Odonatologica 36(3): 285-290 *September 1, 2007*

SHORT COMMUNICATIONS

THE LARVA OF *IDIONYX STEVENSI* FRASER FROM NEPAL (ANISOPTERA: CORDULIIDAE)

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Received November 10, 2006 / Reviewed and Accepted December 14, 2006

The ♂ larval exuviae is described and illustrated from a freshly emerged individual observed *in situ* (Shivapuri Hills, Nepal). Comparison is provided with a larva of the same sp. and exuviae of *I. yolanda* (Malaysia). A note is made on the unusual arrangement of labial setae, which appears to be typical of the genus.

INTRODUCTION

During a visit to the Shivapuri Hills north of Kathmandu a teneral female and its exuviae were observed amongst bushes overhanging a small roadside runnel, approximately 1000 m.a.s.l. The adult was retained for identification purposes. A second larva was later identified, having been taken in the sluggish margin of a nearby torrential stream, where larvae of the following were also found: *Megalestes major* (Selys), *Epiophlebia laidlawi* (Tillyard). *Davidius zallorensis delineatus* (Fraser), *Anotogaster nipalensis* (Selys), *Neallogaster latifrons.* (Selys) and *Chlorogomphus atkinsoni* (Selys).

BRIDGES (1994) lists 28 species of *Idionyx* from India, Nepal and South East Asia. *I. stevensi* is described as widespread in Indo-China and apart from Nepal is recorded from Bangladesh, western China and India (WILSON, 1996).

IDIONYX STEVENSI FRASER

Figures 1-4

M a t e r i a l. – 1 final instar ♂ exuviae, with adult, NEPAL: Shivapuri Hills, 1000 m.a.s.l. approx., 30-V-2000, det. R.G. Kemp; – 1 F-3 ♂ larva, same locality, 28-V-2000. – Material was illus-

trated using a stereomicroscope, ratios were determined using an ocular micrometer (0.1-10.0 mm). Both specimens needed careful cleaning, owing to the hairy nature of the bodies and the substrate attracted.

MORPHOLOGICAL DESCRIPTION. – Habitus (Fig. 1) length 17.5 mm. Dorsal colour dark brown (concealed beneath a heavy mud encrustation), the whole body being covered in a mixture of warty excresences, short spines and long finer hairs, ventrally the colour is a lighter brown overall.

Head. – Oval-shaped with a prominent rounded frons which conceals both clypeus and labrum in dorsal view; it is angled upwards at 45° from horizontal plane and has a frontal pectinate fringe of tightly packed setae, which are rather flattened distally, producing a fan-shape (Fig. 4). These setae are semi-transparent and appear to bear ribbed or veined markings. The rest of frontal head is covered in a scattering of long and short fine setae. The ocellar mound is pronounced, but only the frontal ocellus is visible, the mound itself being covered in a similar mixture of setae.

