

van *Pseudotsuga douglasii* worden namelijk bedekt met aanliggende dekschubben en bij *Pseudotsuga glauca* zijn deze teruggeslagen; *Picea abies* (Fijne spar) en *Picea sitchensis* (Sitka spar). De fijnsparren werden gebruikt voor de houtproductie, maar zijn slecht bijgehouden. Bij het bovenste punt groeit *Larix leptolepis* (Japanse lork). Deze onderscheidt zich van *Larix decidua*, die men bij het afdalen aan de andere kant van het Bovenste Bos tegenkomt, door aan de achterkant blauw-groene naalden, terwijl die van *Larix decidua* daar heldergroen zijn.

*) Daar het meer dan 50 jaar geleden is, dat E. Heimans in zijn „Uit ons krijtland” (1911) een beschrijving gaf van het Bovenste Bos, heeft de redactie gemeend de lezers een dienst te bewijzen door het opnemen van een recente beschrijving, een werkstuk van een leerling van de Rijks Middelbare Tuinbouwschool te Boskoop.

**A NEW SPECIES OF THE GENUS BETTOTANIA
WILL.
(ORTHOPTERA, ACRIDOIDEA, ACRIDIDAE,
CATANTOPINAE)**

by Fer WILLEMSE

Bettotania flavostriata n.sp. (figs. 1, 2)

Size moderate, body robust, surface rugosely punctate.

Antennae filiform, reaching far behind the posterior margin of the pronotum. Segments elongate and finely punctate. Basal segment cylindrical, smooth, thicker than remaining segments and somewhat longer than twice the second segment.

Head with the interocular distance subequal to the width of the frontal ridge between the antennae. Eyes ovate, prominent, with the front margin almost straight. Vertex convex, with surface rugose and with a fine median carina. Fastigium of vertex narrow, sloping downwards between the eyes and projecting horizontally in front of the eyes, triangular from above; surface smooth. Frontal ridge in profile broadly rounded between the antennae, downwards obsolete, surface smooth between the antennae, downwards indistinctly sulcate, margins subparallel, sides feebly concave. Face reclinate, lateral facial carinae indistinct. Surface of face and genae rugose.

Pronotum slightly divergent posteriorly, surface rugosely punctate. Anterior margin of the disc rounded with a median incision, posterior margin rounded without incision. Lateral keels absent, median keel only indicated in metazona. Disc and lateral lobes with three transverse sulci, the first only distinct in the disc, the second situated in front of, the third behind the middle of the disc. Lateral lobes longer than high, lower margin sloping upwards and concave in anterior half, nearly straight in posterior half. Anterior and posterior angles rounded, anterior margin subconvex, posterior margin almost straight.



Fig. 1. *Bettotania flavostriata* n.sp.
Dorsal view of female (holotype).

Prosternal process conical, short and mucronate. Mesosternal lobes somewhat broader than long, inner margins rounded subangulate, mesosternal interspace quadrate, somewhat wider than a lobe. Metasternal lobes broadly separated, inner margins rotundate angulate. Surface of pleurae rugosely punctate.

Elytra and wings fully developed, reaching the top of abdomen. Elytra with costal lobe well developed, narrowed apically, the apex rounded. Wings subcycloid.

Legs short and thick. Surface of anterior and median legs slightly punctate. Posterior femora extending very little beyond the top of the abdomen, carinae serrate, genicular lobes mucronate apically, oblique ridges regular. Hind tibiae slightly curved, scarcely expanded apically, with the margins acute in the apical half, six short inner and six outer spines, besides a distinct outer apical spine. Hind tarsus half as long as the tibia, third joint about as long as the first and second together.

Female: supra-analplate triangular, apex rounded. Cerci short, conical, pointed and not reaching beyond the apex of supra-analplate. Valves of ovipositor slender, smooth and feebly curved, without teeth, the apex rounded. Subgenital plate longer than broad, laterally constricted; provided with a longitudinal furrow with a sharp median sulcus and an obtuse carina on each side, converging towards the base; furrow and sulcus basally obsolete, apically a long mucronate sulcate process.

