

Idomacromia jilliana sp. nov.
from Uganda (Odonata: Corduliidae)

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ABSTRACT

Idomacromia jilliana sp. nov. (holotype ♀: Uganda, Kabale District, Ruhija, 1°02'59"S, 29°45'29"E, 2,100 m a.s.l., 24 v 2003) is described on the basis of two females from Bwindi Impenetrable National Park, Uganda, and compared with the known species of this elusive genus.

INTRODUCTION

The genus *Idomacromia* Karsch, 1896 is endemic to the tropical forests of West and Central Africa (G.S. Vick in Silsby 2001: 158). It was thus far known from only three taxa, *I. proavita proavita* Karsch, 1896, *I. p. couturieri* Legrand, 1985 and *I. lieftincki* Legrand, 1984. During recent fieldwork in Bwindi Impenetrable National Park in SW Uganda, two females of *Idomacromia* were caught. These constitute the first records of the genus in East Africa. Comparison with females of *I. p. proavita* from Cameroon, Gabon and the Democratic Republic of Congo (DRC) has shown them to be specifically distinct. Although we believe description of species based solely on females is undesirable, the genus *Idomacromia* is so elusive that it may take years before the male is discovered. It appears that males are even more rarely encountered than females. Of the three taxa, only *I. p. proavita* was diagnosed from an adult male caught in the field: *I. p. couturieri* has a female holotype and *I. lieftincki* was described on the basis of a male reared from a larva. Extensive collecting in SW Cameroon from 1995 to 2003 has yielded only three males and two females of *I. p. proavita* (G.S. Vick pers. comm.). Lempert (1988) found only a single female, probably *I. lieftincki*, during six months of intensive research in Liberian rainforests. The females described possess a set of characters that should make it possible to identify the male.

The following acronyms for collections are used:

BMNH - Natural History Museum, London, UK

CGVL - Collection Graham Vick, Little London, Hampshire, UK

MNHN - Muséum National d'Histoire Naturelle, Paris, France

ZMHB - Museum für Naturkunde der Humboldt-Universität, Berlin, Germany

ZMMU - Zoological Museum of Makerere University, Kampala, Uganda

Idomacromia jillianae sp. nov.

(Figs 1b, 2b, 3b, 4b, 5)

Specimens studied

Holotype ♀: Uganda, Kabale District, Bwindi Impenetrable National Park, Ruhija (Plate IIb) stream on western path to Mubwindi Swamp (1°02'59"S, 29°45'29"E), alt. ca 2,100 m a.s.l., 24 v 2003, leg. K.-D.B. Dijkstra, ZMMU. – Paratype ♀: Uganda, Kanungu District, Bwindi Impenetrable National Park, Buhoma, Munyaga Valley, Bizenga Stream (0°59'12"S, 29°36'42"E), alt. ca 1,500 m a.s.l., 14 i 2002, leg. J.J. Kisakye and S.G. Kyobe, ZMMU. — For comparison: *I. lief-tincki* – 5 ♀: Guinée, Mt. Nimba, Zougué River, Zougouepo Station, alt. 750 m a.s.l., 19 v-11 vi 1991, leg. J. Legrand, MNHN. — *I. p. proavita* – 2 ♀: Cameroon, Joh.-Albrechtshöhe, 20 ii-3 iii 1896, leg. L. Conradt, ZMHB; 1 ♀: Cameroon, Mt. Kupe, Nyasoso, Max's Trail, alt. 1,000 m a.s.l., 31 iii 1997, leg. G.S. Vick, CGVL; 1 ♀: Cameroon, Edib, alt. 1,000 m a.s.l., 6 iii 1998, leg. O. Mesumbe, CGVL; 1 ♀: DR Congo, Bambesa, ii 1938, leg. J. Vrijdagh, MNHN; 1 ♀: idem, BMNH; 1 ♀: Gabon, Makokou, Ipassa, Route Noailles, 14 xi 1976, leg. J. Legrand, MNHN; 1 ♀: no data, BMNH.

Etymology

This species is named in honour of a unique lady in odonatology, Jill Silsby, who has done so much for this field of science and has produced a handbook which is of great value to all workers (Silsby 2001).

