mistaken for any other. It is very variable in size, although very small and extra-large specimens are rare.

Size range: Body, ♂ 20.5-24, ♀ 26-33.5 ; tegmen, ♂ 20-24.5, ♀ 27.5-36.5 mm.

10. **Desmopterella prasina** (Bolívar, 1905) Fig. 34-36 ; Pl. VII, fig. E-H.

D[*esmoptera*] *prasina* Bolívar, 1905, *Bol. Soc. Esp. Hist. Nat.* **5**: 107 (no generic name), 109; 1909, *Gen. Ins.* **90**: 36.

Desmoptera prasina : International Council (Minchni Ed.), 1907, *Int. Cat. Sci. Lit.* (N, Zool.) **5** : 785.

D[*esmoptera*] *Prasina*: Kirby, *Syn. Cat. Orth.* **3**: 329.

Desmopterella prasina: Ramme, 1941, *Mitt. Zool. Mus. Berl.* **25**: 56 (generic name not used in combination), 63.—Kevan, 1966, *Ent. Meddr.* **34**: 393 (generic name not used in direct com-

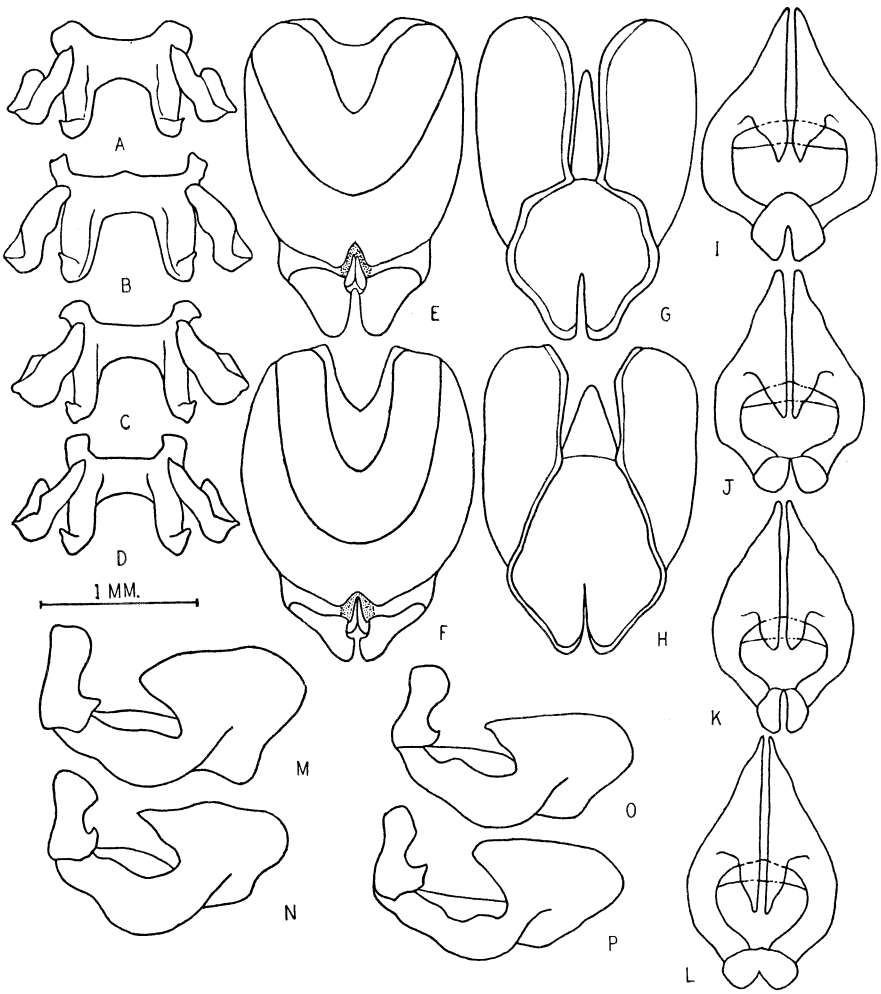


Fig. 32. *Desmopterella dahli* Ramme, phallic structures showing variation. A-P, as in fig. 2.

bination) fig. 4A-C [phallic structures], 394, 395 (*D. prasina* — neotype), 419.

The unique ♀ holotype of this species has been lost. It was said to have the data "Bismarck Arch. Biró, 1900" (no closer locality being given), and most probably was destroyed in the fire at the Budapest Museum in 1956, although Ramme (1941) makes no mention of its previously being in that institution. Kevan (1966b) was of the opinion, on the basis of the distinct annulation of the antennae, that the missing holotype belonged to the same species as New Ireland material, and he selected a ♀ from that island as neotype. This specimen (Pl. VII, fig. E, F) is in the British Museum (Natural History), London, and has data and measurements as given by Kevan (*l. c.*).

DISTRIBUTION (fig. 59) [all localities previously recorded, *except* for those marked

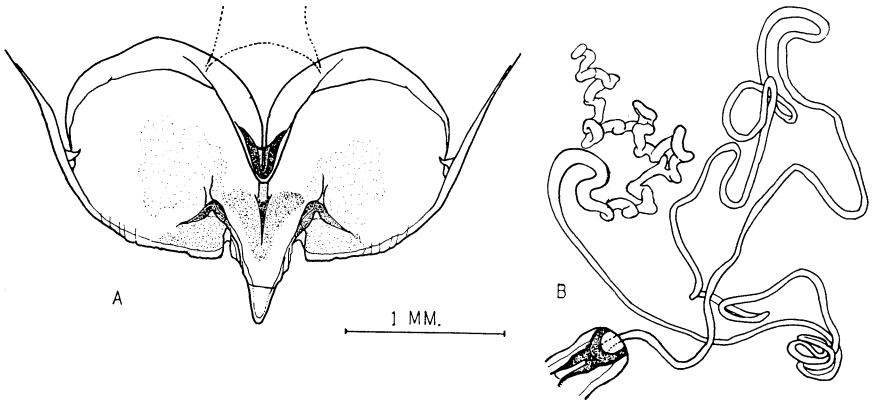


Fig. 33. *Desmopterella dahli* Ramme, ♀ structures. A, B, as in fig. 3.

with asterisk] : BISMARCK ARCHIPELAGO: no more precise locality (lost holotype).

NEW IRELAND : New Ireland or Neu Mecklenburg (only)*; Camp Bishop*; SW ridge above Camp Bishop, 12 and 15 km up Kait R.; Gilingi Plantation; Lower Kait R.; Kandan; Kavieng [including neotype]; 5-50 km from Kavieng; Lametta*; Lavalai; Lelet Plateau, 980 m; Lemkamin (Lelet Plateau); Majom; Schleinitz Mts (Lelet Plateau).

LAVONGAI : Banatam.

TABAR IS : Tatau I., Tomalabatt Plantation*.

The last record is based on a single ♂, taken at light, 14.I.1955. The specimen (Pl. VII, fig. g, h) is most unusual in that the body and tegmina are very distinctly olive green in color, thus agreeing with Bolívar's (1905) description of the lost holotype female. Kevan (1966b) expressed doubts about Bolívar's account of the color, but the present specimen removes any reason for these. The holotype was, most likely, an unusually colored specimen like the present one. Out of hundreds of specimens of *Desmopterella* that I have examined, only this one and one *D. biroi* ♀ (p. 561) are green, the latter less distinctly so. The Tabar I. ♂ undoubtedly belongs to *D. prasina*, although the aedeagal valves are rather atypically expanded (fig. 35p). Such variation is parallelled in other species, however, and, in the absence of additional material, there is no cause to postulate even subspecific status for the Tabar I. form. Certainly the unusual color would not justify recognition, as occasional individuals of atypical coloration are to be found in several other species, such as *D. haani* and *D. circe*.

D. prasina is yet another species without very distinctive external features, except that the antennae have more distinct and complete pale annulations than is usual for the genus. The greenish body color referred to in the original description, and discussed above, is not diagnostic. As *D. prasina* is the only species known from New Ireland and associated islands, it is unlikely to be confused with others. The size, as a rule, seems to average smaller, the male cerci are more slender and the subgenital plate shorter than in its nearest geographical neighbor.

Size range: Body, ♂ 20-21.5, ♀ 27.5-31.5; tegmen, ♂ 20-21.5, ♀ 26.5-30 mm.

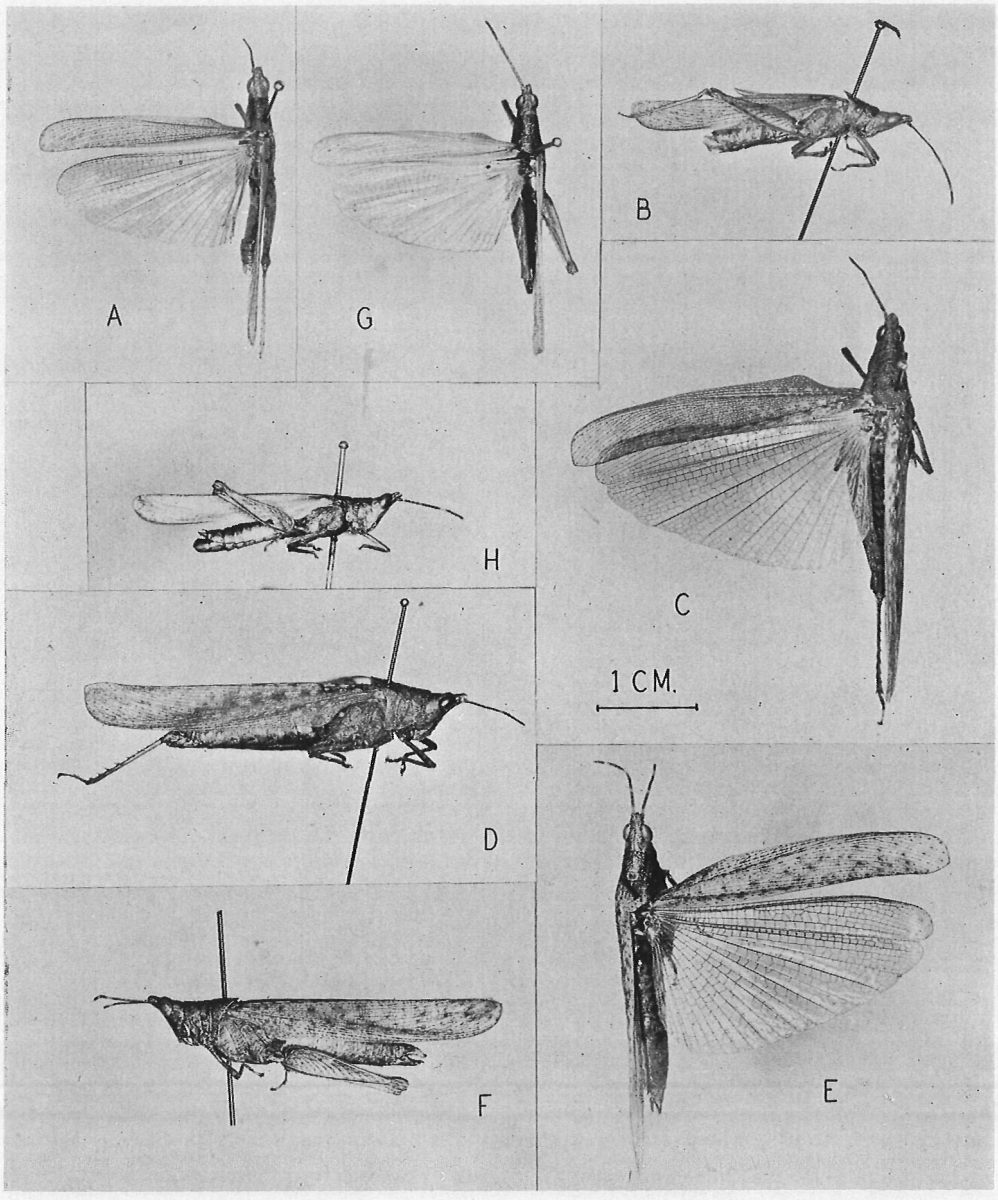


Plate VII. *Desmopterella dahli* Ramme and *D. prasina* (Bolívar) type and other material. A, B, *D. dahli*, ♂ holotype (Berlin); C, D, the same, ♀ allotype (Berlin); E, F, *D. prasina*, ♀ neotype (London); G, H, the same, ♂ of greenish form from Tabar Is.

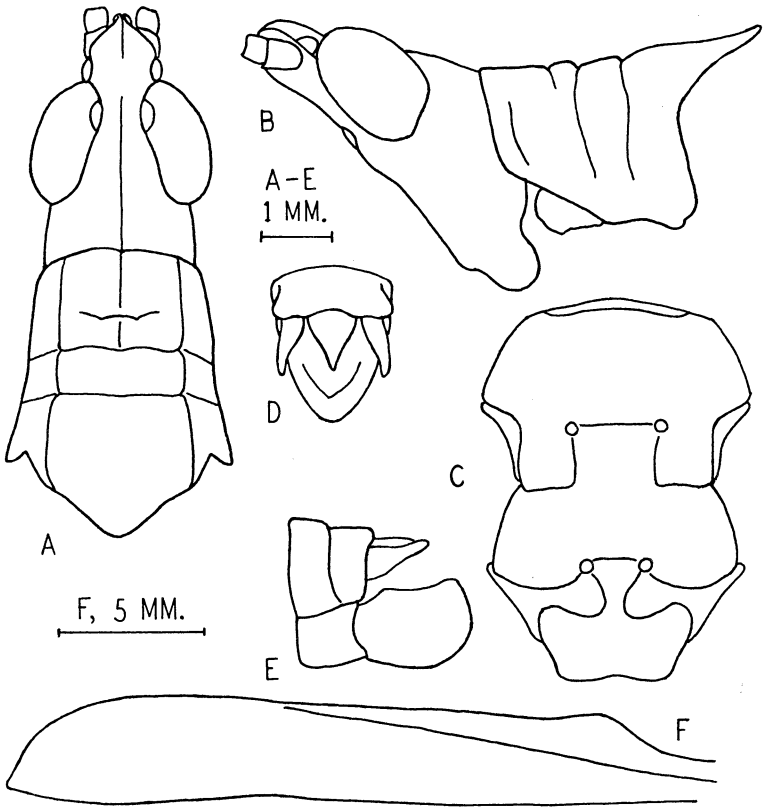


Fig. 34. *Desmopterella prasina* (Bolívar), ♂. A-F, as in fig. 1.

11. **Desmopterella buergersi** Ramme, 1941 Fig. 37-39; Pl. VIII, fig. A-D.

Desmopterella bürgersi Ramme, 1941, *Mitt. Zool. Mus. Berl.* **25**: 57, 62, 63 fig. 30 bü [♂ terminalia], 64, 65 (*partim*) [Simpsonhafen and Neupommeren specimens are *D. dahli*; Wasior specimen is *D. denticulata*; and at least 1 ♀ from "Neu Guinea" is *D. biroi*] (Generic name not used in direct combination except on p. 64), pl. VIII, fig. 7a, b [♂, ♀-*not* pl. IX, fig. 4, as given on p. 64].

[*Desmopterella*] *bürgersi*: Rehn, 1951, *Proc. Acad. Nat. Sci. Philad.* **103**: 229.

D[*esmopterella*] *bürgersi*: Kevan, 1963, *Nova Guinea* (n. s.) **10**: 369 fig. 34a, b [wings], 390n [erroneously as synonym of *D. biroi*].

Desmopterella biroi (*nec* (Bolívar)): Kevan, 1963, *Nova Guinea* (n. s.) **10**: 369 fig. 34a, b [wings], 372 fig. 48d, e [prosternal tubercle], 390 (*partim*), 395.

