

MINISTERIE VAN ONDERWIJS, KUNSTEN EN WETENSCHAPPEN

ZOOLOGISCHE MEDEDELINGEN

UITGEGEVEN DOOR HET

RIJKSMUSEUM VAN NATUURLIJKE HISTORIE TE LEIDEN

DEEL XXXIII, No. 18

23 Juni 1955

TWO NEW SPECIES OF LANTHANUSA RIS, FROM THE HIGH MOUNTAINS OF NEW GUINEA (ODONATA)

by

M. A. LIEFTINCK

(Rijksmuseum van Natuurlijke Historie, Leiden, Netherlands)

Up to the present, three species of the Libellulid genus *Lanthanusa* Ris have been described, all from the mountain regions of New Guinea. One of these, the genotype *L. cyclopica* Ris, is a female in the Leiden Museum collected more than half a century ago somewhere in the Cycloop Mountains (North New Guinea); the male has remained unknown and the species has never been found again. Two others, *richardi* Lieft. and *lamberti* Lieft., were subsequently discovered in the mountain forests of central New Guinea and are known from both sexes. All three species have been discussed at length in the writer's account of the Anisoptera of the Third Archbold Expedition (Treubia, 1942, 18 : 493-499, figs. 40-45).

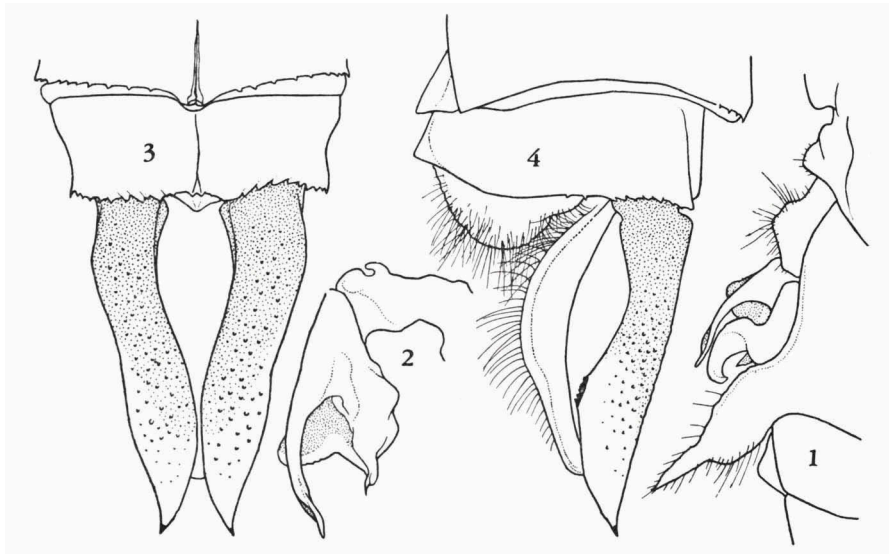
In this short paper the descriptions are offered of two more species, one from the high mountains of northeast New Guinea, and one from the island Goodenough. It is interesting to see that all members of *Lanthanusa* are apparently restricted to high elevations and do not occur below a height of about 1350 metres above sea-level, *L. lamberti* from the moss-forests near Lake Habbema (2800-2850 m) being the highest recorded Libellulid from New Guinea.

Owing to their cryptic colouring the adults are probably easily overlooked insects as they rest on leaves in sunlit openings of the forest. The larva is still unknown but, like *Huonia*, the insects probably breed in forest-marshes or small streams.

Lanthanusa sufficiens, sp. n. (figs. 1-4)

Material. — 3 ♂, 3 ♀ (2 ♀ juv.), Eastern extremity of New Guinea : d'Entrecasteaux Is., Goodenough I., east slopes, 1600 m, 11-12.X.1953, K. M. Wynn & L. J. Brass. Holotype ♂ and allotype ♀ in the Leiden Museum, paratypes in Amer. Mus. Nat. Hist.