Generic assignation

The new species could be assigned to *Idomacromia* based on the following characters: Fw and Hw with four to five cubital cross-veins and one or two cross-veins in supratrangles. Hw arculus stands far proximal of triangle. Anal loop sack-shaped (without boot-like extension), of 19 to 23 cells, extending about to level of first forking of Rs, with distinct midrib. Sectors of arculus only fused at their origin. *Hemicordulia* Selys, 1870 has only one cubital cross-vein and no cross-veins in the supratrangles, Hw arculus aligned with proximal border of triangle (sometimes just proximal or distal), boot-shaped anal loop, and sectors of arculus not fused. *Phyllomacromia* Selys, 1878 has a stout anal loop of fewer cells, at most extending as far as distal end of triangle and without midrib, and the sectors of the arculus are fused for a distance almost equal to arculus length.

Diagnosis

Small, broad-winged *Idomacromia* with relatively short Pt and unique vulvar scale (Fig. 3b).

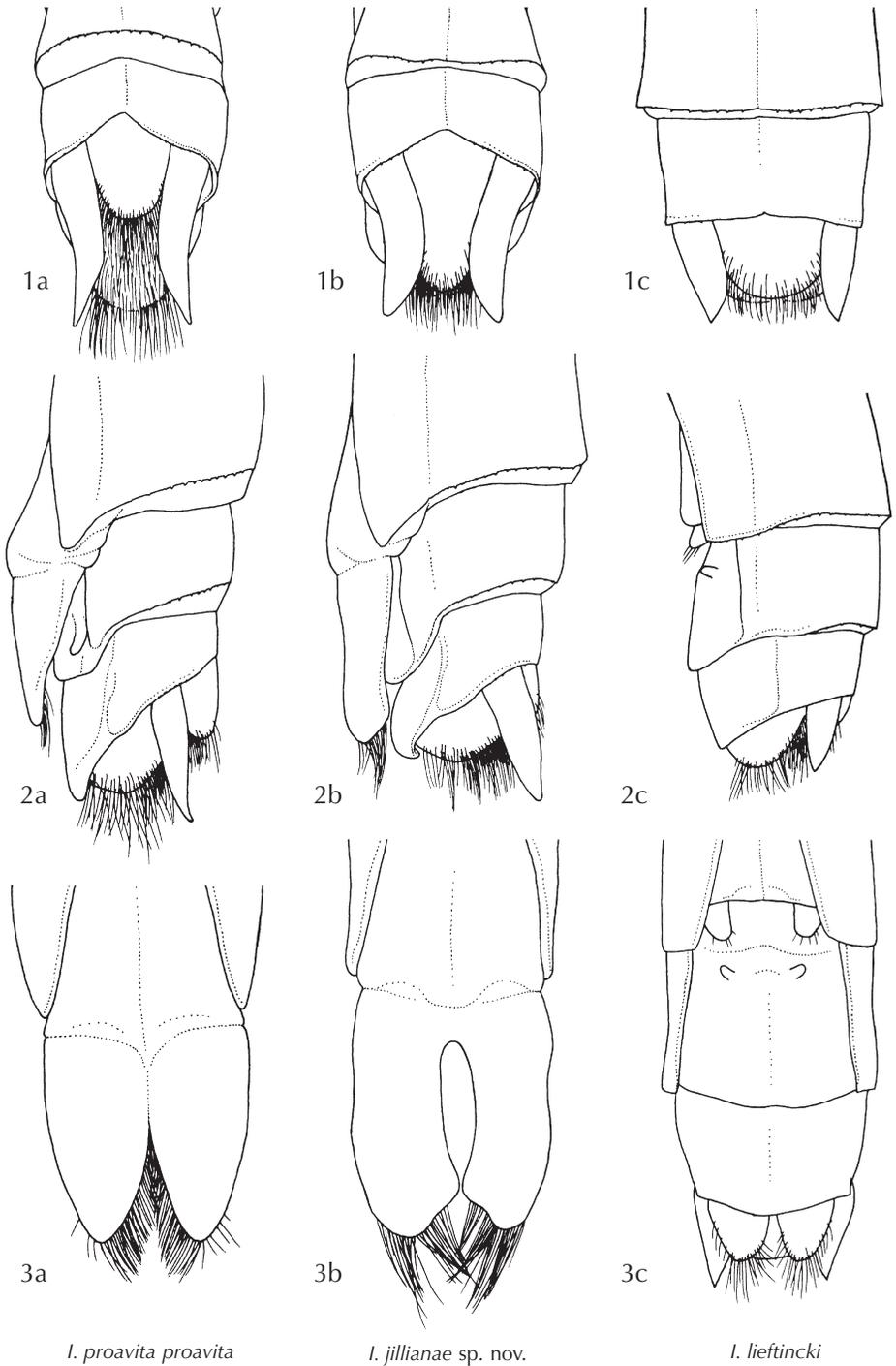


Figure 1-3: Terminal abdominal segments (1, 2) and vulvar scale (3) of *Idomacromia* females — (1) dorsal view, (2) lateral view, (3) ventral view; S9-10 added for clarity in 3c.

Description

Holotype female (Plate IIa)

Dried in acetone. Fully mature. In good condition, right Fw beyond Px4 lost. **Head:** Labium uniformly dull yellow, prementum bare save a few fine, pale hairs, labial palps with numerous bristly, black hairs. Mandibles orange-yellow with dark bristles. Genae and labrum orange-yellow. Clypeus and frons glossy brown, orange-yellow on edges, peaks of frons dark metallic green. Frons coarsely rugose on anterior shields, smooth at base and on sides of deep triangular central groove. Vertex dark metallic green, posteriorly more glossy purplish brown. Anterior ocellus larger than posterior ocelli. Triangular area between vertex and eyes yellow, brown centrally. Occipital triangle glossy black. Labrum, clypeus, frons, vertex and occipital triangle densely beset with long black hairs. Posterior part of occiput and dorsal part of postgenae glossy black, with long golden hairs, with sharp transition to creamish yellow ventral part of postgenae at prominence on posterior margin of eyes. Eyes in life dark olive above, greenish yellow below mottled with darker spots. Antennae and their bases glossy dark brown.