Desmopterella buergersi was described from a ♂ holotype and a ♀ allotype from Mt Regensberg, NE New Guinea, and from a considerable number of paratypes of both sexes, the majority of them ♀♀, from several localities, mostly also in NE New Guinea. One ♀, however, was from West Irian (Wasior on the Wandamen Peninsula) and 8 ♀♀ were from New Britain (5 from Simpsonhafen and 3 from Karlei). The

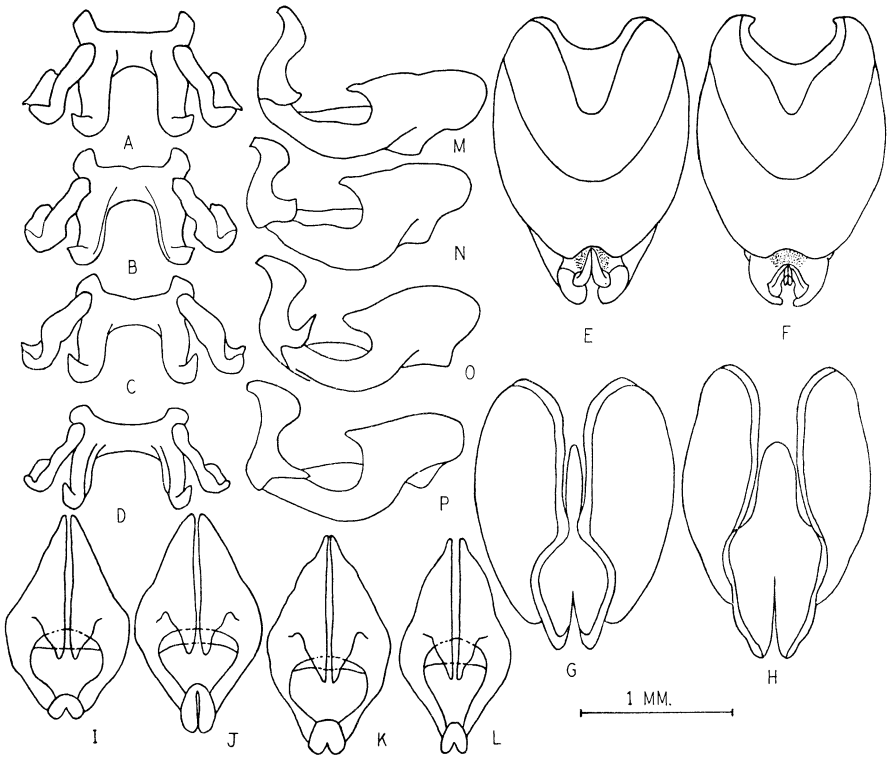


Fig. 35. *Desmopterella prasina* (Bolívar), phallic structures, showing variation. A-P, as in fig. 2. O, from Lavongai; P, from Tabar Is (green specimen); remainder from New Ireland.

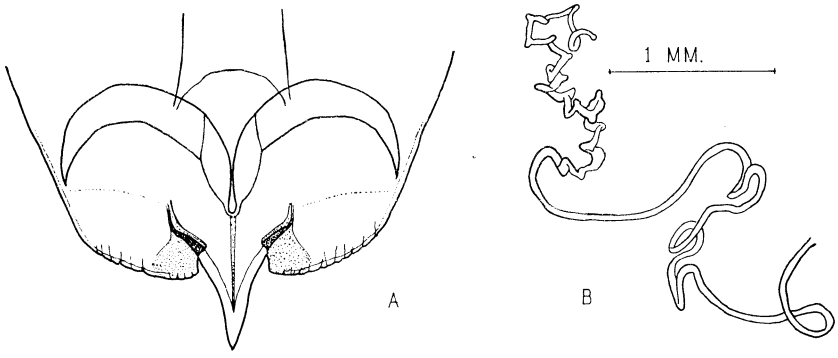


Fig. 36. *Desmopterella prasina* (Bolívar), ♀ structures. A, B, as in fig. 3.

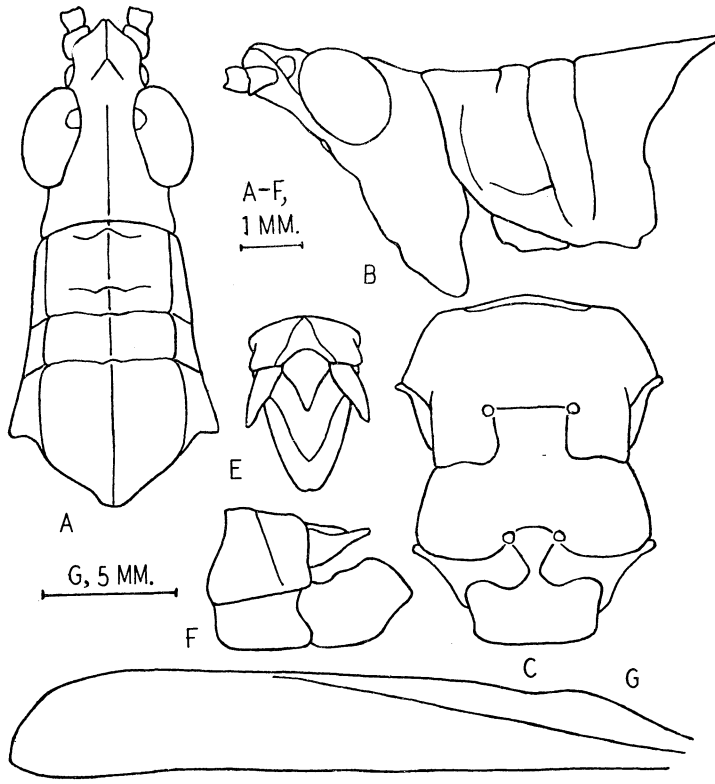


Fig. 37. *Desmopterella buergersi* Ramme, ♂. A-F, as in fig. 1.

West Irian specimen does not belong to the present species, but to *D. denticulata*, and the New Britain material is *D. dahli*. The above specimens are almost all in Berlin, but a ♂ and a ♀ paratype (from "Lager am Lehmfluss" and "Lager am Rosensee") are now in Genoa. In Stockholm there is 1 ♀ specimen which purports to be a paratype, bearing the following labels: (1) Neu-Guinea, Lauterbach S. [printed]; (2) 14 Juni 600 m Wodra Hochwald [handwritten]; (3) 25.6.60; (4) Desmopterella bürgersi Rme. Ramme det.; (5) Paratypus [brick-red Berlin label]. This is not however certainly indicated by Ramme (*l. c.*) as a paratype, for the only reference to Lauterbach's specimens is to 2 ♀♀ collected in the Oertzengebirge. As the specimen belongs to *D. biroi*, and not to *D. buergersi*, it might be best to disregard it as a paratype.

DISTRIBUTION (fig. 59) [those localities marked with an asterisk have previously been recorded]: NEW GUINEA: New Guinea or Neu Guinea or N. G. only*.

WEST IRIAN: Dago, 50 km W of Hollandia (♀ only); Hollandia; Ifar (Cyclops Mts); "Lak" [?= Lake Sentani]; Sentani; Tami [R.]; Tami Mt; Waris [S of Sukarnapura].

NE NEW GUINEA: Adelbert Mts; Berlinhafen [= Arop]*; Bubia (Markham Valley) or Bubia, Lae; Bulolo R. nr Wau; Bulu Pltn., cacao; Busu R., E of Lae; Didyman's Creek, 6 m, NW of Lae; Finschhafen; Geraina; Gawan Village, Melambi, Lae, 600 m, native

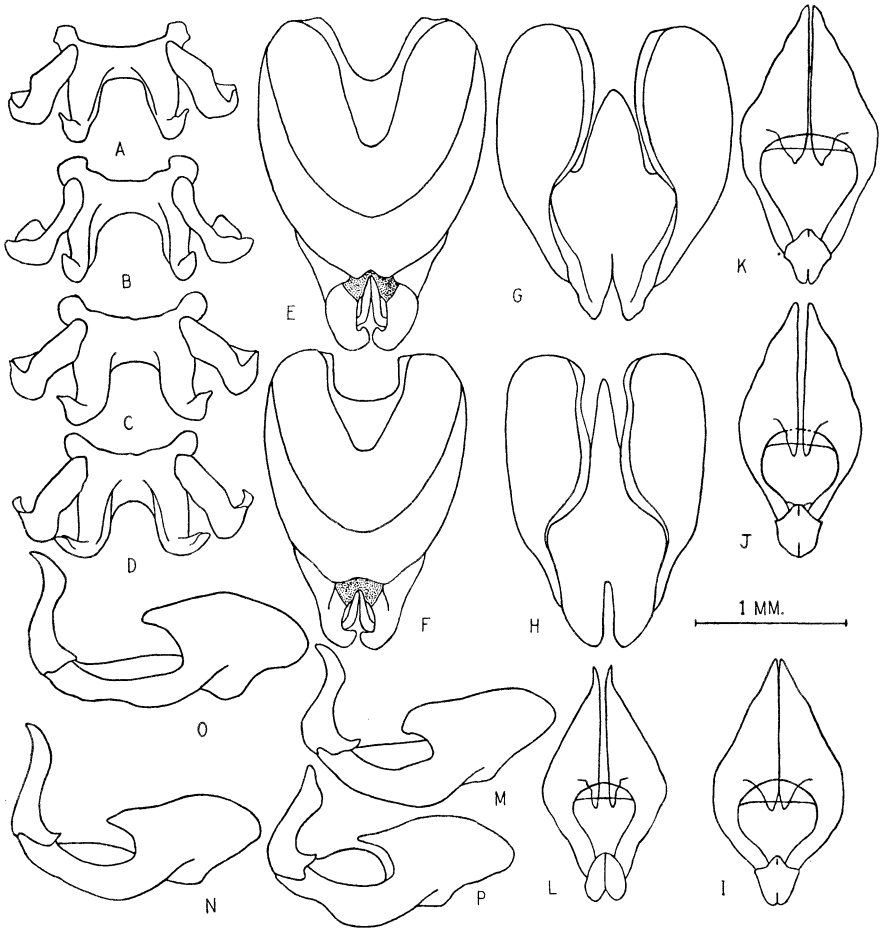


Fig. 38. *Desmopterella buergersi* Ramme, phallic structures showing variation. A–P, as in fig. 2. I, P, from holotype.

gardens ; Gewak (Salawaket [= Saruwaged] Range) ; Gurukor, Lae, 543 m ; Hunsteinspitze [=Hunstein Peak]* ; Karimui, S of Goroka ; Kurai Creek, Wau; Lae ; Laleng (Huon Peninsula) ; "Lager am Lehmfluss" [=camp on Loam R.]* ; Madang ; Hauptlager bei[= base camp near] Malu* ; Maprik ; Mt Missim, Wau; Nadzab (Markham Range) ; "Oerzengebirge"* ; Pindiu (Huon Peninsula) ; Regensberg* ; "Lager am Rosensee" [= camp on Rose L.]* ; Saidor, Ayama (Finisterre Range) ; 25 km SE of Salamaua (Kuper Range) ; Sattelburg [= Saddle Mt]* ; Schraderberg [= Mt Schrader]* ; Singuawa R., Lae, 06°45′S, 147°10′E ; "Lager am Töpferfluss" [= camp on Pot R.]* ; Wampit, Lae, 300 m, secondary bush ; Wanuma (Adelbert Mts) ; Watut, 1500 m; Wau, 1200 m.

PAPUA: Babiang [probably near Kikori, Gulf Dist., not Babagu or Babaga, both between Rigo and Abau] ; middle Fly R., 320–480 km up (♀ only) ; Iriri nr Kerema ; Kokoda ; Kokoda-Pitoki ; Mt Lamington ; Oriomo Govt. Sta. ; Oriomo R. ; nr Tatupiti Village, Goilala Subdiv., C. Dist., 1080–1140 m, mixed vegetation in secondary forest (♀ only).

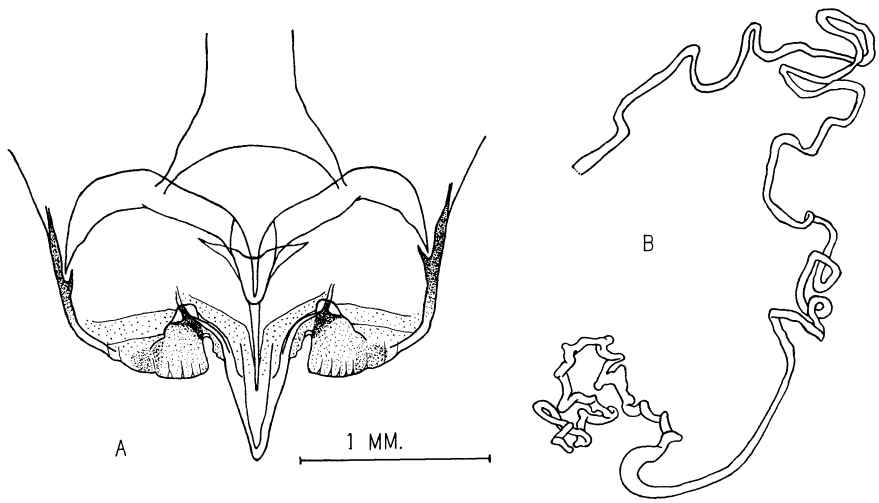


Fig. 39. *Desmopterella buergersi* Ramme, ♀ structures. A, B, as in fig. 3.

This is yet another species lacking in special diagnostic features in its external morphology, except that the ♂ subgenital plate tends to be rather long and the ♀ subgenital plate to have rounded posterior edges and shallow notches on either side of the egg-guide.

Size range: Body, ♂ 21-23, ♀ 29-35; tegmen, ♂ 20-22.5, ♀ 27.5-35 mm.

12. **Desmopterella sylvatica** (Montrouzier, 1855) Fig. 40; Pl. IX, fig. A, B.

Truxalis sylvaticus Montr., 1855, *Ann. Soc. Agric. Lyon* **7**: 90.—Banerjee & Kevan, 1960, *Treubia*, **25**: 181n (as synonym).

A[tractomorpha] ? Sylvatica: Kirby, 1910, *Syn. Cat. Orth.* **3**: 334.

Desmopterella sylvatica: Banerjee & Kevan, 1960, *Treubia*, **25**: 181n.

The holotype (or syntypes) is (are) lost (Banjee & Kevan, 1960). The species was described from "Woodlark dans le bois." The number of specimens is not indicated in the original description and one must assume that there was but one; judging by its body length of 11 lines, it was probably a small ♀, rather than a large ♂.

Neotype ♀ (BISHOP 9183): Murua Is, labeled: (1) New Guinea, Papua: Woodlark I. (Murua), Kulumadau Hill, Mar. 19-22, 1957; (2) W. W. Brandt Collector; (3) Desmopterella sylvatica (Montr.) Det. D. K. McE. Kevan, 1965; (4) *Truxalis sylvaticus* Montr. det. D. K. McE. Kevan 1965 Neotype; (5) red-bordered Neotype disc [BISHOP Museum, Honolulu].