Male (ad.) — Labium yellow-green, the median lobe deep black, the flat and large lateral lobes with a fine black line along mesial border of each. Mandible-bases and labrum yellowish olive-green, the latter narrowly bordered with black. Clypeus and frons dull olive-green, the colour of the frons gradually deepening upwards and acquiring a purplish-brown tint on the dorsal surface, darkest basally. Vertex dark brown, sculpture as described



Figs. 1-4. *Lanthanusa sufficiens*, sp. n. Type, Goodenough I. Left side view of genital organs, showing penis in retracted position (1); the same of apical portion of penis, more highly magnified (2); anal appendages, dorsal (3) and left lateral view (4).

for *richardi*; occipital triangle also similar to that species. Rear of the head blackish-brown, marked with a greenish dot followed by a streak of the same colour half-way down along posterior margin of compound eye.

Prothorax and synthorax shaped and coloured similarly to *richardi*, except for the following differences. Green mesepisternal mark strongly obliterated dorsally, wholly or almost completely divided up into a large patch bordering the humeral suture and a much smaller transverse spot situated just in front of the ante-alar triangles; the former at its upper end usually provided with a vestigial green appendage at the point of constriction. Colour-pattern of the sides similar in principle to *richardi*, but the brown elements more extensive, i.e., the irregular spot dorsal to the spiracle extended backwards across the second lateral suture on to the metepimeron so as to form a large brown patch covering the middle of the metapleurae, the metepimeron being adorned with a wedge-shaped mark which encloses a roundish green dot at

its upper edge; posterior half of metepimeron unmarked, as is also the whole ventral surface of the thorax.

Legs equal in length to and of the same build as in *richardi*. Coxae pale green exteriorly. Anterior and intermediate pair of femora black marked on the inside with a broad green stripe almost as far as the apex, the posterior femora entirely black; tibiae and tarsi all black.

Wings shaped as described for *richardi*, the neuration being also practically alike in the two species. All triangles free; *ti* three-celled, or with a single cross-nerve. *Arc* at or a little distal to *Ax*₂. *Cu*₁ in hind wing distinctly separated from the anal angle of *t*. Both sexes with the proximal side of *t* of hind wing in line with *Arc*. Antenodals 9½-11½ in fore, 8-9 in hind wing; postnodals 7-8 in all wings. Membrane hyaline, but bases with a distinct though diffuse yellow spot in the cubital and anal areas of both fore and hind wing. Pterostigma yellow between thick black nervures. Membranula greyish-black.

Abdomen extremely slim and slender, strongly spindle-shaped, similar in principle to *richardi* but distinctly longer (only slightly shorter than the hind wing) with the segments more drawn out than in that species. Ground-colour darker, almost black, but pattern almost identical, only green dorsal spots on segments 2-4 a trifle smaller.

Genitalia (figs. 1, 4): lobus anterior, main bodies of hamulus and penis green, the rest black; third penile segment strongly chitinized, the hood black and armed on either side with a long and thin, flattened, lanceolate process whose apex in retracted position does not altogether reach the curved extremity of the hamulus. Hamulus shorter than in *richardi*, twisted, broad at base, with outwardly directed curved tip. Genital lobe green at base, turning black distally, rather similar in shape to that of *richardi*, but still longer and noticeably more abruptly and acutely pointed; the basal half in profile view with distinctly convex anterior margin, instead of being nearly straight along its full length as it is in *richardi*.

Anal appendages shaped as shown in figs. 3-4, nearly as long as segments 9 + 10; superior pair with the basal half black, this colour extending further outwards on the dorsal surface, the rest ochreous except the extreme tips which are black; inferior appendage ochreous in colour, tongue-shaped, a little less abruptly tapered than in *richardi*.

Female (allotype). — Resembles the male in most respects, but differs in the lighter brown colour of the head, thorax and abdomen, the upper surface of the head being hardly darker than the face. Colour-pattern of synthorax as in the opposite sex, the light marks sharply defined light green; lower mesepisternal spot completely isolated, more widely separated

from the transverse streak in front of the ante-alar triangles than in the male; posterior off-shoot of brown lateral mark distinct, occupying the same portion of the metepimeron as in the male.

Shape and neuration of wings similar to the male and also much resembling those of *richardi* female. $10\frac{1}{2}$ - $11\frac{1}{2}$ antenodal cross-veins in fore wing. Pterostigma ochreous, heavily framed in black. Membrane hyaline; bases tinged with orange-yellow somewhat further outwards than in *richardi* (to Ax_2 in subcostal space of fore wing).

