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Taxonomical notes on *Indolestes* Fraser, 1922 (Lestidae, Zygoptera). 1. *Indolestes gracilis expressior* ssp. nov. from eastern Cambodia

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Abstract

Indolestes gracilis expressior ssp. nov. is described by a male from Cambodia, Mondulkiri Province, the river upstream of Buu Sraa Waterfall 12°34′ N 107°25′ E. Another male presumably belonging to this subspecies was illustrated from southern Laos in literature. The new subspecies is characterised by more inflated apical part of the cercus than in earlier known subspecies and is thought to range in plateaux of eastern Cambodia ?and southern Laos, although very rare.

Key words: dragonfly, Odonata, Cambodia, *Indolestes gracilis expressior*

Introduction

The genus *Indolestes* Fraser, 1922 has two centres of diversity, in the continental South and South-East Asia and in the Near Oceania (New Guinea with satellite islands and Australia). The genus is moderately diverse in Wallacea (Sulawesi and Lesser Sundas east of Wallace Line) and Oceania but very poorly represented in Sundaland (Malay Peninsula, Sumatra, Java, Borneo, Bali, the Philippines), with just one Bornean species *I. dajakanus* Lieftinck, 1948 (Lieftinck 1954, 1960; Tsuda 2000; Kalkman & Orr 2013) and *I. anomalus* Fraser, 1946 penetrating to Peninsular Malaysia (Ng et al. 2011). The total number of species in the genus is hard to evaluate since a number of them are known from original descriptions only and may be synonyms or subspecies.

While surveying Odonata in Mondulkiri Province in the eastern Cambodia, I collected a single *Indolestes* male specimen very close to *I. gracilis gracilis* (Hagen in Selys, 1862) but with peculiar cerci having somewhat club-like apical portions. Similar appendages are figured for a specimen from southern Laos by Yokoi & Souphanthong (2014). Since this region is remote from the known range of *I. gracilis* spp., a new subspecies is described below.

A taxonomical overview of *Indolestes* species with attenuated cerci

Among continental species of Indolestes there is a group of related species with male cerci apically attenuated in the caudal direction (Figures 1-3). Fraser (1933: 76) metaphorically described this as «the two appendages resembling the arms and hands of a man in the act of diving».

Indolestes birmanus (Selys, 1891)

This species is conventionally mentioned here as its cerci are but very slightly or not at all attenuated in the caudad direction. It is specially considered and its holotype is illustrated in communication by Kosterin & Poggi (2015) in this issue.

Indolestes cyaneus (Selys, 1862)
Figure 1a

More distant from the two following species than they from each other, larger, with more robust cerci, paired black spots on S2-7 and generally much more blue on the abdomen. It has a smaller range confined to the Himalayas in northern and eastern India and Bhutan, with a surely erroneous record from Taiwan (Dow 2009; Joshi & Kunte 2014).