Very similar to ♀♀ of *D. marginata*, but smaller, characters and distinguishing features as given in the key to species, copulatory structures as in fig. 40; coloration generally dark sepia-brown, hind wings somewhat infumated, 2 apical segments of antennae pale, other segments obscurely annulated, inferior margins of lateral pronotal lobes

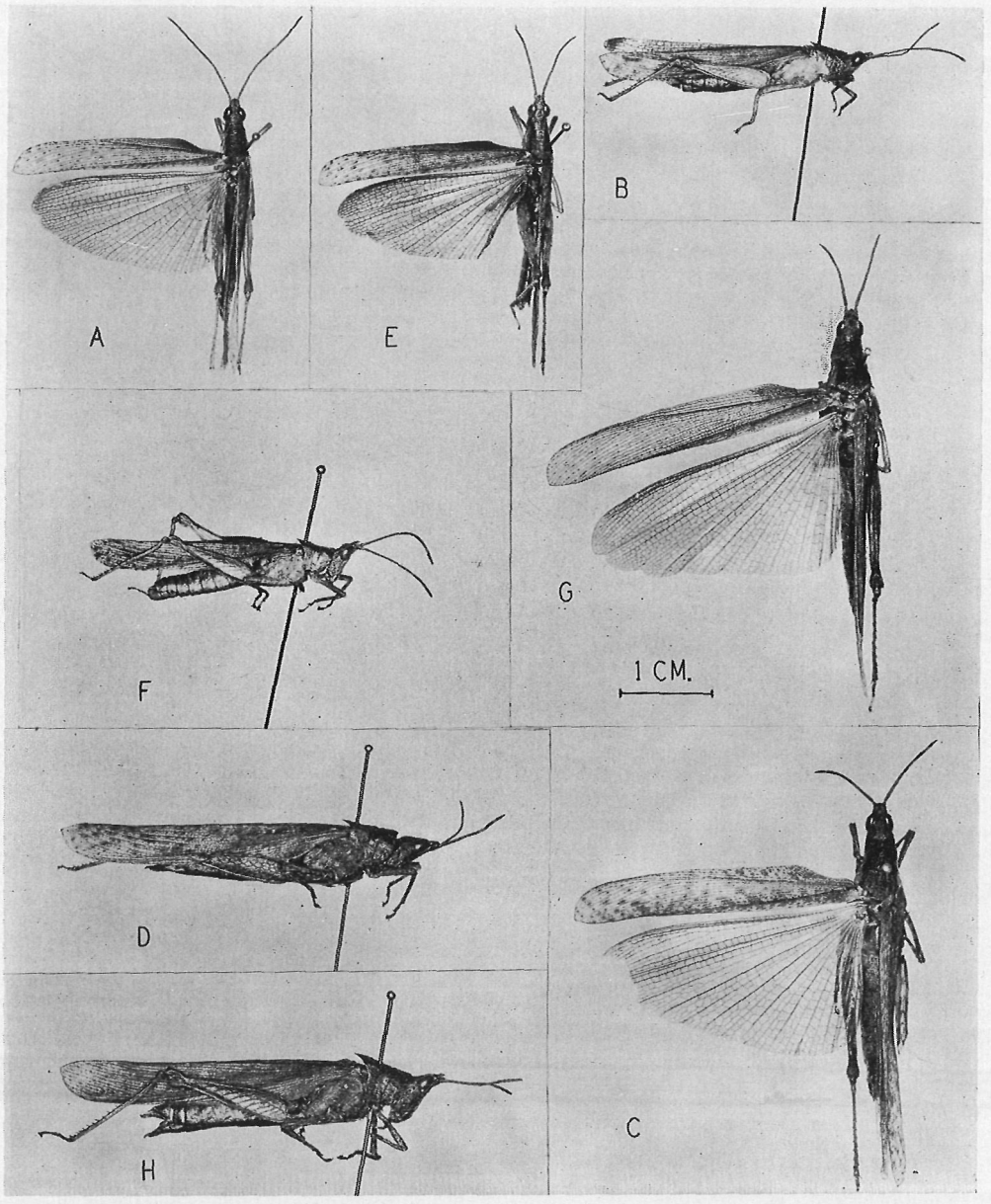


Plate VIII. *Desmopterella buergersi* Ramme and *D. denticulata* Ramme, type material. A, B, *D. buergersi*, ♂ holotype (Berlin); C, D, the same, ♀ allotype (Berlin); E, F, *D. denticulata*, ♂ holotype (Berlin); G, H, the same, ♀ allotype (Berlin).

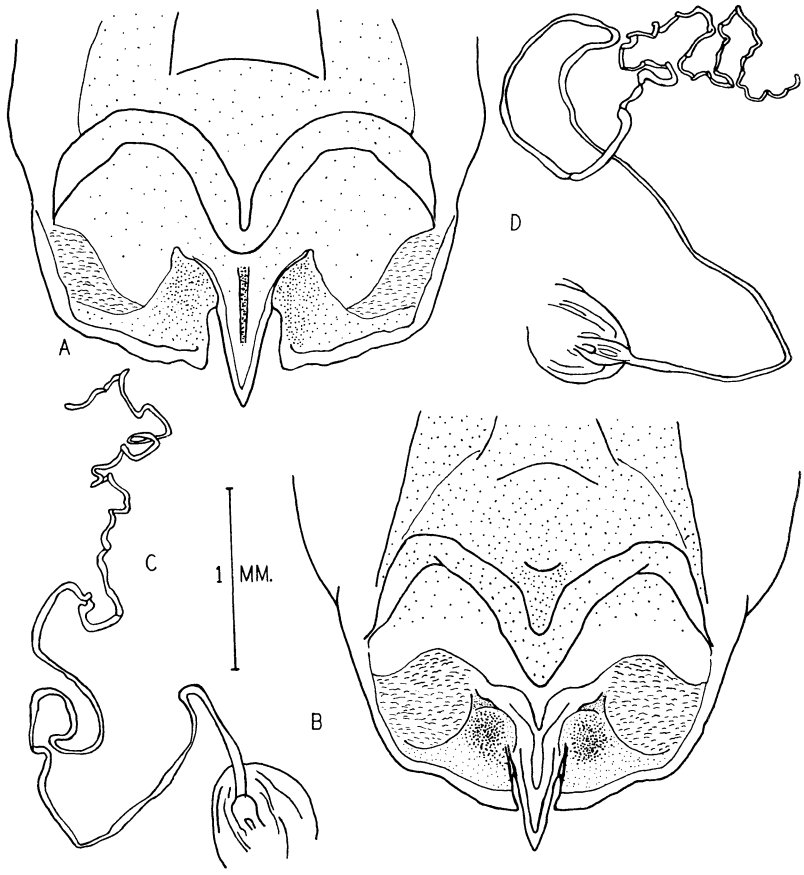


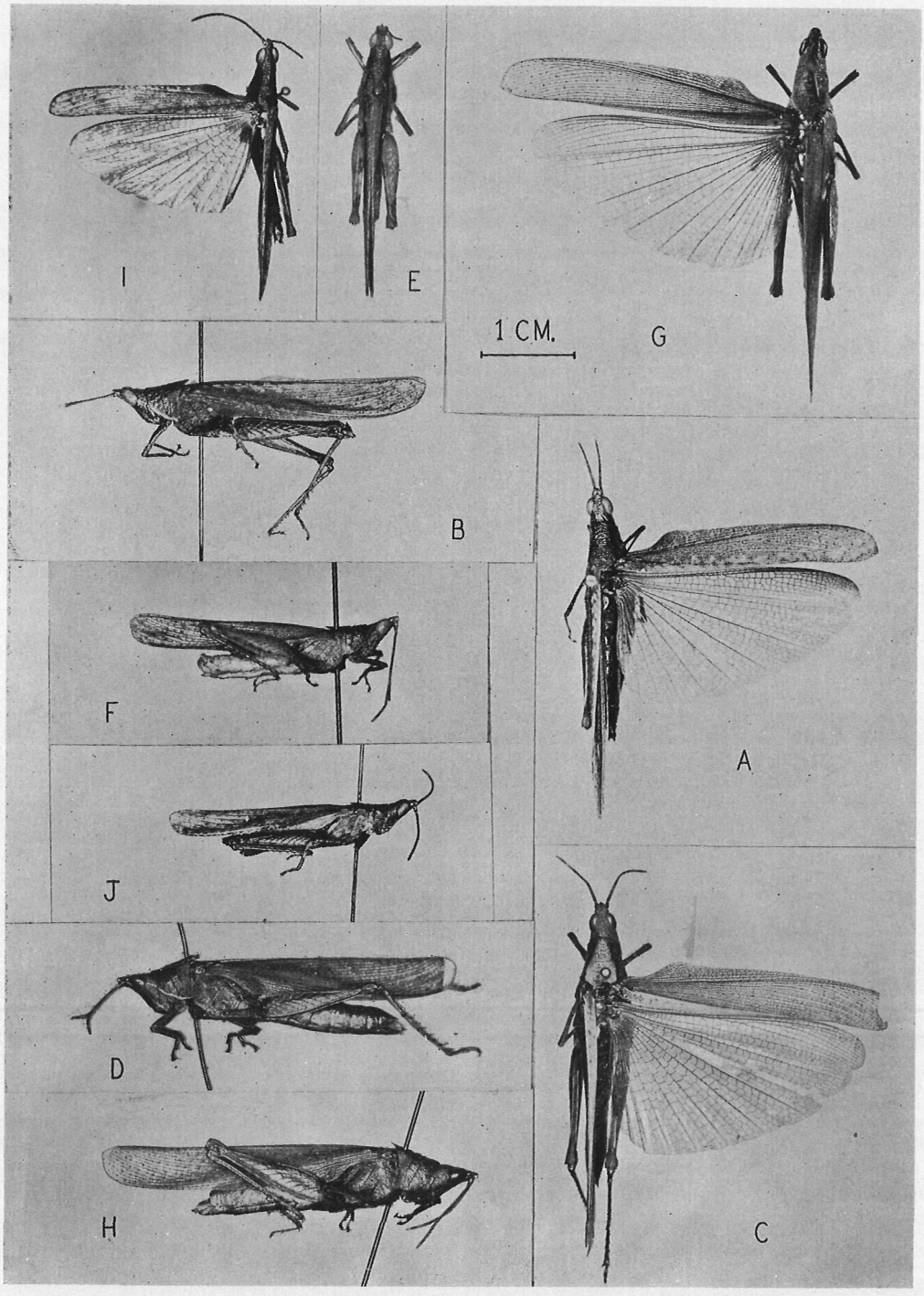
Fig. 40. *Desmopterella sylvatica* (Montrouzier), ♀ structures showing variation. A, B, subgenital plate, dorsal; C, D, receptaculum seminis. (♂ unknown).

pale ; measurements as follows : length 28, pronotum 5.5, tegmen 27, hind femur 12.5 mm.

DISTRIBUTION (fig. 59) : Known only from Woodlark I. In addition to the neotype, there are 2 ♀♀ and 1 juv. with similar data. The ♀♀ are very similar in all respects to the neotype [one of them is in the Lyman Museum, the remaining specimens are in the BISHOP Museum, Honolulu].

This species is the only one known from Woodlark I. It may prove to be conspecific with *D. marginata*, but, until a ♂ is available, this cannot be determined. The ♀♀ of both are very similar, but those of *D. sylvatica* are smaller than most specimens of *D. marginata*, differing also in the manner indicated in the key to species. Like *D. marginata*, the ♀ has deep notches on either side of the egg-guide.

Size range: All known adult specimens have approximately the same measurements as are given for the neotype, although the abdomen of one is somewhat shorter (27 mm).


I
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13. **Desmopterella marginata** (Bolívar, 1898) Fig. 41-43; Pl. IX, fig. C-J.

Desmoptera marginata Bolívar, 1898, *Ann. Mus. Stor. Nat. Genova*, **39**: 84 (*partim*) [lectotype from Goodenough I. only].—Rehn, 1951, *Proc. Acad. Nat. Sci. Philad.* **103**: 230 (in discussing synonymy of *D. haani* only).

[*Desmoptera*] *marginata*: Bolívar, 1905, *Bol. Soc. Esp. Hist. Nat.* **5**: 107.

D[*esmoptera*] *marginata*: Bolívar 1909, *Gen. Ins.* **90**: 36.—Kirby, 1910, *Syn. Cat. Orth.* **3**: 329 (*Marginata*).

[*Desmopterella*] *marginata*: Ramme, 1941, *Mitt. Zool. Mus. Berl.* **25**: 60, 61 (*partim*-erroneously as synonym of *D. haani*) [lectotype from Goodenough I. only].

Desmopterella haani (*nec* (Bolívar)): Ramme, 1941, *Mitt. Zool. Mus. Berl.* **25**: 60, 61 (*partim*).—Rehn, 1951, *Proc. Acad. Nat. Sci. Philad.* **103**: 230 (*partim*) [2 ♀♀ only].

Desmopterella miles Rehn, 1951, *Proc. Acad. Nat. Sci. Philad.* **103**: 221. fig. 6-8 [♂ terminalia], 231, 232 (no generic name), 236, pl. 12, fig. 11-13, 17 [♂, ♀] **New Synonymy.**

[Incorrect usages of the name *marginata* include *Desmopterella haani* (see p. 587) and *Desmoptera*(*Platydesmoptera*) *degenerata degenerata* (see Kevan, 1963)].

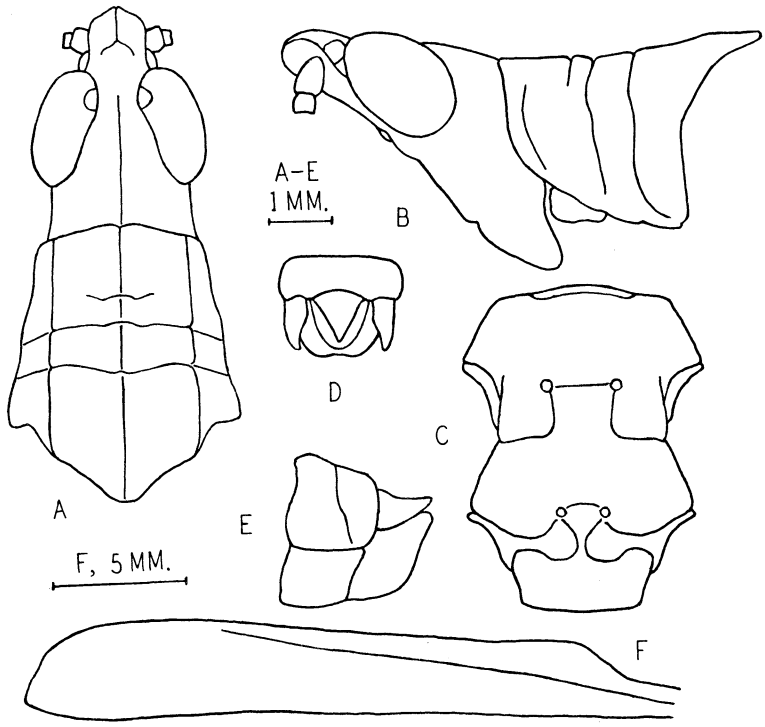

Fig. 41. *Desmopterella marginata* (Bolívar), ♂, (from a paratype of *D. miles* Rehn). A-F, as in fig. 1.

Plate IX. *Desmopterella sylvatica* (Montrouzier) and *D. marginata* (Bolívar), type and other material, A, B, *D. sylvatica*, ♀ neotype (Honolulu); C, D, *D. marginata*, ♀ lectotype (Genoa); E, F, the same, ♂ holotype of *D. miles* Rehn (Philadelphia); G, H, ♀ allotype of *D. miles* Rehn (Philadelphia); I, J, ♂ from Normanby I., Papua.

This species was described on the basis of the ♀ sex alone, from two quite different localities : Mount Astrolabe and Goodenough Island. The number of specimens before the author was not indicated and no holotype was designated. Ramme (1941) mentions that there were in Genoa, 2 ♂ and 1 ♀ so-called co-types, but this is incorrect as there could be no ♂ with type status. Rehn (1951) notes this error. Further, when listing the individual specimens, Ramme cites 2 ♀♀ (one each from the 2 type localities), but only 1 ♂ (from Moroka) —this ♂ is part of the type series from which *D. haani* was described, but probably was not one of the syntypic series although belonging to that species. Ramme (*l. c.*) designated the ♀ from Goodenough Island as [lecto]type. This lectotype is not conspecific with the specimen from Mt Astrolabe, for the latter belongs to *D. haani*[10]. Ramme was, in fact, partly right taxonomically when he synonymized *D. marginata* with *D. haani*, but his type selection makes this synonymy incorrect from the point of view of nomenclature.