Thorax: Prothorax largely concealed by head, yellow-brown. Synthorax largely dark metallic green, densely covered with long golden hairs. Metallic shine strongest on centres of mesepisternum, mesepimeron, metepisternum and metepimeron, but mid-dorsal carina, ante-alar sinus and fossae of humeral and metapleural sutures brown without metallic shine. Poststernum and adjacent part of metepimeron yellow, forming yellow triangle on synthoracic venter, contrasting with metallic green parts of metepimeron that extend down onto venter from sides (Fig. 4b).

Legs: Leg pairs similar; coxae yellow-brown, trochanters brown, femora brown becoming blacker anteriorly, apically and on exterior longitudinal ridge. Tibiae, tarsi and tarsal claws black. Hooks of claws red-brown, posterior hooks about two-thirds the size of anterior hooks. Legs without unusual denticles or bristles.

Wings: Venation blackish, very dark brown on thickest veins. Wing membrane clear, bases of Fw and Hw distinctly but lightly yellow, fading distally, not surpassing Ax1. Node in Fw at about 65% of distance between base and Pt, at about 51% in Hw. In Fw 12 and 13 Ax, in Hw 9 (distal Ax complete), in Fw 10 Px, in Hw 11. Mspl and Rspl weakly defined, with single row of cells between them and MA and IR3. Cubital space with four and five cross-veins in Fw, four in Hw. Arculus distinctly proximal of triangle in all wings, near second cubital cross-vein (counted from base). Triangles and subtriangles in all wings without cross-veins, supratrangles with 2 cross-veins in Fw and 1 in Hw. Discoidal field in all wings of two rows of cells at base, becoming three rows near node. Membranule whitish grey. Anal loop elongate, sack-shaped, reaching just beyond level of first forking of Rs, of 19 and 20 cells arranged into two rows, separated by distinct midrib. Field between anal loop and wing border mainly of two rows of cells, becoming three distal of tornus. Bridge spaces with four cross-veins in Fw, three and four in Hw (all veins proximal of oblique vein counted). Pt blackish brown.