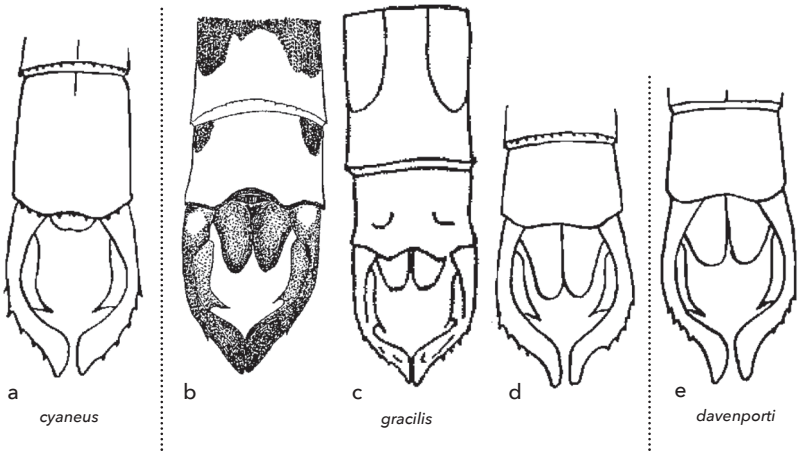

Figure 1. *Indolestes* ♂ taxa as illustrated in literature — anal appendages, dorsal. — a, *I. cyaneus* after Fraser (1933: fig. 34, as *Ceylonolestes cyanea*); - b-d, *I. gracilis gracilis:* b, after Asahina (1976: figs. 10, as *Indolestes gracilis*); c, the type of *Lestes gracilis* from Hagen's collection (after Asahina 1976: fig. 13, as *Indolestes gracilis*); d, after Fraser (1933: fig. 28, as *Ceylonolestes gracilis*). — e, *I. gracilis davenporti*, after Fraser (1933: fig. 31, as *Ceylonolestes davenporti*). Not to scale.

Indolestes gracilis (Hagen in Selys, 1862).
Figure 1b-e

This species has at least two subspecies:

I. *gracilis gracilis* (Figure 1b-d) from Sri Lanka (Ris 1916; Fraser 1933; Dow 2013; Bedjanič et al. 2014);

I. gracilis davenporti Fraser, 1930 (Figure 1e), ranging in Western Ghats (Fraser 1933), southern Hindustan: Shembaganur, Madura, Tamil Nadu State (Ris 1916, as *I. gracilis birmanus* nec Selys, 1891), and a dubious record from Punjab (Prasad & Kumar 1977; Dow 2010).

Indolestes peregrinus (Ris, 1916)
Figure 2a-c

Ranges in Japan, Korea and very widely in China (Wilson 2009). This species has the following synonyms: *Lestes extraneus* Needham, 1930, *Lestes monteili* Navás, 1935, and, probably, *L. coeruleus* Fraser, 1924 (Wilson 2009; Dow 2013). It was first described as a subspecies of the preceding species, as *Lestes gracilis peregrinus* (Ris 1916), basing on the differences in the dark pattern. The main of them are as follows: synthorax dorsal stripe with projections in *peregrinus* versus with straight margins in *gracilis*; abdominal marks separated into anterior and posterior parts in *peregrinus* versus entire in *gracilis* (Ris 1916). However, Asahina (1976) substantiated that *I. peregrinus* and *I. gracilis* are bona species. He pointed out that the above mentioned differences in the body pattern are reliable in spite of variability of its general expression, and added the important difference in the shape of the paraprocts, which is pointed in dorsal view in *I. peregrinus* and rounded in *I. gracilis*.

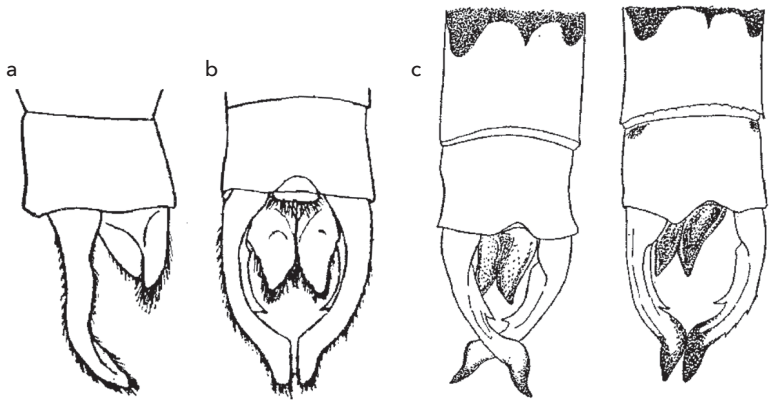

Figure 2. *Indolestes peregrinus* ♂ as illustrated in literature – anal appendages lateral (a), dorsal (b+c). – a, b, after Ris (1916: fig. 2, as *Indolestes gracilis perigrinus*); c, after Asahina (1976: figs 5, 7). Not to scale.