The syntypic status of the Mt Astrolabe specimen in Genoa is, also, open to question because the pale dorsal marking referred to in the original description is lacking, but an undoubted paralectotype from Mt Astrolabe with the correct color pattern is in Madrid. It has exactly the same data as the Genoese specimen, as well as a label "Museo Civ. Genova" and Bolívar's handwritten determination "Marginata Desmoptera." Furthermore, it has measurements agreeing with those given in the original description and should really have been made the lectotype. It, too, belongs to *D. haani*. Ramme's lectotype female is slightly larger than the specimen just referred to (body length 35.5 mm) and bears the following labels : (1) Is. Goodenough, Gennaio 1890, L. Loria [printed] ; (2) Desmoptera marginata Bol. [in F. Capra's hand] ; (3) Co-Typus [red on white, "Co"– added in black] ; (4) Desmopterella haani I. Bol. Ramme det. 1940.

By a technicality, the wrong specimen was selected as the type of the species, but it must be accepted as such, as it was indeed before the author when he described the species (it is the only Goodenough I. specimen known to have been collected by Loria). This is doubly unfortunate, as *D. miles*, which has been adequately described falls as a synonym of *D. marginata*, which not only was inadequately described, but is based upon heterogeneous material of the ♀ sex only.

The ♂ holotype and ♀ allotype of *D. miles* are in Philadelphia. The former is labelled : (1) Hihilai Plantation, Milne Bay, New Guinea ; (2) II.28.1944, Helwig ; (3) U. of Pennsylvania arrangement, not to be exchanged ; (4) *Desmopterella miles* Rehn Type 5767. The allotype is similarly labelled except that the date is III.25.1944 and (4) reads "Paratype" with "allotype ♀" added. There are 5 ♂ and 6 ♀ paratypes from the same locality, but with various dates, and 1 ♂ from K. B. Mission, Milne Bay, as listed in the original description.

DISTRIBUTION (fig. 59) [localities previously recorded marked with an asterisk] : PAPUA : D'Entrecasteaux Is. : Goodenough I.* [type locality] ; Normanby I., Sewa Bay, Wakeuma. Louisiade Archipelago : Misima I., Umana Camp. Mainland : Deria, Amazon Bay area (♀♀ only) ; Milne Bay* ; Milne Bay, Hihilai Plantation* ; Milne Bay, K. B. Mission* ; Popondetta.

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10. This specimen is labelled: (1) N. Guinea SE Mt Astrolabe, Loria 11.93 ; (2) Museo Civico di Genova ; (3) Desmoptera marginata Bol. Cotypus [in F. Capra's hand] ; (4) Desmopterella haani I. Bol. Ramme det. 1940.

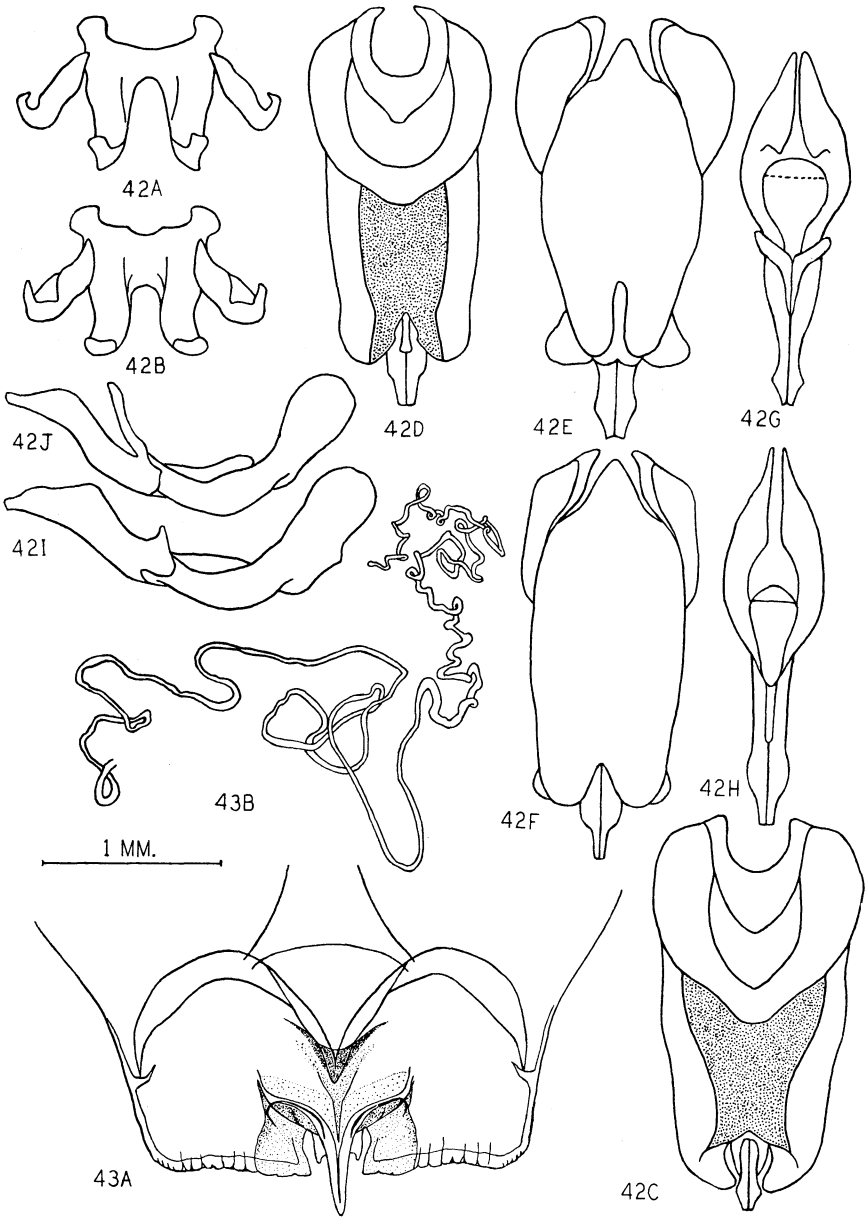

Fig. 42, 43. *Desmopterella marginata* (Bolívar). 42, phallic structures showing variation; A, B, epiphallus, dorsal; C, D, ectophallus, dorsal; E, F, ectophallus, ventral; G, H, endophallus, dorsal; I, J, endophallus, lateral, from right. 43, female structures. A, subgenital plate, dorsal; B, receptaculum seminis. 42B, D, F, H, J, and 43A, B, from a paratype of *D. miles* Rehn.

The lectotype of this species has the infrequent color pattern with the pale dorsum, which is found occasionally in most species of *Desmopterella*, including a few other specimens of *D. marginata*.

As noted above, this species may prove to be conspecific with the previous one, possibly a subspecies of it. The main external diagnostic features are the short, heavy ♂ cerci, the short ♂ subgenital plate as seen in profile, and the transverse posterior margins of the ♀ subgenital plate with deep notches on either side of the egg-guide (as in *D. sylvatica*).

Size range: Body, ♂ 20–21.5, ♀ 29–33; tegmen, ♂ 20–21, ♀ 27.5–32 mm.

14. **Desmopterella denticulata** Ramme, 1941. Fig. 44–46; Pl. VIII, fig. E–H.

Desmopterella denticulata Ramme, 1941, *Mitt. Zool. Mus. Berl.* **25**: 56 (generic name not used in

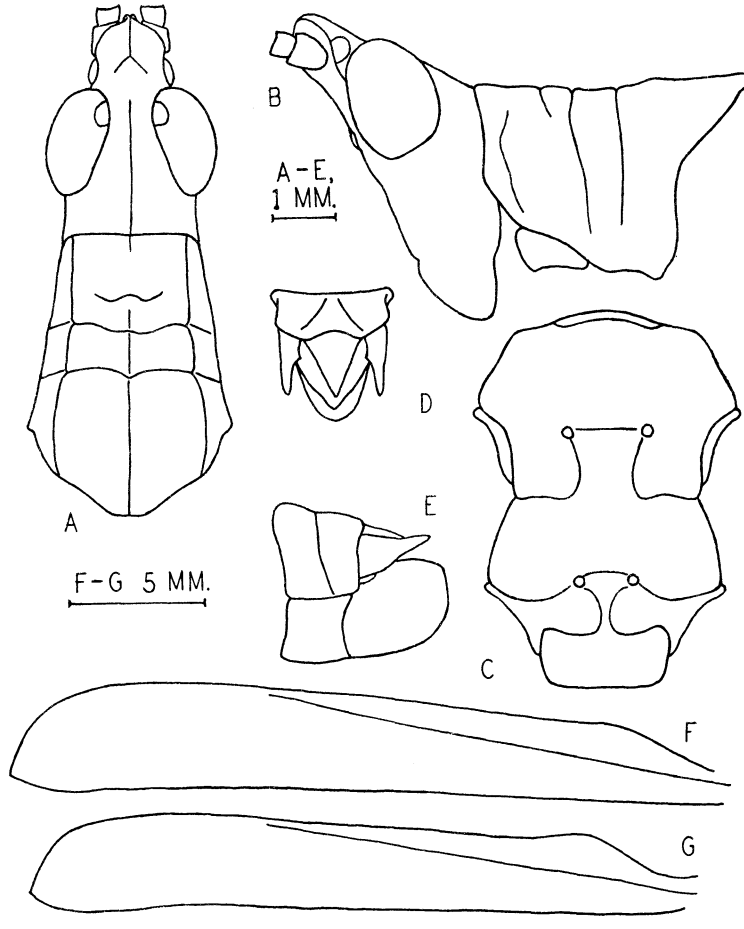

Fig. 44. *Desmopterella denticulata* Ramme, ♂. A-F as in fig. 1 (from the holotype); G, left tegmen of narrower form.

combination), 57 (as last), 59, fig. 27 d [♂ terminalia], pl. VIII, fig. 3a, b (*not* 4a, b) [♂, ♀].—Rehn, 1951, *Proc. Acad. Nat. Sci. Philad.* **103**: 231 (generic name only in footnote).

Desmopterella bürgersi (*nec* Ramme) Ramme, 1941, *Mitt. Zool. Mus. Berl.* **25**: 65 (*partim*) [Wasior ♀ only].

D. denticulata was described from a ♂ holotype, a ♀ allotype and a ♀ paratype bearing the printed data: "Neu-Guinea, Wasior (Wandammen), 18-25.7.1928 Meyr leg.",

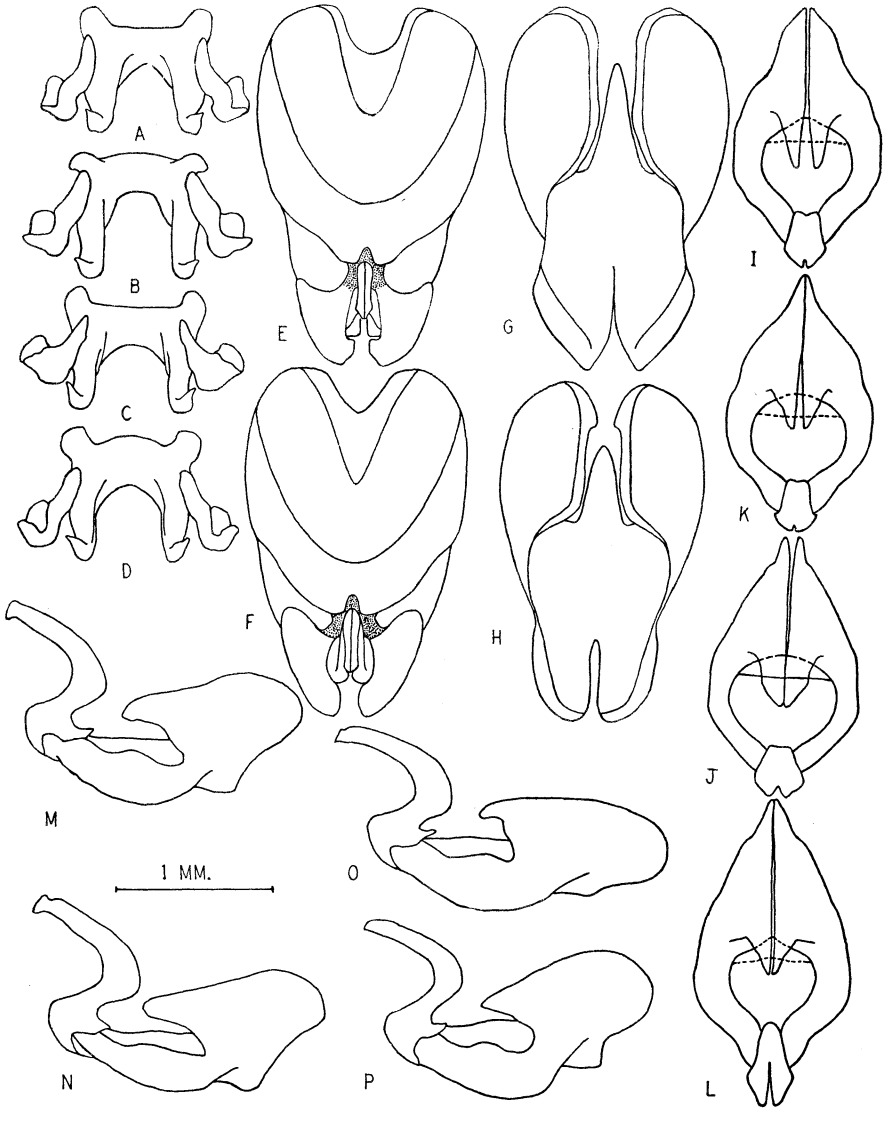

Fig. 45. *Desmopterella denticulata* Ramme, phallic structures showing variation. A-P, as in fig. 2.

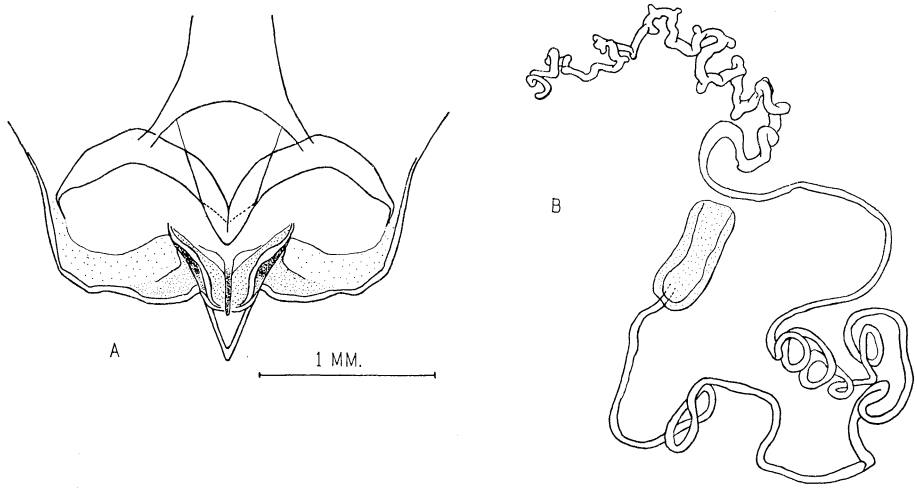

Fig. 46. *Desmopterella denticulata* Ramme, ♀ structures. A, B, as in fig. 3.

together with Ramme's determination labels and "Typus", "Allotypus" or "Paratypus" [on brick red]. The specimens are in Berlin, the 1st 2 being illustrated by Ramme (1941). The holotype has a somewhat longer body than indicated in the original description (23.75 mm) ; the allotype agrees approximately in size with the larger measurements given for the ♀, but the body length is 33.5 mm. One of the paratypes of *D. buergersi* also belongs to this species (see p. 597).