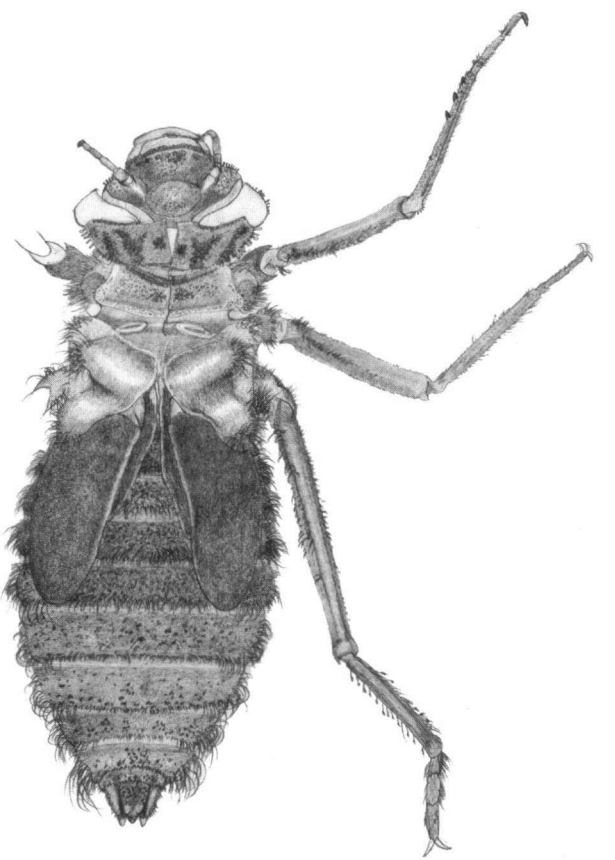


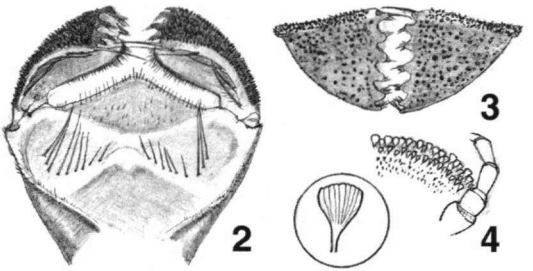
Fig. 1. *Idionyx stevensi*, larval habitus.

The antennae, scape and pedicel are short, dark, coated in a ring of stout setae and separated by pale joints. The basal half of the 3rd seg. is pale, but the rest of the segments is dark and coated in hairs and detritus. The ratio of the segs is 1 = 1.0; 2 = 1.2; 3 = 1.8; 4 = 1.0; 5 = 0.8; 6 = 1.1; 7 = 1.2.

Eyes are small, projecting slightly upwards and rearwards. The occiput has smooth areas of muscle scar and is de-

marcated by densely crowded club-shaped setae. The lateral margin bears a dark spot and is edged with longer, thicker setae which decrease in size towards the rear margin.

Labium (Fig. 2) has mental setae arranged in 3 separate groups, decreasing in size towards the middle, LHS 3+4+2, RHS 3+1+5. The distal margin has 20+ small crenulations, which gradually diminish laterally, a random number of which are matched by spinous setae internal to the edge.



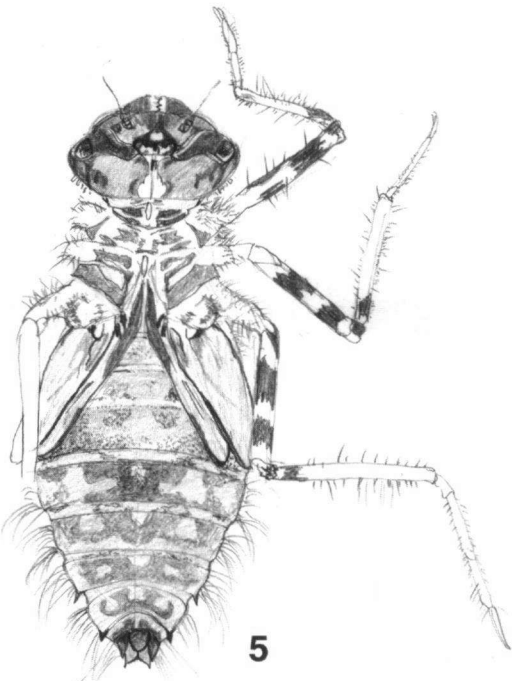
Figs 2-4. *Idionyx stevensi*: (2) labium, dorsal view, showing distribution and types of setae; – (3) labium, frontal view; – (4) left frons and antennal base, in dorsal view, showing shape of setae; – [inset] detail of fan-shaped seta.

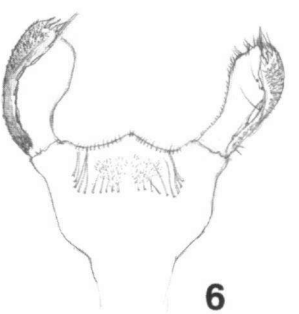
The ligula is rounded and bears 15+ crenulations internal to which are 11 longer, sharp setae. Basal to the distal margin is a row of even longer sharp setae LHS 12, RHS 14 which is discontinued behind the ligula. Between this row and the area occupied by the mental setae the labium is covered with a field of 40+ tiny and very fine setae.