Indolestes guizhouensis Zhou & Zhou, 2005
Figure 3a-c

In the original description this species, recently described from Guizhou (Zhou & Zhou 2005), was compared to *I. gracilis* but not to *I. peregrinus* and *I. birmanus*, that would be more reasonable geographically. S9 was described and shown to be entirely black (Figure 3a) as in *I. birmanus*. The schematic original figures (Figure b, c) do not show well the paraproct shape, while the cerci are shown to have so long proximal part that the inner spine is situated proximally to the middle of their length (distally in other species of the group considered). To clarify the taxonomic position of these specimens, their reexamination of photographs are necessary

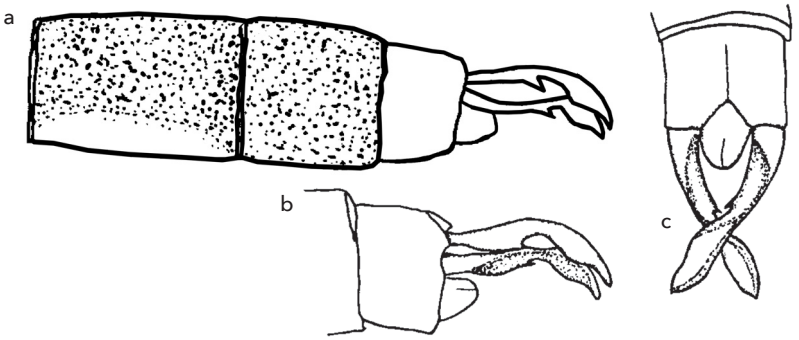

Figure 3. *Indolestes guizhouensis* ♂ as illustrated in literature — a. S8-S10, lateral; anal appendages b. lateral, c. dorsal. — after Zhou & Zhou (2005: figs. 4, 5). Not to scale.

Material and methods

Illustrations of morphological details were prepared from serial photographs obtained via lens Zeiss Stemi 2000-C with digital camera Canon PowerShot A640 at the Institute of Cytology and Genetics of Siberian Branch of Russian Academy of Sciences, Novosibirsk. Images with broad focus zones were obtained from serial photos with shifted focus using the program Helicon Focus 5.3 (http://www.photo-soft.ru/helicon focus.html).

Unfortunately, no type specimens were examined, except for *Lestes birmana* Selys, 1891 (see Kosterin & Poggi 2015), and the comparison was based on the published illustrations. Those by Fraser may be too schematic, those by Asahina and Ris are usually very precise. Anyway, I relayed on similarity of drawings from at least two independent sources (Figures 1, 2). In case of *I. gracilis gracilis*, the appendage drawings by Fraser (1933) and Asahina (1976) were very similar. In case of *I. peregrinus*, those by Ris (1916) (of the type specimen) and Asahina (1976) were nearly identical and matched a male specimen which I have from South Korea (Jeju-do Island, Bukjeju-gun, Jocheon-eup, Seonheul-ri, 31 VII 2002, O. Kosterin leg.).

Indolestes gracilis expressior ssp. nov.

Figure 4a-h

Material studied

Holotype ♂, Cambodia, Mondulkiri Province, the river upstream Buu Sraa Waterfall, the left bank at the bridge, 12°33'55'' N 107°25'09'' E, 502 m a.s.l., 9 VI 2014; deposited in Naturalis Biodiversity Centre, Leiden, the Netherlands (RMNH).

Etymology

Expressior is a Latin adjective in gradus comparativus and genus masculinus, meaning 'more expressed', referring to a more expressed differentiation of the apical part of the cercus than in other subspecies.

Male (Figure 4)

Head. Labium bluish in central part, yellowish at margins. Labrum, mandible bases, genae dull bluish (Figure 4a, b). Anteclypeus of the same colour with a small indistinct dark spot at centre, postclypeus mostly dark-bronze with anterior part dull bluish forming a central projection of this colour. Frons, vertex and occiput dark-bronze, there is a pair of greenish spots just below lateral ocelli and another one lateroposteriorly of the former. Antennae blackish-brown (Figure 4b).