DISTRIBUTION (fig. 59) : WEST IRIAN : Japen I., Seroei Camp 1, Mt Baduri, Atam Range (♀ only) ; ? Marai I. [off SE of Japen I.—label badly written and looks more like "Maraif"] ; Albatros bivak, Mamberamo R., Bernhard Camp, 50 m ; the same, 100 m (♀♀ only) ; the same, 600 m (1 ♀) ; Guega, W of Swart Valley ; Jamoer (Lake?) ; Karubaka [= Kadubaka], Swart Valley ; Moesa[i]ro ; Nabire ; Pioneerbivak ; Prauwenbivak ; Rouffaer R. ; R. Tor (mouth) ; Waris [S of Sukarnapura] : Wasior (Wandamen Peninsula) [type locality].

The principal external diagnostic feature of this species is found in the male cerci which have a small tooth on the inner face just before the middle.

Size Range: Body, ♂ 21-24, ♀ 30-31.5 ; tegmen, ♂ 20.5-23, ♀ 29.5-31 mm.

15. **Desmopterella willemsei**[11] Kevan, new species Fig. 47-49 ; Pl. X, fig. A-D.

Holotype ♂ : West Irian, labeled "Maffin Bay, Dutch N. Guinea, IX.[19]44, E. S. Ross coll." [California Academy of Sciences, San Francisco].

Head (fig. 47A, B) of average proportions for the genus, frontal profile rather strongly oblique, fastigium of vertex subangular apically, rather longer than wide. *Antennae* rather slender, with 15 segments in addition to scape and pedicel, middle segments almost 4× as long as wide. *Eyes* oval, not quite 2× as long as wide, interocular space at narrowest point 0.25 maximum

11. After the late Dr C. J. M. Willemse of Eijgelshoven, Netherlands, who recognized several new species of *Desmopterella*, although he did not describe them.

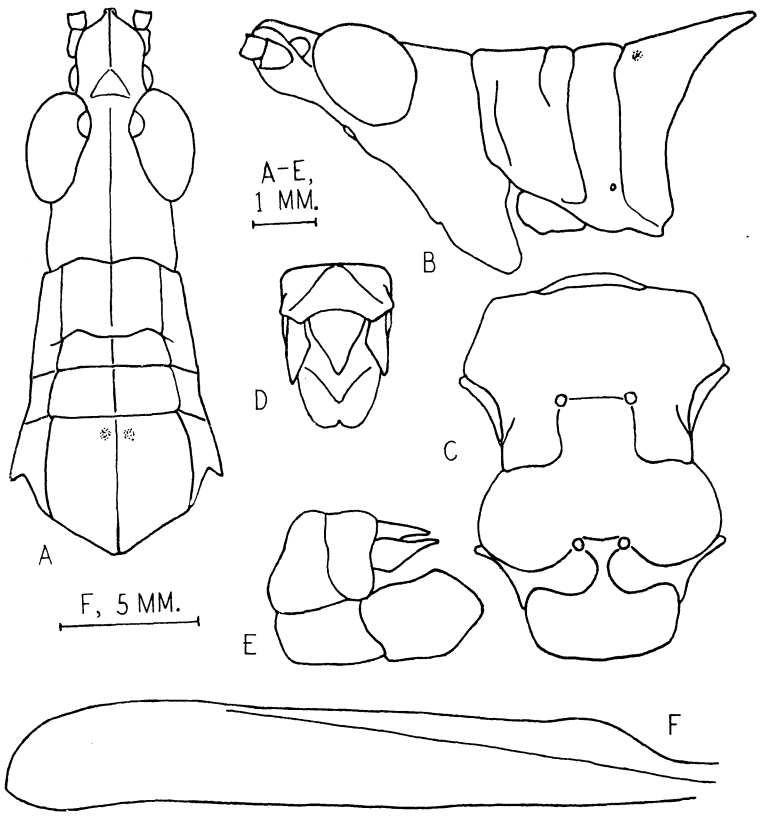

Fig. 47. *Desmopterella willemsei*, n. sp., ♂. A-F, as in fig. 1.

distance between outer faces of eyes. *Thorax* (fig. 47A, B) of average proportions for the genus; pronotum with lateral carinae somewhat divergent distad, typical transverse sulcus crossing disc somewhat behind middle, mesosternal lobes quadrate, interspace between them barely wider than a lobe. *Tegmina* (fig. 47F) of moderate width, more or less parallel-sided, costal margin gradually rounded to a rather blunt apex, scapular region only gradually convex. *Abdominal terminalia* (fig. 47D, E) with epiproct triangular, about as broad as long and with comparatively straight margins; cerci rather small, barely surpassing apex of epiproct; subgenital plate of moderate size, rather blunt apically in dorsal and lateral views. *Phallic structures* (fig. 48) rather short and heavy; epiphallus with rather long, narrow lateral plates and a narrow bridge; aedeagal valves short and heavy, directed posterodorsally and distinctly truncated apically; endophallic apodemes prominent, triangular.

Coloration: Body generally sepia-brown, slightly paler laterally; tegmina rather mottled; hind femora pale brown with darker maculations and with dorsal dark fasciae at base and at about middle; hind tibiae paler with brown-tipped spines; hind wings distinctly infumated.

Measurements: Body (apex of fastigium to end of abdomen) 22, antenna 10.5, pronotum 4.4, tegmen 21, hind femur 11.2 mm.

Allotype ♀: Same data and location as holotype, but 9.X.[19]44.

Differing from the holotype as follows: Considerably larger, antennae shorter, with 14 seg-

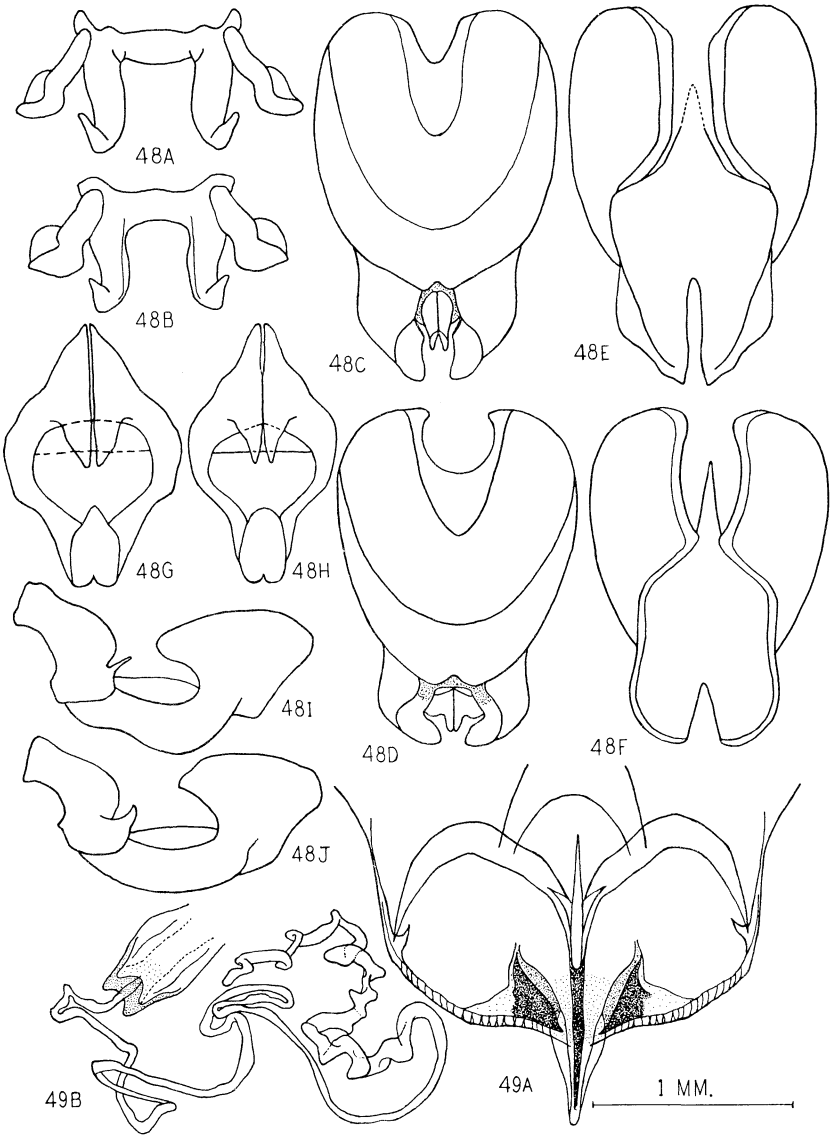

Fig. 48, 49. *Desmopterella willemsei*, n. sp. 48, phallic structures showing variation; A, B, epiphallus, dorsal; C, D, ectophallus, dorsal; E, F, ectophallus, ventral; G, H, endophallus, dorsal; I, J, endophallus, lateral, from right. 49, ♀ structures; A, subgenital plate, dorsal; B, receptaculum seminis.

ments in addition to scape and pedicel, middle segments about 2× as long as wide; lateral pronotal carinae more divergent posteriorly; interspace between mesosternal lobes 2× as wide as long; abdominal terminalia undistinguished, as in ♀♀ of other species. Concealed copulatory apparatus as in fig. 49; subgenital plate with rounded posterior margins and moderately long egg-

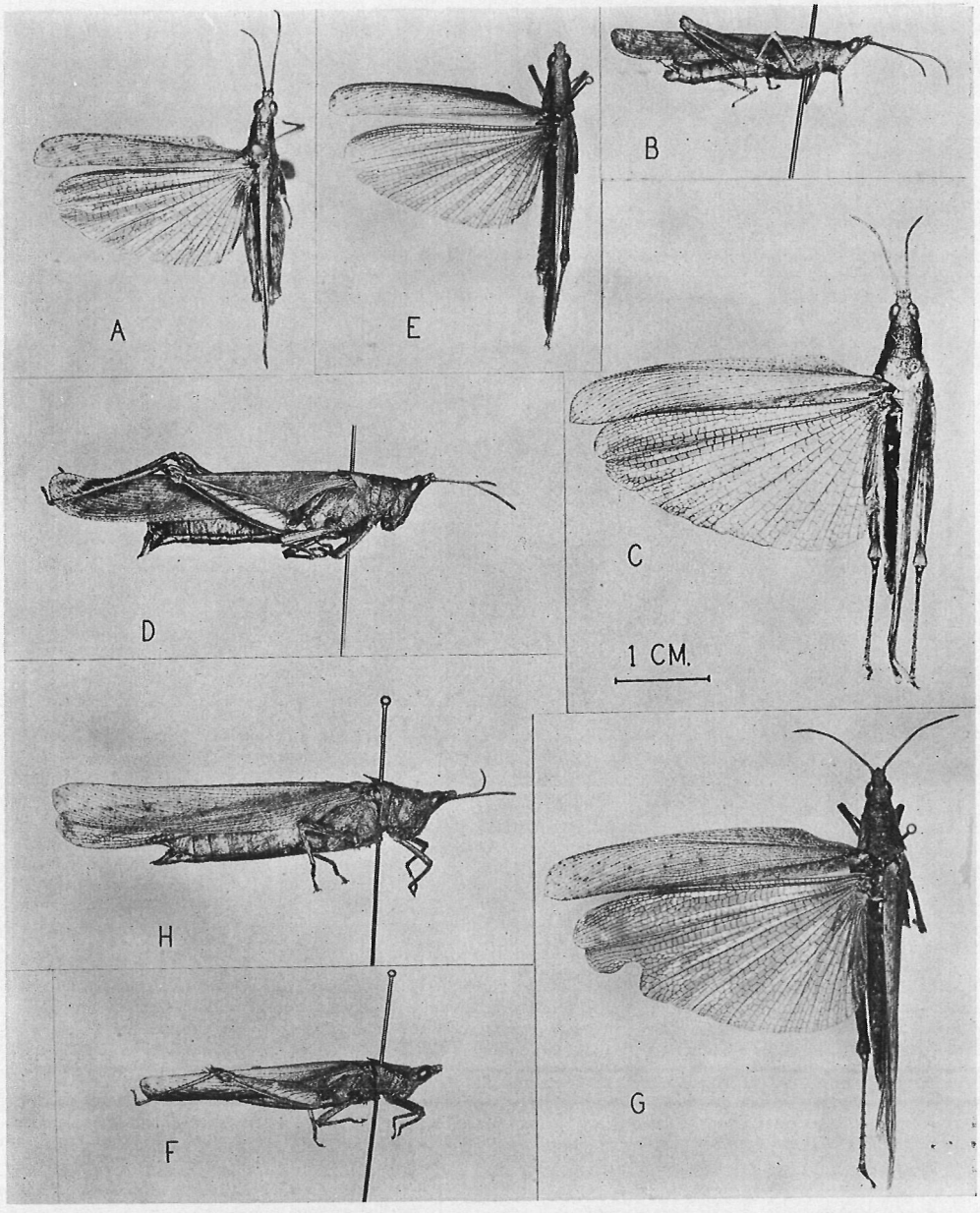

Plate X. *Desmopterella willemsei*, n. sp., and *D. cercata* Ramme, type material. A, B, *D. willemsei*, ♂ holotype (San Francisco); C, D, the same, ♀ allotype (San Francisco); E, F, *D. cercata*, ♂ holotype (Berlin); G, H, the same, ♀ allotype (Berlin).

guide; spermatheca poorly differentiated in width from its rather thick appendix and from the spermathecal duct.

Coloration: Basically as in holotype, but generally darker and tegmina less distinctly mottled.

Measurements: Body 30.5, antenna 10.2, pronotum 7.0, tegmen 31, hind femur 15 mm.

Paratypes: West Irian: same data as holotype, 1 ♂; same data as allotype, 1 ♂, 1 ♀; same data as last, but 9.VIII.44, 1 ♀; 4.X.44, 1 ♀; 6.X.44, 1 ♂ [San Francisco, except for 2nd ♂ and last ♀, in author's collection]; New Guinea (N W), Genjem, 40 km W of Hollandia, 100–200 m, 1–10.III.1960. T. C. Maa Collector, 1 ♂ [author's coll.], 1 ♀ [BISHOP].

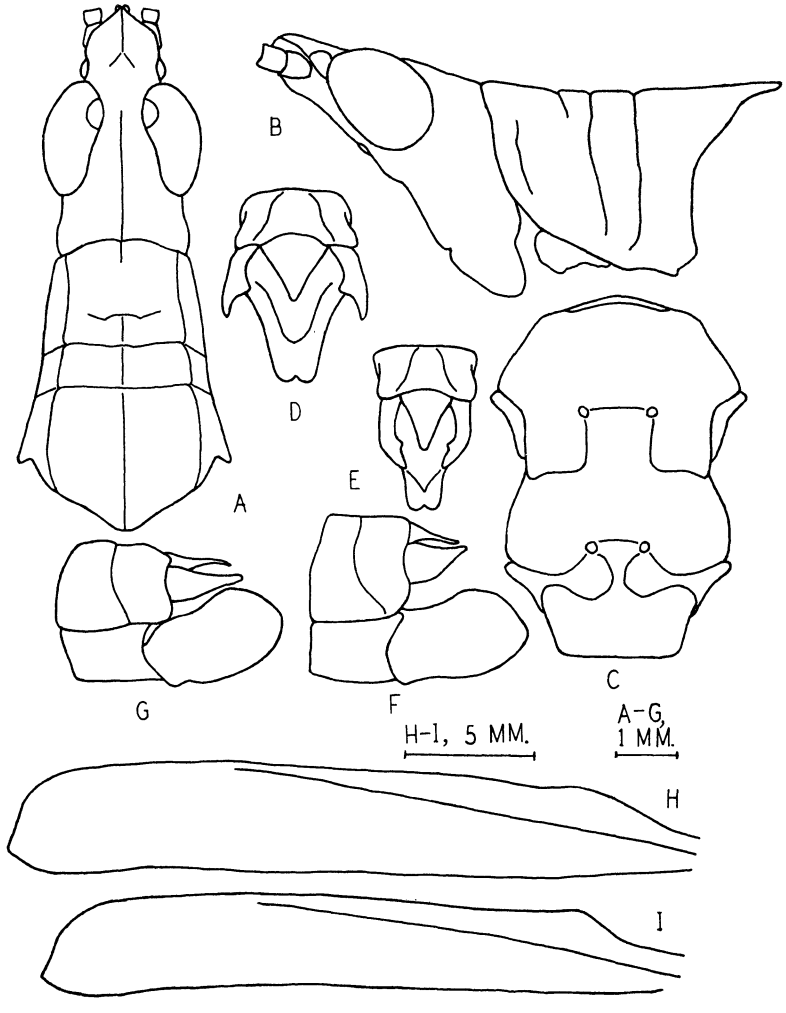

Fig. 50. *Desmopterella cercata* Ramme, ♂. A–C as in fig. 1; D–G, abdominal terminalia showing variation (D, E, dorsal; F, G, lateral, from left); H, I, left tegmen showing variation. A–D, F, H, from holotype.