Abdomen longer than in *richardi*. Markings rather obscured and discoloured, apparently very similar to those of the male but rather larger, especially on the intermediate segments. Structure of 8th sternite and valvula vulvae not well discernible, the genital valve very short. Anal appendages and tuberculum yellowish, not appreciably different in shape from the same organs of *richardi*.

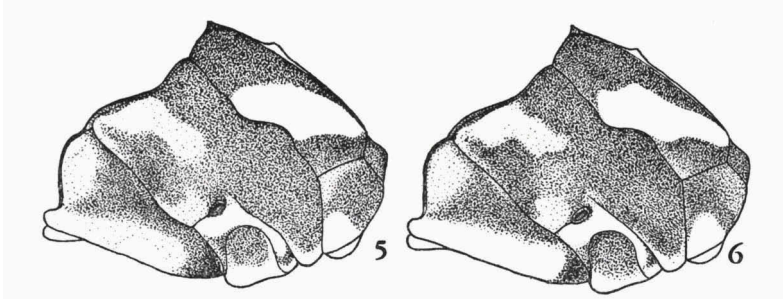
Measurements: ♂ abd. + app. 30.2-31.0, 32.8-33.0, 3.0-3.1 mm; ♀ 32.0, 35.8, 3.4 mm (allotype).

This new species has the facies of *richardi* Lieftinck, from the mountains of the Nassau Range in central New Guinea. It shares with that species the peculiar narrow form of the genital lobe, which in *sufficiens* is even longer and more acutely pointed. Both sexes can be distinguished from *richardi* by the different shape of the green markings on the dorsum and sides of the thorax, the uppermost portion of the mesepisternal patch being smaller and detached from the lower portion which borders the humeral suture. Also, the irregular brown band traversing the thoracic pleurae in *sufficiens* is more extensive than it is in *richardi*, being prolonged posteriorly across the second lateral suture so as to form a continuous band, which is very similar in size and shape to the same marking of *lamberti* (loc. cit., pl. 27 fig. 45). The best distinguishing characters between *richardi* and *sufficiens* are found in the genital organs and anal appendages of the male. In *sufficiens* the chitinous apical flaps of the "hood" of the penile organ are much shorter, less expanded sub-apically, and not projecting beyond the genital hamule, whereas in *richardi* they are more divergent and pointed instead of simply rounded off apically (cf. figs. 3-4 and pl. 27 fig. 41, loc. cit.). The differences in the shape of the anal appendages between *richardi* and *sufficiens* are best understood by comparing the accompanying figures with those published earlier (loc. cit., pl. 27 fig. 40), the superior pair in *sufficiens* being longer than in *richardi*, more constricted about half-way their length, with the tips decidedly more outbent and pointed.

The name of this new species is an allusion to the insular locality where it was taken.

Lanthanusa donaldi, sp. n. (figs. 5-9)

Material. — 1 ♂, 5 ♀ (1 ♀ juv.), N.E. New Guinea, Saiko, 5500-6000 ft., Bubu River (Upper Waria River), Sept.-Oct. 1936, F. Shaw-Mayer, Brit. Mus. 1937-350. Holotype ♂, allotype ♀, and two parallotypes, in the British Museum; one parallotype in the Leiden Museum.



Figs. 5-6. *Lanthanusa donaldi*, sp. n. Saiko, Bubu River. Colour-pattern of synthorax of male (5) and female (6), holotype and parallotype.

Male (ad., holotype). — Labium dirty brownish-yellow, the median lobe light brown and the lateral lobes with slight greenish intermingling. Labrum dirty orangish, bordered with black. Mandible-bases, face and frons brownish-grey, the frons rather shiny and marked on either side against the margin of compound eye with an elongate-oval yellow spot filling out the anterior edge. Vertex a little more obscured, greyish-brown, its surface finely and superficially punctate. Occipital triangle smooth and shiny, rounded off posteriorly, light brown. Rear of the head brown.

Prothorax light purplish brown; posterior lobe of large size, well marked off from the rest of the pronotum by a deep, shallow, transverse sulcus, its surface concave, but the posterior margin swollen and fringed with long brownish-grey pencil-hairs.

Synthorax long and narrow, shaped much as in *richardi* and *sufficiens*; ground-colour creamy yellow (pinkish-buff) with faintest glaucous green hue, marked with purplish grey-brown and sepia, this colour more greyish than in the two species just mentioned; colour-pattern very different from both, as is shown in fig. 5. Ventral surface palest glaucous green.