Thorax. Prothorax dull bluish with dorsal suture slightly darker brown and a pair of two indistinct bronze dorso-lateral patches (Figure 4c). Posterior lobe slightly raised with smooth margins, light-brown, darker dorsally (Figure 4a, c). Mesostigmal plate broadly-triangular, with a transversal lens-shaped central hollow deepening to its lateral ends, and deep middorsal groove. Central hollow and adjacent anterior margin brown, the rest dark-bronze but with brownish lightenings at sides of middorsal groove (Figure 4c). Synthorax ground colour changes from olivaceus at mesepisternum to dull blue on sides (Figure 4a). There is a broad middorsal dark-bronze band but dorsal ridge narrowly brown. There are elongate black spots at top of humeral and the first lateral sutures and a slight trace of a brownish stripe below mesopleural suture, with a small brown spot with indistinct margins in its dorsal part (Figure 4d). Sclerites at wing bases blue. Coxae and trochanters bluish, rest legs brownish, with outer sides of femora, ventral ribs of tibia, tips of tarsi, spines and hooks blackish (Figure 4a).

Wings hyaline, major veins dark brown, minor ones black. Discoidal cell very narrow, its dorsal side is ca 0.35 as long as ventral side in fw and ca half as long on hw postnodals 10 on fw, 9 on hw. Pterostigmata of folded fore and hind wings disposed exactly near each other. They are ca 2.2 as long as high, accompanied with two cells below, dark-brown, bordering longitudinal veins somewhat swollen and darkened (Figure 4e).

Abdomen. Ground colour dull blue at S1-S3 (Figure 4a) changing to brownish at S5-S8 (partly shown in Figure 4f) but again greyish blue at S9-S10 (Figure 4g, h). Tergites