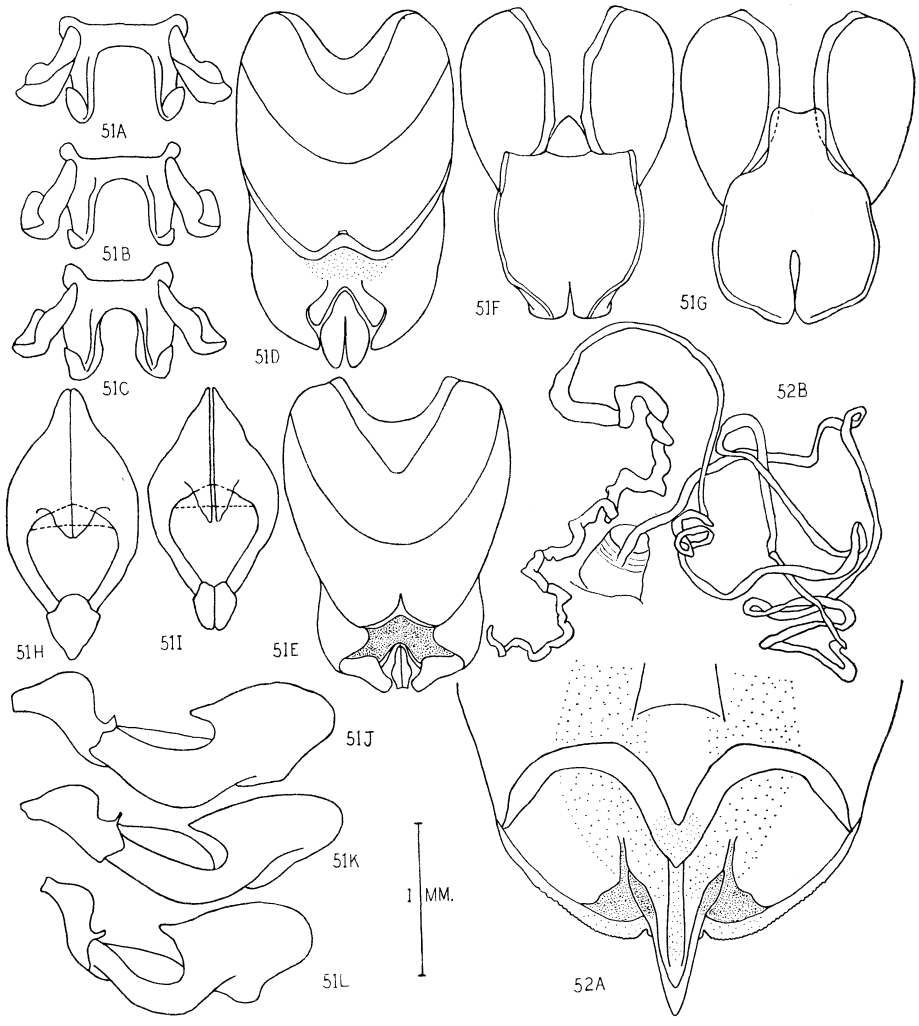

Fig. 51, 52. *Desmopterella cercata* Ramme. 51, phallic structures showing variation; A-C, epiphallus, dorsal; D, E, ectophallus, dorsal; F, G, ectophallus, ventral; H, I, endophallus, dorsal; J, K, L, endophallus, lateral, from right (A, D, K, from holotype). 52, ♀ structures (from allotype); A, subgenital plate, dorsal; B, receptaculum seminis.

NE NEW GUINEA: Kais. Wilhelmsland, Torricelli Gebirge, 1910, Dr Schlaginhaufen, 1 ♀ [Willemse Collection, Maastricht, Netherlands]; New Guinea (NE), Torricelli Mts, Mobitei, 750 m, 1-15.IV.1959, W.W. Brandt Collector, 1 ♂ [BISHOP].

Most of the paratypes are more or less similar in coloration to the holotype or allotype, but 1 ♂ and 1 ♀ have a somewhat streaked appearance, the ♀ being generally paler.

The following is the size range of the paratypes: Body, ♂ 21-23, ♀ 29.5-31.5; tegmen, ♂ 20-22, ♀ 29-31 mm.

The distribution is shown in fig. 60.

16. **Desmopterella cercata** Ramme, 1941 Fig. 50–52; Pl. X, fig. E–H.

Desmopterella cercata Ramme, 1941, *Mitt. Zool. Mus. Berl.* **25**: 56 (generic name not used in combination), 57 (as last), 58, 59 fig. 27c [♂ terminalia], pl. VIII, fig. 4a, b (*not* 3a, b) [♂, ♀].—Rehn, 1951, *Proc. Acad. Nat. Sci. Philad.* **103**: 231 (generic name used only in footnote).

This species was described from both sexes, but in listing the type material, a single ♀ was indicated by Ramme (1941) as [holo]type. There is an obvious omission of "♂; Allotypus" from between "Typus" and "♀" in his text. The true holotype ♂ is labeled as follows: D. N. Guinea 178, Standlager am Aprilfluss, X.1912, Kais. Augustaf. Exp. Bürgers S. G. [printed], 10–11.X [handwritten]. It also bears Ramme's determination and a brick red "Typus" label. The allotype female (the apparent holotype of the original text) bears similar data, except that the serial number is 179 and the "Typus" label has been altered to "Allotypus." These specimens are in Berlin, and are illustrated by Ramme (*l. c.*), although the figures are incorrectly numbered (see above). The body length given by Ramme is slightly inaccurate; for the ♂ it should be 25, and for the ♀ 32.5 mm.

DISTRIBUTION (fig. 60): WEST IRIAN: Bodem, Mt Gyifrie; Hollandia; Jutef Bay, Pim; Mt Lina (Cyclops Mts); Niau-Limon and Mt Nomo, S of Mt Bougainville; Sabron (Cyclops Mts); Waris [= Sukarnapura], S of Hollandia.

NE NEW GUINEA: Aitape; Aitape, Tadji [aero]drome; Amok; "Standlager am Aprilfluss" [= permanent camp on April R. – type locality]; Dreikikir, Sepik Dist.; Krisa, Vanimo; Torricelli Mts.

The characteristic features of this species are the ♂ cerci, which each have a prominent denticle beyond the middle of the inner margin, and the long ♂ subgenital plate."

Size range: Body, ♂ 22–23, ♀ 31–32; tegmen, ♂ 21.5–23.5, ♀ 29–33 mm.

17. **Desmopterella curvata**[12] Kevan, new species Fig. 53–55; Pl. XI, fig. A–D.

Holotype ♂ (BISHOP 9184): West Irian, labeled "New Guinea (N. W.), Nabire, S. Geelvink Bay, 0–30 m, 2–9.VII.1962, J. L. Gressitt & J. Sedlacek, light trap."

Head (fig. 53A, B) of average proportions for the genus, frontal profile rather strongly oblique, fastigium of vertex blunt apically, a little longer than wide. *Antennae* with 15 segments in addition to scape and pedicel, the basal segments slightly flattened, the middle ones about 3× as long as wide. *Eyes* oval, not 2× as long as wide, interocular space at narrowest point rather less than 1/3 of maximum distance between outer faces of eyes. *Thorax* (fig. 53A, B) of average proportions for the genus; pronotum with lateral carinae rather straight, scarcely divergent posteriorly, typical transverse sulcus crossing disc a little behind middle; mesosternal lobes quadrate, the interspace between them scarcely wider than a lobe. *Tegmina* (fig. 53 I) comparatively narrow for the genus, more or less parallel-sided, costal margin very gradually rounded to a sharply pointed apex, scapular region only gradually convex. *Abdominal terminalia* (fig.

12. Name attributable to the late Dr C. J. M. Willemse, who recognised, but never described this species.

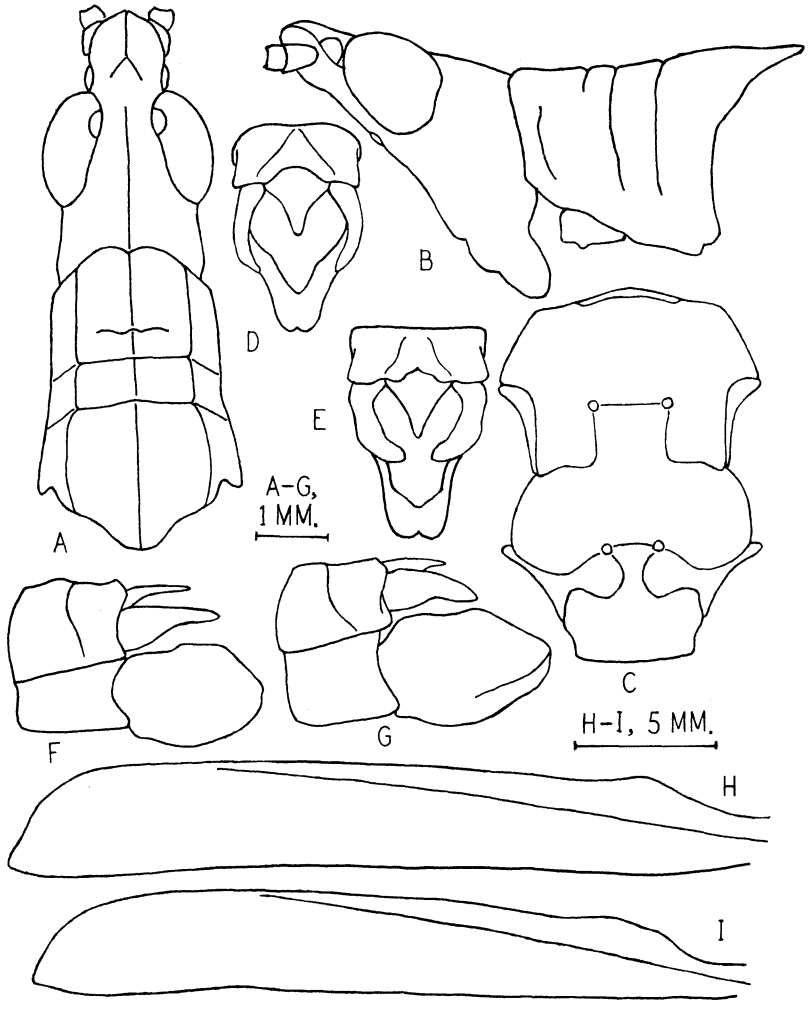

Fig. 53. *Desmopterella curvata*, n. sp., ♂. A-C as in fig. 1; D-G, abdominal terminalia showing variation (D, E, dorsal; F, G, lateral, from left; D, F, from Geelvink Isthmus; E, G, from central mountains of West Irian); H, left tegmen, from central mountains; I, the same, from Geelvink Isthmus.

53 D, F) with epiproct triangular, about as wide as long and with somewhat concave margins; cerci much longer than epiproct, rather slender, gradually and inwardly curved; subgenital plate rather large and long. *Phallic structures* (fig. 54) rather large; epiphallus with rather narrow lateral plates and bridge; aedeagal valves large and heavy, sigmoid, of the peculiar form illustrated, truncated apically; endophallic apodemes large and irregularly triangular.

Coloration: Generally sepia-brown with apices of antennae and scapular areas of tegmina darker; tegmina and hind femora with a few small maculations; hind wings infumated.

Measurements: Body (apex of fastigium to end of abdomen) 23, antenna 11, pronotum 4.3, tegmen 22, hind femur 11.7 mm.

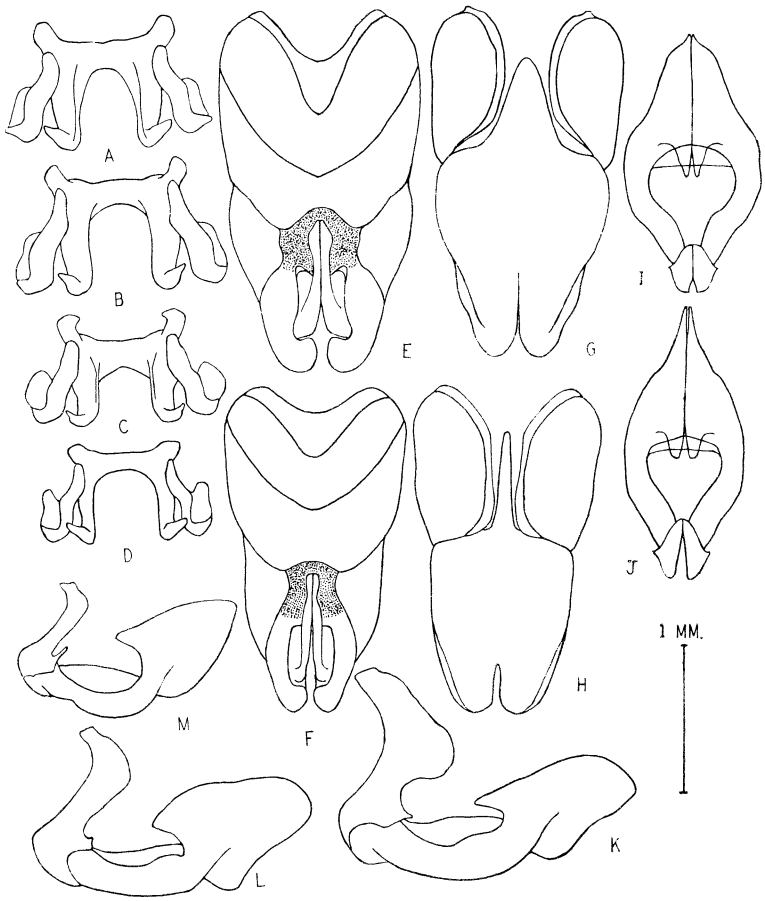

Fig. 54. *Desmopterella curvata*, n. sp., phallic structures showing variation. A–J, as in fig. 2; K, L, M, endophallus, lateral, from right. A, B, G, I, K, from central mountains of West Irian; C, F, H, J, L, from Geelvink Peninsula; D, M, from N E West Irian (probably immature).

Allotype ♀ (BISHOP) : Same data and location as holotype.

Differing from holotype as follows: considerably larger; antennae shorter, distinctly flattened basally, longest segments not more than 2× as long as wide; lateral carinae more divergent posteriorly; interspace between mesosternal lobes about 1.5× as wide as a lobe; abdominal terminalia similar to ♀♀ of other species. Concealed copulatory apparatus as in fig. 55, subgential plate with subtransverse posterior edges feebly notched on either side of rather narrow egg-guide; spermatheca poorly differentiated in width from its rather thick appendix and from spermathecal duct.

Coloration: Generally sepia-brown with apices of antennae, tarsal segments and hind knees darker; tegmina with scattered dark maculae; hind wings faintly infumated, more so apically.

Measurements: Body 32.5, antenna 9.0, pronotum 6.8, tegmen 31, hind femur 15 mm.