Legs long and robust. Posterior femur extending back as far as the seminal vesicle of the penis; straight, and armed along the outer ridge of the ventral surface with a row of 28-30 minute, closely set, backwardly directed, curved pointed teeth which decrease gradually in size from apex to base, disappearing very near the base of the femur; apical tooth followed by three short spines; proximally, these teeth are slightly inclined apicad,

the larger 4-5 apical teeth being directed basad. (In *richardi*, the distal 10-12 teeth are all directed basad). Coxae and trochanters unicolorous pale brown. Femora light brown, the inner surface of the anterior two pairs rather more greenish basally, that of the posterior pair darker brown; knees brownish-black. Tibiae brown, their apices obscured. Tarsi black; claws armed with a robust interior tooth.

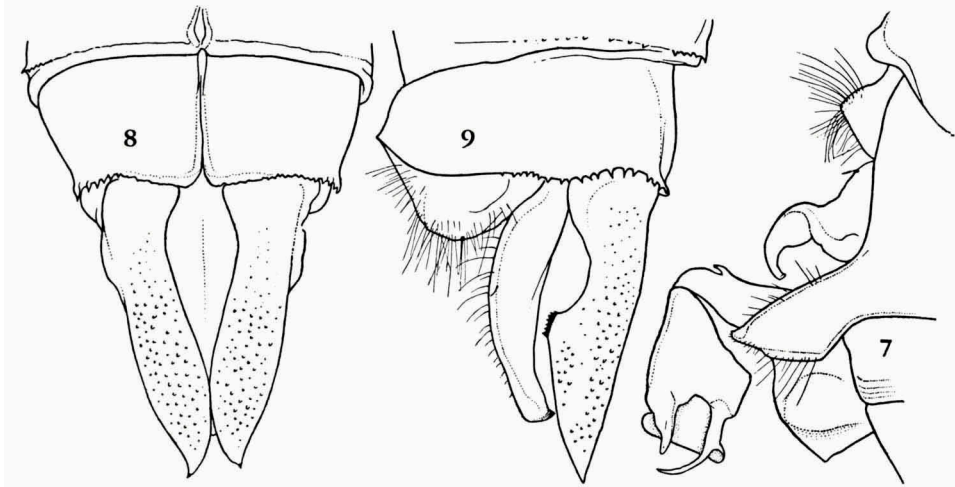
Wings shaped as in the allied species *richardi* and *sufficiens*. Membrane hyaline. Neuration as described for the genus, but all discoidal triangles entire, as in the other known species except the genotype. *t* of fore wing with its distal side very slightly angulated. *Cu*₁ in fore wing originating from the anal angle of *t*; no intercalated stalk between anal angles of *t* and *ti*; *ti* free in left, with one cross-vein in right fore wing. 2 *Cux* in hind wing. No *Bxs*. *Cu*₁ in hind wing separated from the anal angle of *t* by a very short distance; proximal side of *t* in hind wing in line with the arculus.

One row of cells between *Rs-Rspl*. Nodal index $\frac{6.9\frac{1}{2}.9\frac{1}{2}.7}{8. 8. 8. 9}$. Membranula grey. Pterostigma shaped similarly to that of the other species, yellow between thick dark nervures.

Abdomen (somewhat discoloured) very slender; more strongly and abruptly spindle-shaped than in any of the other known species. Basal segments compressed in the usual way, the intermediate segments from base of 4 to the middle of 6 cylindrical and very narrow (0.7-0.8 mm), then strongly expanded and more abruptly longitudinally carinate than on the preceding segments, attaining its greatest width at the base of segment 8, thence almost parallel-sided till the apex of 8 and finally again tapering to the end. Colour dark and lighter brown variegated with pale creamy yellow, as follows. Segments 1-2 light brown, 2 with a large, transverse creamy dorso-lateral patch behind the transverse suture which is narrowly divided into two by the black dorsal crest; laterally, this mark is followed by two creamy yellow spots, one very small mid-lateral dot and a much larger, elongate streak that runs along the ventral margin of the tergite, these spots distinctly separated from one another by a squarish, backwardly prolonged almost black patch of the ground-colour. Genital lobe dark brown bordered with black. Segment 3 with four creamy spots on either side of the dark median carina, one pair (dorsal and lateral) before and one similarly arranged pair behind the transverse carina; 4-6 each with a pair of roundish and closely approximated baso-dorsal spots and an elongate spot along latero-ventral margin, and 6 in addition with a very large median band of yellow occupying also most of the sides; 7-10 rather uniform brown, except 8 which bears an indistinct triangular yellow dorsal mark at the apex,