Ventrally the labium appears large and stocky, the hinge resting between meso and meta-coxae. The whole prementum is covered in short fan-shaped setae (as seen on the frons). The distal margins of the palps (Figs 2-3) have 8 lobes with 7 crenulations, the scallops of which are angled towards the outer margins. Each lobe bears a bunch of spines the innermost having 6, the outermost 3 with grading occurring between, some evidence of damage reducing the number visible. Palpal hooks are stouter, but not longer than the palpal setae, of which there are 5 on each side.

T h o r a x. – Prothorax (Fig. 1) is flattened, with angled posterior corners, its sides developed laterally in rounded densely setosed lobes. The meso-thoracic spiracles are pale and pronounced.

Legs are stout, front and middle pair being relatively long, whereas the hind pair are not greatly developed. All femorae have a ridge of setae which decrease in number distally. The front tibiae have a dorsal ridge of setae, which also decrease in number distally. Front tibiae have a dorsal ridge of very short claviform setae, which become longer on the outer edges. The inner edges have 3 very large knob-like setae (Fig.1), which appear to be coated in a hardened crust. The central tibiae have an inner row of long spinate setae, but no larger ones. The rear tibiae have similar rows with developed knob-like setae on both inner and outer margins. Tarsi are paler in colour, the dorsal surfaces being covered in fine setae, ventral surfaces bearing combs of slightly stiffer setae, with a few long and stout setae on the basal segments. Tarsal claws are recurved.





Figs 5-6. *Idionyx yolanda*: (5) larval habitus; – (6) labium in dorsal view.

Wing cases, which reach over the basal margin of seg. 6 are widely separated, dark in colour and fringed laterally with dense setae. The central areas have scattered fine setae

A b d o m e n. – The dorsal surface of each segment is densely crowded with a mixture of fine and stout setae. The distal margins have rows of stout setae, the central portions having a claviform type, which are also present over most of the dorsum. Laterally the spines become finer and more scattered. The lateral margins of the abdomen bear long setae, which become progressively longer on the distal segments. The anal appendages, (Fig.1) are short, equal to segs. 9 + 10 and hairy. The sausage-shaped cerci are approximately ¾ length of the paraprocts and are marginally shorter than the epiproct, which bears a pair of small protrusions 2/3rds distally, marking the male projection. Ventrally the surface is mid-brown, all segments bearing an even distribution of spinous setae and having longer rows of setae on the distal margins. The distal margin of seg. 9 has a fringe of long hairs, which overlap seg. 10. Male accessory genitalia are visible as pale patches on segs 2 and 3.

Lateral spines are only just visible amongst the setae on seg. 9 and do not overlap the margin of seg. 10. On seg. 8, a microscopic spine is only visible on the left hand side.

DISCUSSION

Idionyx species are known to be inhabitants of small rainforest streams and seepages, the adults often flying undetected in the gloom. The larvae appear to inhabit a similarly gloomy world, being dredged up mainly from leaf trash areas on the lentic margins of rapid streams, where the eggs are originally laid (FRASER, 1936). They can be recognised by their mini *Macromia* appearance, having darkly marked heads but rather shorter legs. The rounded heads and abdomen separates them from *Micromidia* larvae, which may often be found in the same streams. The arrangement of setae internal to the distal margin of the prementum separates them from other known cordulid genera.

The second larva attributed to *I. stevensi* has identically arranged labial and palpal setae, but is less hairy, the frons is not so well developed and the spines are comparatively larger and more easily visible.

Comparative material includes larvae and exuviae of *I. yolanda* (Selys) (10 ♂, 1 ♀, Malaysia), the larvae of which appear similar anatomically, but are more delicate in build, less hairy, with a lighter ground colour that contrasts with the dark head and wing cases. The tarsi are all much longer than those of *I. stevensi* producing a longer-legged somewhat spidery appearance. Some fan-shaped setae are present but the majority are longer and less flattened. The distribution of setae on the labium is practically identical, however the ridge of setae on the outer edge of the labial palps is larger and separated from the those present on the ventral surface of the palps, whereas in *I. stevensi* there is a gradation (Fig. 3).

(LIEFTINCK, 1971) contains an illustration of *I. montana* which shows an almost identical labial condition to the above mentioned spp.

ACKNOWLEDGEMENT

I am thankful to R.G. KEMP for his keen eye in taking and determining the emerging adult and for the loan of the exuviae.

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