Paratypes: Same data as holotype, 1 ♂, 3 ♀♀; the same, but 5–50 m, 25.VIII–2.IX. 1962, J. Sedlacek only, 6 ♀♀ [1 lacks "light trap"]; the same, but 10–40 m, jungle, 27. IX.1962, 1 ♀; the same but Gressitt only and no "light trap", 1 ♀; the same, but no altitude, 14.IX.1962, H. Holtmann, 1 ♂ [also 5 juv. presumably this species but not paratypes; all the above in BISHOP Museum, Honolulu, except 4 ♀♀ in author's coll.]; West New Guinea, Central Mts, Archbold Lake, 760 m, 2.XI–3.XII.1961, S. Quate & L. Quate Collectors, 5 ♂♂, 11 ♀♀ [also 3 juv., presumably this species but not paratypes; all in BISHOP except for 2 ♂♂ and 4 ♂♂ in author's coll.]; [West Irian,] "N.N. Guinea Exp. 1926, W. Docters v. Loewen, Rouffaer Rivier ± 175 m. Datum VIII", 1 ♂; the same but Motorbivak, Meerolakte (not Rouffaer R), 1 ♀ [these two in Willemse collection, Maastricht, Netherlands]; [West Irian,] "Museum Leiden, Dr. P.N. v. Kampen, Ned. Nw. Guinea Exp. 1911, Zutbrun, Juni-Juli, W.v.K.", 1 ♂, 1 ♀ [Leiden, *per* Willemse].

These specimens vary somewhat in shade of coloration and the degree of mottling of the tegmina and hind femora, but the "Gressitt only" female is noteworthy as it is of the form in which the whole dorsum is pale as typified by the lectotype of *D.*

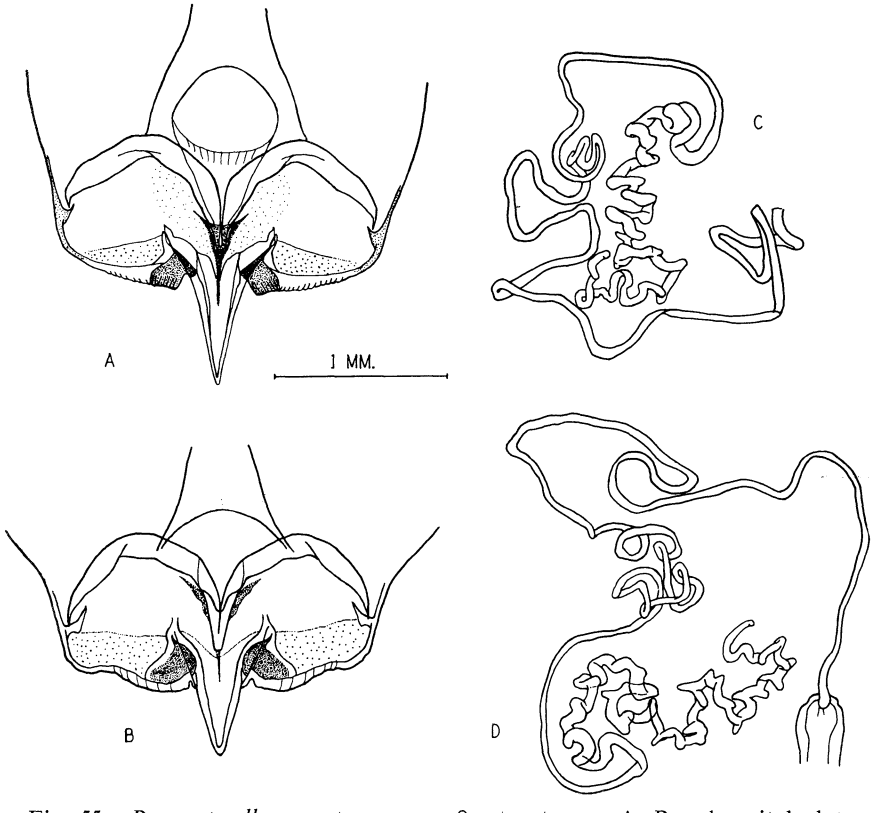

Fig. 55. *Desmopterella curvata*, n. sp., ♀ structures. A, B, subgenital plate, dorsal; C, D, receptaculum seminis. A, C, from Geelvink Peninsula; B, D, from central mountains of West Irian.

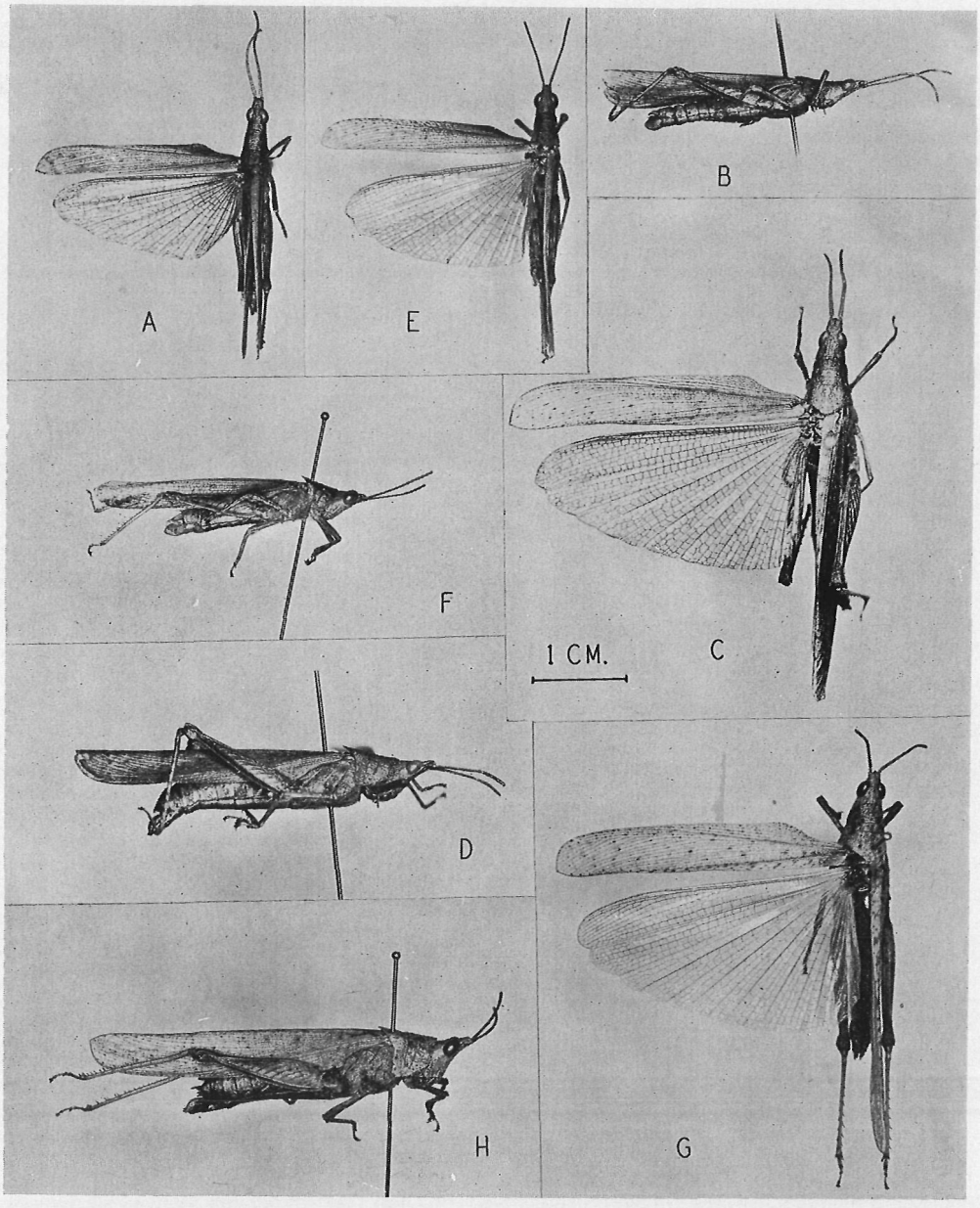

Plate XI. *Desmopterella curvata*, n. sp., and *D. curvicercis* Ramme, type material. A, B, *D. curvata*, ♂ holotype (Honolulu); C, D, the same, ♀ allotype (Honolulu); E, F, *D. curvicercis*, ♂ holotype (Berlin); G, H, the same, ♀ allotype (Berlin).

marginata, but which occurs occasionally in most species. One of the Archbold Lake ♀♀ has the whole pronotal disc pale, another has only the posterior margin of the disc so ; a ♂ from the same locality has a generally streaky appearance. The phallic structures also vary considerably, the aedeagal valves being broader in the westerly and narrower in the easterly part of the distributional range. This may, however, prove to be only a matter of individual variation as insufficient specimens are available to determine if the regional differences are consistent. The Zutbrun ♂ has smaller, narrower aedeagal valves, but this is probably due to immaturity (fig. 54 m).

The following is the size range of the paratypes : Body, ♂ 21–24, ♀ 30–32.5 ; tegmen, ♂ 20–23, ♀ 29–31 mm. The distribution is shown in fig. 60.

18. **Desmopterella curvicercis** Ramme, 1941 Fig. 56–58 ; Pl. XI, fig. E–H.

Desmopterella curvicercis Ramme, 1941, *Mitt. Zool. Mus. Berl.* **25**: 56 (generic name not used in combination), 58 fig. 26 [♂ terminalia], pl. VII, fig. 3, a, b [♂, ♀].

This species is known only by the Berlin Museum type series from the Maeander

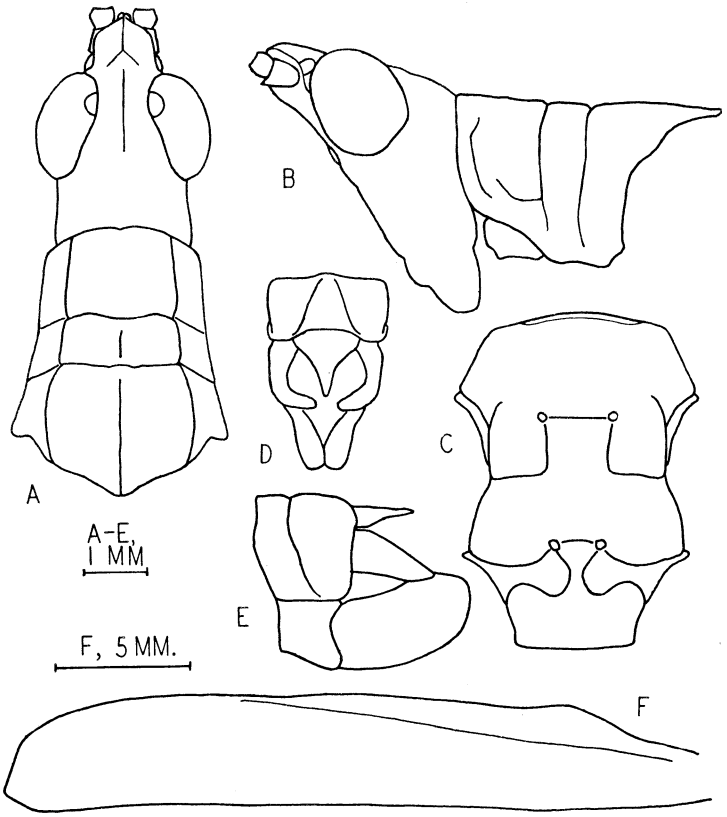

Fig. 56. *Desmopterella curvicercis* Ramme, ♂ (from holotype). A–F, as in fig. 1.

Mountains of western NE New Guinea. The ♂ holotype is labeled "D. N. Guinea. 380, Mäanderberg 670 m. 19-31.VII.13, Kais. Augustafl. Exped. Bürgers S.G." [printed], and bears Ramme's determination and a brick-red "Typus" label. The ♀ allotype is similarly

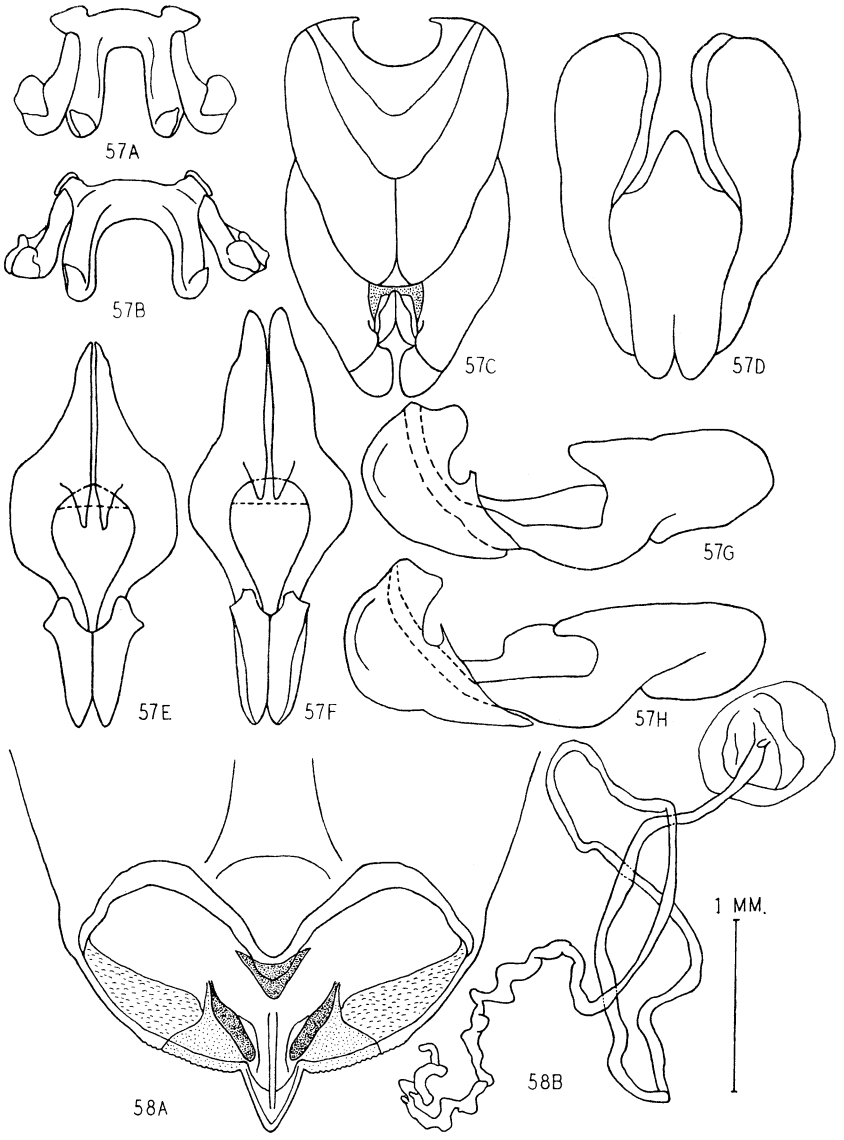

Fig. 57, 58. *Desmopterella curvicercis* Ramme. 57, phallic structures; A, B, epiphallus, dorsal; C, ectophallus, dorsal; D, ectophallus, ventral; E, F, endophallus, dorsal; G, H, endophallus lateral, from right. (B, F, H, from a paratype, remainder from holotype). 58, ♀ structures (from allotype); A, subgenital plate, dorsal; B, receptaculum seminis.