the point of the triangle being directed towards the base of the segment. Ventral surfaces of the abdominal tergites brownish-yellow, banded or spotted with dark brown posteriorly, most conspicuously so on the terminal segments.

Genitalia (fig. 7): lobus anterior, hamuli and penis brown; third penile segment more strongly chitinized than the rest of the organ, the hood dark brown and armed on either side with a short, flattened and somewhat concave, tongue-shaped black process, which does not nearly project beyond the hamulus in retracted position. Hamulus twisted, broad at base, with



Figs. 7-9. *Lanthanusa donaldi*, sp. n. Saiko, Bubu River. Left side view of genital organs, showing penis in retracted position (7), and anal appendages, dorsal (8) and left lateral view (9). Holotype.

hook-shaped apex, the black-coloured tip of which is directed outwards. Genital lobe of very characteristic shape: at first almost parallel-sided, the apex rather abruptly tapered to a blunt point.

Anal appendages shaped as shown in figs. 8-9, shorter than segments 9 + 10; superior pair yellowish-brown, dorsal surface obscured, darkest basally, the tips yellow; inferior appendage yellowish.

Female (ad.). — Head and thorax coloured as in the male, the mouth-parts and face paler and more uniformly cinnamon-buff, the upper surface of head changing to tawny-olive and snuff-brown. Only the labrum narrowly bordered with brown or black. Colour-pattern of synthorax resembling that of the male, the light marks pinkish-buff and the dark elements warm sepia or bister-coloured (fig. 6).

Legs with the exception of the tarsi tawny-olive to snuff brown, the apical rings to the femora sharply defined black; tibiae gradually obscured

towards the end; tarsi black. Teeth along ventral carina of posterior femora much smaller in size and less numerous (14-15) than in male, all directed distad and followed by three short spines.

Wings long and broad. Neuration open, much as in the male; *ti* two-celled, more rarely uncrossed. Position of *Arc* variable: either at *Ax*₂, or a little before or beyond that level. Antenodals 10½ on fore, 8 (rarely 7) on hinder wing; postnodals 6-7 and 7-8, respectively. Membrane hyaline, but bases in subcostal and cubital areas about as far outwards as *Cux*₁, diffusely tinged with yellow. Pterostigma light orange-yellow between black nervures.

Abdomen in principle shaped similarly to that of the male, the intermediate segments only little more expanded laterally though higher and more compressed, distinctly spindle-shaped, with the terminal segments noticeably more strongly dilated than in the allied species. Colours faded by decomposition but markings apparently very similar to those of the male: creamy baso-dorsal spots and ventro-lateral streaks on segments 2-6 well visible in some examples, the apical segments apparently unmarked. Apical ridge of 8th sternite somewhat swollen and gently excised; valvula vulvae very small and unapparent, depressed, its margin also swollen and excavated archwise.

Measurements: ♂ abd. + app. 27.5, hw. 31.5, pt. 3.1 mm (holotype); ♀ 27.7, 35.3, 3.2 mm (allotype); 26.5-27.5, 34.5-35.0, 3.0-3.4 mm (par-allotypes).

This is an easily recognized species, distinguished from all others by the short and strongly spindle-shaped abdomen, the absence of a dorsal mes-episternal spot and, generally, by its very pale body-markings. The genital organs of the male are somewhat reminiscent of those of *lamberti*, but the third penile segment is larger and differently shaped, while the genital lobe is more angular and pointed apicad. The superior anal appendages are rather similar in dorsal view to those of *lamberti*, but, when viewed laterally, the inferior serrated prominency is seen to be much more pronounced and removed proximad than in any of the other known species.

This fine new insect is dedicated to Mr. Donald E. Kimmins, of the British Museum, who kindly permitted me to describe it and whose helpfulness in various ways is gratefully acknowledged.