Abdomen: Dark, dorsally strongly green metallic on S1-3, more weakly green and purplish metallic on S4-10. Dorsum with short golden hairs, especially on S1, base

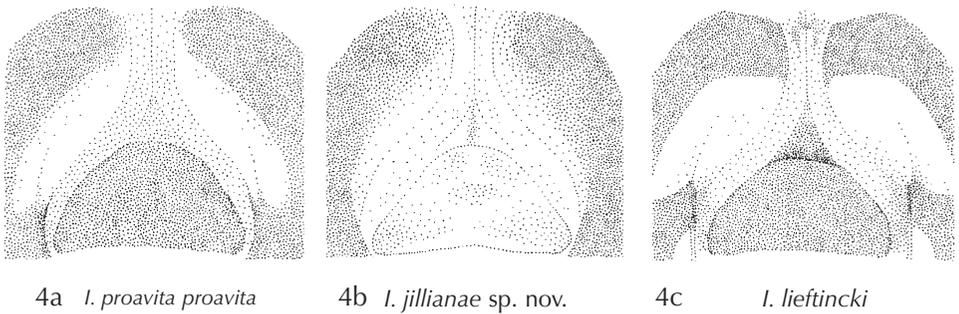


Figure 4: Metepimeron and poststernum of *Idomacromia* females, ventral view.

S2 and S7-10, hairs appressed on terminal segments. Tergites S1-3 laterally yellow-brown, S1-8 ventrally yellow brown, S9-10 ventrally dark brown. Sternites brown. S8-10 have their sternites and the ventral portion of their tergites extended apically for about half the length of the tergite dorsum: base of vulvar scale therefore lies level with middle of the dorsum of S9 (Fig. 2b). Vulvar scale large and bilobed, pale brown, blackish towards apex, reaching almost to end of (extended) S10. Lobes separated by cleft that almost reaches base of scale, lobes almost touching at their apices, cleft wide and rounded at base. Apical border of lobes broadly convex, but weakly concave towards cleft, beset with thick dark hairs, the longest of which are about one-third as long as lobe (Fig. 3b). Cerci blunt, curved outwards, about twice as long as epi- and paraprocts, all blackish with dense long black hairs (Fig. 1b).

Measurements [mm]: Total length 48.5, abdomen length 35, Fw length 35, Hw length 35, Hw width 12, Fw-Pt 2.

Paratype female

Rather teneral, abdomen fragmented and laterally compressed. Similar to holotype but metallic areas less extensive and brown areas more yellow, especially posterior portion of mesepisternum and around metastigma broadly yellowish. Slightly larger with higher vein counts: Hw length 36.5, Hw width 13. In Fw 14 and 16 Ax, 10 in Hw; 12 and 13 Px in Hw. Cubital space with five cross-veins in Fw, four and five in Hw. Triangle in left Fw crossed, supratrangles with one and two cross-veins in Hw. Anal loop of 20 and 23 cells. Field between anal loop and wing border becoming three rows of cells at tornus. Bridge spaces with four and five cross-veins in Fw and Hw. Pt dark brown.

DISCUSSION

Females of the three *Idomacromia* species are compared in Table 1 and Figures 1-4. The subspecies *couturieri* of *I. proavita* differs from the nominate only slightly in the shape of the vulvar scale (Legrand 1985) and data from its description could therefore be incorporated in the table. The new species is closest to *I. proavita* by morphology and coloration, although coloration of poststernum and wing bases differ from known species. Size and wing shape are nearer to *I. lieftincki*, while

venation characters are intermediate. The small Pt is a unique character. Identifying the male of the new species should be possible by range, size, wing shape, Pt size, poststernum colour and possibly cerci, the shape of which in female anisopterans often reflects the more elaborate condition in the male. The male may be expected to be closest to *I. proavita*. It seems that *I. lieftincki* stands apart in the genus, also in male characters.