Coloration: General impression brownish olivaceous with yellow stripes. Antennae reddish brown, basal and top segments brighter yellowish brown. Eyes and head brown. Face on each side with a little triangular yellow spot on the clypeal margin. Mouthparts olivaceous brown, the mandibles somewhat brighter yellowish brown. A yellow stripe in front and below each eye, continued on the lateral lobe of the pronotum. Frontal ridge above and fastigium of vertex yellow. On the vertex behind each eye a yellow stripe, continued on the disc of the pronotum. Pronotum brown olivaceous, with four longitudinal yellow stripes, on each side two, one laterally on the disc, one near the lower margin on the lateral lobe, continued on the mesosternal episternum. Elytra brown olivaceous, with a median yellow stripe from the base, becoming obsolete near the



Fig. 2. *Bettotania flavostriata* n.sp.
Lateral view of female (holotype).

apex. Apex of elytra infumated. Wings infumate in outer area. Pleurae brown olivaceous with an ovate bright reddish orange spot on the upper area of the metasternal episternum. Meso- and metasternum brown. Anterior and median legs olivaceous green. Abdomen and genitalia brown. Hind coxae brown, olivaceous green below. Posterior femora reddish brown, with an incomplete praegenicular yellow ring. Lower inner area of hind femur brown olivaceous, praegenicular area green. Knee brown. Posterior tibiae brown, with

a narrow yellow ring near the knee. Spines of posterior tibiae with the top black. Hind tarsi brown, last joint brown olivaceous above.

Measurements in mm:	♀
length of antenna	13
" body	20
" pronotum	6
" elytron	14
" hind femur	12
width of hind femur	3,6
length of hind tibia	10

Male unknown.

Geographical distribution: Borneo.

Material studied: 1 ♀ (holotype), East Borneo, Tabang, Bengen river, 125 m, 19. IX. 1956 (A. M. R. Wegner) [collection C. Willemse, Maastricht Museum].

This species agrees with the generic characters of the genus *Bettotania* C. Willemse, 1933. In 1955, the genus *Paracelesia* Miller, 1935, was synonymised by C. Willemse with the genus *Bettotania*. The new species *flavostriata* comes nearest to *cinctifemur* (Miller, 1935).

The species of the genus *Bettotania* may be distinguished with the aid of the following key:

1. disc of pronotum greenish ochreous, not provided with yellow spots or longitudinal stripes; hind femur green without a yellow praegenicular ring
festiva (Miller, 1935).
- 1.1. disc of pronotum green with yellow spots or longitudinal stripes; hind femur green or reddish brown, with a praegenicular yellow spot or ring.
2. disc of pronotum with four yellow spots: one on each side at the anterior margin, and one on each side a little before the principal sulcus; hind femur olivaceous green with a praegenicular yellow spot from above
maculata C. Willemse, 1933.
- 2.2. disc of pronotum with two yellow longitudinal stripes; hind femur green or reddish

brown, with a complete or incomplete praegenicular yellow ring.

3. two yellow longitudinal stripes on the disc of the pronotum being obsolete in the metazona; metasternal episternum with an ovate yellow spot; hind femur olivaceous green with a complete yellow praegenicular ring
cinctifemur (Miller, 1935).
- 3.3. two yellow longitudinal stripes on the disc of the pronotum continued on the elytra; metasternal episternum with an ovate bright reddish orange spot; hind femur reddish brown, with an incomplete yellow praegenicular ring

flavostriata n.sp.

References:

- Miller N. C. E., 1935, New and little known malayan Acrididae (Orth.). — J. fed. Malay Stat. Mus. 17 (4): 686—709, pl. 14, figs. 1—11.
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- Willemse C. J. M., 1933, Description of new indomalayan Acrididae (Orthoptera). Part 1. — *Natuurh. Manadbl.* 22 (6): 73—76, figs 1—5.
- 1956, Synopsis of the Acridoidea of the indomalayan and adjacent regions (Insecta, Orthoptera), part II. Fam. Acrididae, subfam. Catantopinae, part one. — *Publ. Natuurh. Gen. Limburg* 8 (1955): 1—126, figs 1—72 + 52 figs.

FORAMINIFERA OF THE CRETACEOUS OF SOUTH-LIMBURG, NETHERLANDS. LXXI.

The increase of the pore-diameters in *Gavelinopsis involuta* (Reuss, 1862) during the later Cr 4 and the Maestricht Tuff Chalk in the Canal Albert region.

Long series of samples have been taken by L. Calembert in the outcrops along the Canal Albert in North Eastern Belgium. Many of these samples yielded well-preserved *Gavelinopsis involuta* as it has been described by Reuss under the name of *Rotalina involuta* from the Tuff Chalk in 1862. The pores of these specimens, together with those of some specimens gathered at the top of the quarry at Glons by Calembert and some specimens gathered in the boundary-hardgrounds Mc—Md in the quarry Curfs near