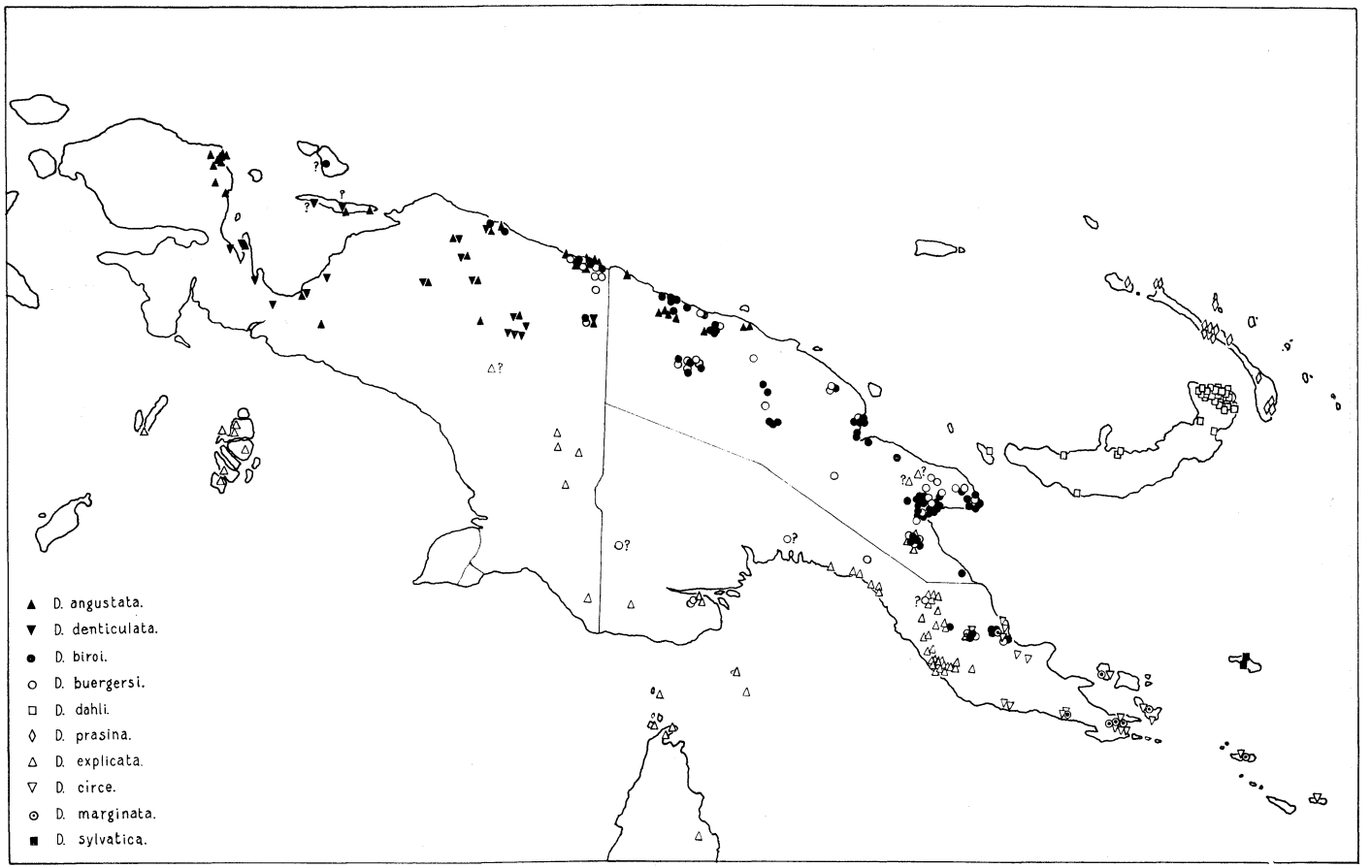

Fig. 59. Known geographical distribution of *Desmopterella angustata, biroi, circe, explicata, dahli, prasina, buergersi, sylvatica, marginata* and *denticulata.*

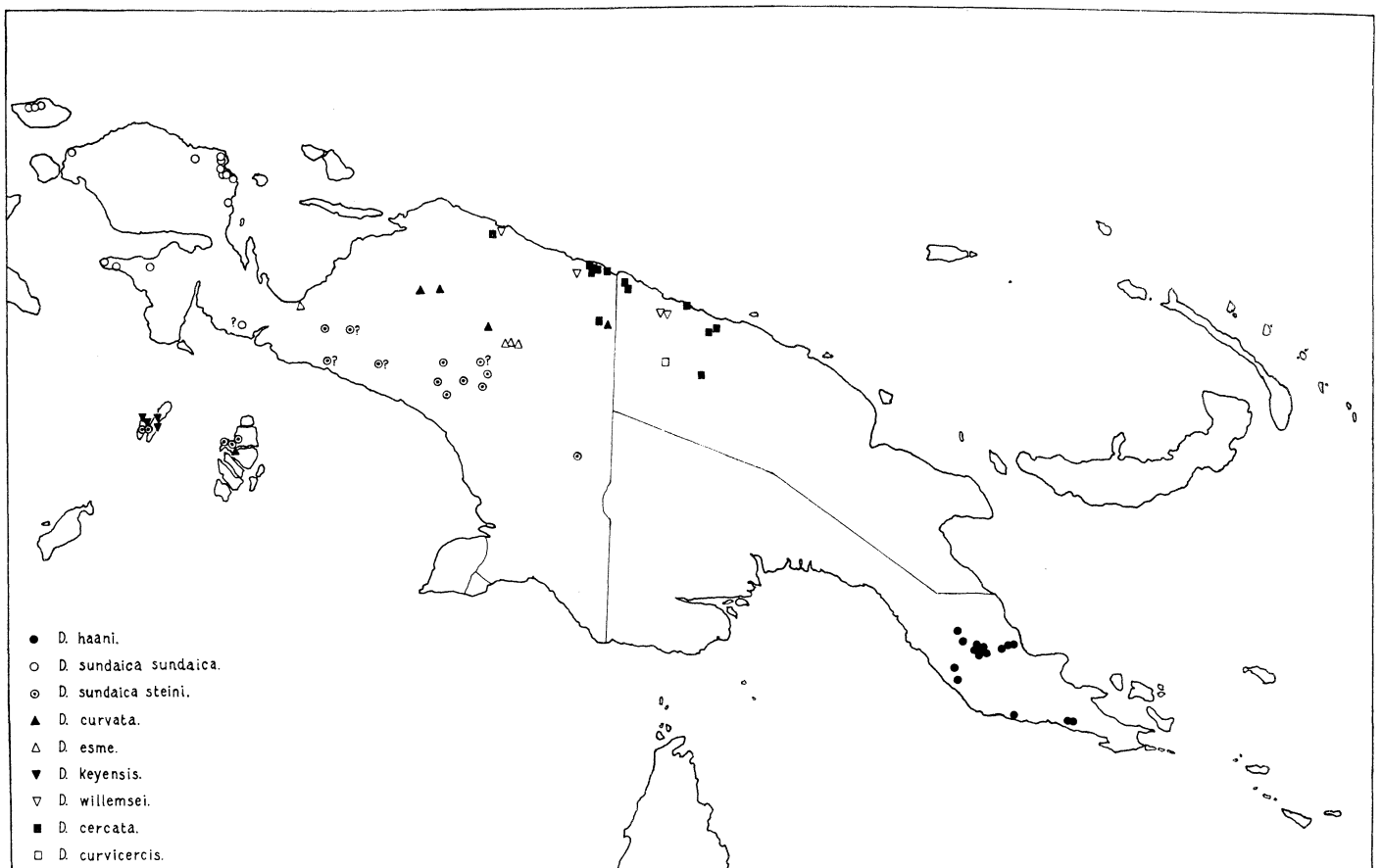

Fig. 60. Known geographical distribution of *Desmopterella keyensis* (symbol for Aru Is. inverted in error), *esme, sundaica, haani, willemsei, cercata, curvata* and *curvicercis.*

labeled except that the date is 21-30.VIII.13 and the "Typus" label has been altered to read "Allotypus." There are also 3 ♂ and 2 ♀ paratypes with the same data but variously dated 7.1913 and 8.1913. Ramme's (1941) illustrations are of the ♀ allotype and a ♂ paratype. The holotype agrees with the greater measurements given by Ramme for the ♂, and the allotype with those for the ♀, except that the body length is 32 mm.

DISTRIBUTION: The type locality is indicated in fig. 60.

This species has rather broad tegmina, the ♂ cerci are elongate and strongly curved inwardly at their apices, and the ♂ subgenital plate is rather long.

Size range: Body, ♂ 21-22, ♀ 30-31; tegmen, ♂ 21-22, ♀ 32-32.5 mm.

Acknowledgements: I am very grateful to my many colleagues in a large number of institutions, particularly those mentioned in the text, for the loan of material, including types, and for facilities for study. To mention each person and institution individually would result in a very long list, so I trust I may be forgiven for expressing my thanks collectively. I should, however, acknowledge separately the assistance rendered by Dr K. K. Günther, Berlin, in respect of Ramme's types, which I received from him on extended loan for several years.

Regarding the actual preparation of this revision, I must thank Mr Y.-K. Chen, formerly a graduate student in my own Department, for undertaking much of the dissection work, for his considerable part in detecting new species, in discovering the differences between those previously described, and in preparing a large number of the original sketches (particularly of the phallic structures) from which the line illustrations were made. Miss Y.-C. Chang, also a former graduate student in my Department prepared a number of original sketches of ♀ structures. Miss Diane Johnstone, senior technician, Lyman Entomological Museum, also illustrated many of the ♀ structures and completed all the line drawings and prepared prints of the photographs for publication. Miss E. A. White (now Mrs Emery) prepared the typescript. Financial assistance was received from the National Research Council of Canada.

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APPENDIX

Further records of Desmopterini from New Guinea and northern Queensland

In addition to previously published records of Desmopterini belonging to genera other than *Desmopterella* (see p. 580 and Kevan, 1957-1969), the following may be noted. The material upon which they are based was recently examined through the courtesy of the Bishop Museum, Honolulu; the Entomology Division, C.S.I.R.O., Canberra; the South Australian Museum, Adelaide, and the Papua-New Guinea Department of Agriculture, Stock and Fisheries.

Desmoptera (Platydesmoptera) truncatipennis Sjöstedt

QUEENSLAND (N.): 3 ♀♀, Cairns, 1920, A. P. Dodd; 1 ♂, 3 ♀♀, Cairns Dist.; 1 juv., Fisher Creek, Palmerston Highway; 1 ♀, Koombaloomba; 1 ♂, 1 ♀ Kuranda, 13.III.1956, J. L. Gressitt; 1 juv., 5-8 mi. (8-13 km) Mt Lewis Rd. off Mossman-Mt Malloy Rd; 2 ♂♂, 3 juv., 9 mi. (14.4 km) W of Mossman.

Doriaella cinnabarina Bolívar

WEST IRIAN: 1 ♀, Nabire, Geelvink Bay, 3 m, 3.VII.1962, J. L. Gressitt.

Menesesia novaeguineae Willemse

NE NEW GUINEA: 1 ♀, Krisa, Vanimo, IV.1939, L. E. Cheesman.

Menesesiella weylandi occulta (Rehn)

NE NEW GUINEA : 2 ♂♂, Aiyura, Eastern Highlands,1800 m (6000 ft.), bush, 22.IV. 1958, J. H. Barrett ; 1 ♀, Mt Missim [nr. Wau], 1500 m, 15.III.1968, J. Sedlacek ; 1 ♂, the same, 1500–2000 m, 15–21.IV.1968 ; 1 ♂, 1 ♀ the same, 2040–2400 m, 20–30.IV.1968. 1 ♂, Kuper Range, 700–1700 m, 24.I.1969, J. L. Gressitt ; 1 ♂, the same, 1800 m, 1.V.1968 ; 1 ♂, 3 ♀♀, the same, 1500 m, 3.V.1968.

Stenoxyphus variegatus Blanchard

NE NEW GUINEA : 1 ♂, Aitape, Coast, I.1939, L. E. Cheesman.

Stenoxyphus aurantiacus (Karsch)

WEST IRIAN : 1 ♀, Bodem, Sarmi area, 10.VI.1959. NE NEW GUINEA : 1 ♀, Aiyura, E. Highlands, 1800 m (6000 ft.), bush, 18.VI.1958, J. H. Barrett ; 1 ♂ Bubia, Markham Valley, 50 m, 17.IX.1955, J. L. Gressitt ; 2 ♂♂, Bubia, Lae, native gardens, 26 & 31.VII. 1957 ; J. H. Ardley ; 1 ♀, the same, 5. VIII.1957 ; 1 ♀, the same, 10.X.1957 ; 1 ♂, 1 juv. (♀), Bulu Plantation, on cacao, 15.VIII.1957, Ardley ; 1 ♂, Busu R., 21.III.1963 ; 1 ♂, Didyman's Creek, botanical gardens, Lae, in secondary forest, 27.III.1955, J. J. H. Szent-Ivany ; 1 ♀ Finschhafen, Huon Peninsula, 14.IV.1963 ; 1 ♂, Mt Gyifrie, sea-level–300 m (1000 ft.), IV.1939, L. E. Cheesman ; 1 ♂, 3 ♀♀, Karimui, S of Goroka, 1000 m, 26.VI.1961; 1 ♂, Kilolo Creek, Morobe District, 7 km W of Wau, 1070 m, 15–21.I.1969, J. Sedlacek ; 1 ♂, Krisa, Vanimo, IV.1939, L. E. Cheesman ; 1 ♂, 1 ♀, Lae, 29.XI.1961, 6.III.1969, J. Sedlacek ; 1 ♀, Madang ; 1 ♂, Markham R., 20–25.I.1962 ; 1 ♂, Masba Creek nr. Pindiu, Morobe Dist., 600 m (2000 ft.), 10–20.V.1964, R. Hoogland ; 1 ♀, May Riv. Patrol Sta., 100 m, sweeping, 1.VI.1963, R. Straatman ; 1 ♀, Melambi R., Mirilunga Village, Lae, 1350 m (4500 ft.), 29.XII.1956, J. H. Ardley ; 1 ♂, Mt Missim [nr. Wau], 980–1100 m, 14. VIII.1964 ; 1 ♀, the same, 1400 m, 24.IX.1966, J. Sedlacek ; 1 ♂, Morobe Dist., rain forest, 23.X.1957, J. H. Ardley ; 1 juv (♀) ; Munum, Wareis, 2.V.1957 ; 1 ♀, Okapa pine forest, E. Highlands, 31.V.1967, B. Gray ; 1 ♀ (very strongly marked with green) Singuawa, Lae, 6°45′S, 147°10′E, 30 m, 10. IV.1966; 4 ♂♂, 2 ♀♀, the same, 15–16.IV.1966 ; 1 ♀, U. Watut, 1500 m, 3.V.1968, J. L. Gressitt ; 1 ♀, Wau, Morobe Dist., 1260 m, 16.XII. 1961; 1 ♂, 1 ♀, the same, 1250 m, 3.IV.1964; 1 ♀, the same, 1–5.X.1964 ; 2 ♀♀, Wau, Hospital Creek, 1150–1250 m, Malaise trap, 9.I.1966, J. Sedlacek. PAPUA : 1 ♂, Bisianumu, Port Moresby, W. N. Lock ; 1 ♀, Deria, Amazon Bay area, 410 m (1700 ft.), 11.XII.1962–9.I.1963, W. W. Brandt ; 1 ♂, Dogon, Amazon Bay area, 750 m (2300 ft.), 13.IX–11.XII.1962, Brandt ; 1 ♀, Doveta, Amazon Bay area, 720 m (2400 ft.), 24.VII–11.IX.1962, Brandt ; 1 ♂, 3 ♀♀, Keria, Amazon Bay area, 480 m (1600 ft.), 29.VI–22.VII.1962, Brandt ; 1 ♀, Killerton Rd., Soputa, Northern Dist., 9.IX.1966, Dr Burtt ; Koitaki, 450 m (1500 ft.), X–XI.1928 ; 3 ♂♂, 1 ♀, Mt Lamington, 390–450 m (1300–1500ft.), 1 ♂, Middle Fly Riv., 400–480 km (250–300 mi.) up, VII–VIII.1928 ; 1 ♂, 1 ♀, Nakata Ridge, 1500 m (5000 ft.), 1963.