Adults of *Idomacromia* are rarely seen and the ecology of all species is largely unknown. Vick (1999) typified the genus as “probably under-recorded rather than being rare”. Sjöstedt (1900) already described how adult *I. p. proavita* are “especially seen at sunset, wizzing to and fro above the ground with great speed. Restless, shy and difficult to catch”. Searching for larvae is probably a better way to study the genus (Legrand 1984, 1996). All records of the genus appear to be from running water in tropical forest, only the habitat of *I. proavita* having been specified: Vick (1999) observed a female ovipositing in a shallow seepage and saw a male patrolling a sandy stream (0.6-1.2 m wide). Both flew at midday, but in deep shade. Legrand (1996) found larvae “au niveau des sources de petits cours d’eau forestiers” and believes this species may be (partially) terrestrial on the “edge of stream sources in forest” (pers. comm. in Corbet 1999: 144). That species apparently inhabits the smaller bodies of running water in deep forest, probably with fine substrates and at an altitudinal range of 300 to at least 1,200 m (Vick 1999). Both females of *I. jilliana*e were captured in wet highland forest at larger streams (1-2 m wide) with a rocky substrate, densely covered by bushes. The holotype was caught at 11:10 h (solar time) during overcast weather, flying over a gap between bushes where water flowed over a rocky bed. The paratype was found between 08:00 and 09:00 h (solar time) among branches overgrowing a stream with stones and boulders. Altitude (1,500 and 2,100 m) and locality suggest that *I. jilliana*e may be endemic to the Albertine Rift highlands, and it should be searched for in Rwanda, e.g. Nyungwe Forest, and eastern DRC, e.g. Itombwe and Kahuzi-Biega Forests.

Table 1. Comparison of females of *Idomacromia* species. Data from examined specimens as well as from Karsch (1896, 1899), Fraser (1956), Pinhey (1961), Legrand & Couturier (1985) and Legrand (1985, 1992). Sample sizes indicate examined specimens, additional ones of which details were taken from the literature are stated between brackets. All measurements in millimeters.

	<i>proavita</i> [n = 6 (+5)]	<i>jilliana</i> e sp. nov. [n = 2]	<i>lieftincki</i> [n = 5 (+3)]
Range	Guinée to NE DR Congo	SW Uganda	Senegal to Gabon
Abdomen length	41-46.5	35-36	34-36
Dorsum frons, vertex	Washed metallic green	Washed metallic green	Pale brown

	<i>proavita</i> [<i>n</i> = 6 (+5)]	<i>jillianae</i> sp. nov. [<i>n</i> = 2]	<i>lieftincki</i> [<i>n</i> = 5 (+3)]
Colour poststernum	Dark brown (Fig. 4a)	Yellow (Fig. 4b)	Dark brown (Fig. 4c)
Wing bases	Dark brown rays concentrated in subcostal spaces (less so in cubital spaces), extending to Ax3-7	Faintly yellow about to Ax1, not concentrated in rays	Very faint amber rays, concentrated in subcostal and cubital spaces, extending about to Ax3
Hw length	40-46	35-36.5	33-35
Hw breadth / length	30.6-33.3%	34.3-35.6%	33.3-35.3%
Pt length	3	2	2.5
Pt length / Hw length	7.1-7.5%	5.5-5.7%	7.2-7.4%
Fw Ax	14-20	12-16	10-13
Fw Px	9-14	10	6-8
Fw Cux	4-7	4-5	2-3
Hw Cux	4-5	4-5	3
Cells in anal loop	24-29	19-23	14-19
S4-7	All dark	All dark	With pale basolateral streaks, extended to dorsal ring on S7
S8-10 venter	All strongly extended apically	All strongly extended apically	S8 not, S9-10 weakly extended apically
Cerci	Pointed, elongate and out-curved (Fig. 2a)	Blunt, elongate and out-curved (Fig. 2b)	Pointed, stout and straight (Fig. 2c)
Epiproct / paraprocts	Much shorter (Fig. 1a)	About equal (Fig. 1b)	About equal (Fig. 1c)
Vulvar scale	Long and bilobed with deep cleft, apices pointed, cleft narrows towards base, long hairs extend from apices to base of cleft (Fig. 3a)	Long and bilobed with deep cleft, apices widened and rounded, cleft widens towards base, long hairs confined to apices (Fig. 3b)	Very short, consisting of two widely separated lobes, almost bare (Fig. 3c)

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