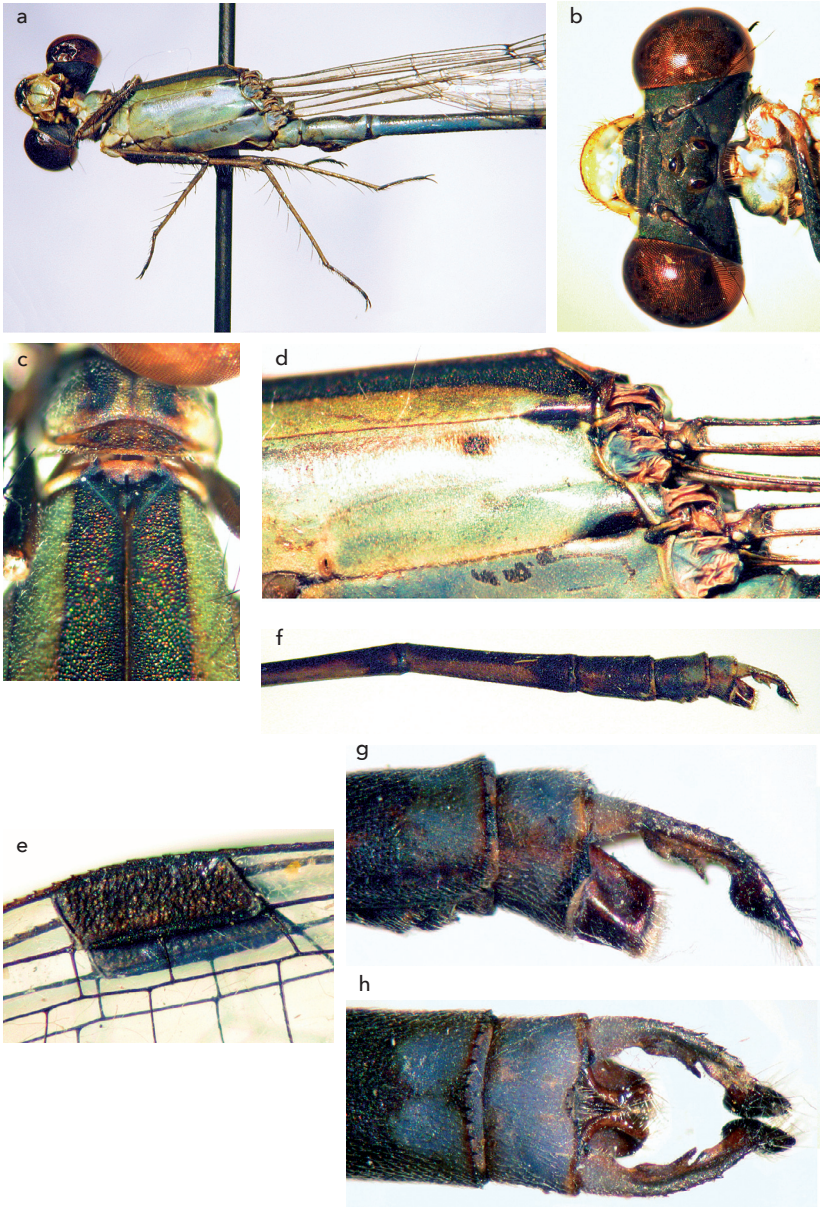

Figure 4. Details of *Indolestes gracilis expressior* ♂ ssp. nov. – a, head, thorax and abdominal segments 1-2; b, head, dorsal view; c, prothorax and synthorax dorsum, dorsal view; d, top of synthorax, lateral view; e, pterostigmata; f, S6-S10 of abdomen; g, anal appendages, lateral view; h, the same, dorsal view. Not to scale.

1-7 with solid dark-bronze to blackish dorsal stripes. That on S2 shaped as squid body with a tail directed anteriorly. Those on S2-S7 are constricted anteriorly, before tergite anterior margins, marked with black rings, and rather indistinctly expanding to tergite ventral margins posteriorly (Figure 4a, f). S8 dark with indistinct lateral brownish patches in its anterior half (Figure 4f). S9 blackish with a pair of indistinct greyish-blue spots at posterior margin, nearly fused to each other, occupying half of its length. S10 greyish blue above changing through reddish-brown to blackish below (Figure 4h).

Cerci about twice as long as S10. In dorsal view (Figure 4h), their outer outline (bearing sparse robust spines) smoothly curving towards each other to distinct apical portions occupying about 1/3 of the cercus projection to the central axis. Apical portions drop-shaped, rounded proximally, bluntly pointed distally, directed caudally but very slightly diverging. Inner outline of cerci elaborate: narrowing at ca 1/5 of their length, then with a ventro-adaxial ledge ending with a long process, then slightly broadening again; cercus apical portion forms a prominent rounded backward 'heel'. In lateral view (Figure 4g), cercus dorsal outline nearly straight at basal 2/3 then bends down. Cercus ventral outline narrowing at basal 1/4, ventro-adaxial ledge with a subbasal blunt spine (not seen in dorsal view) and apical process; cercus apical portion hoof- or pen-like, with a rounded base and attenuated apex, occupies 1/3 of cercus length. Cercus dorsal side greyish blue, apical portion blackish-brown, rest brown (Figure 4g, h). Paraprocts light-brown, thrice as short as cerci, rounded in dorsal view, trapezoid in lateral view, their dorsolateral side deeply concave with semicircular ridges occupying the concavities (Figure 4g, h).

Measurements [mm] – hw 18; abd (without apps) 29; total length (with apps) 38.

Female unknown

Differential diagnosis and remarks

The shape of the cerci of the new subspecies (Figure 4h) is close to that of *I. gracilis* spp. (Figure 1b-e) and *I. peregrinus* (Figure 2). However, the apical portion of the cerci is curiously inflated basally in dorsal view, forming a prominent 'heel' protruding medio-anteriorly. So the cerci resemble rather legs and feet of a man in the act of brass swimming than the arms and hands of a man in the act of diving, as in the mentioned species. None of so far described taxa of *Indolestes* displays this shape of the cercus apical part, modification of which in the new subspecies looks most pronounced as compared to the related taxa. In other subspecies of *I. gracilis, I. peregrinus* and *I. cyaneus*, the inner outline of the cercus at the apical portion base in dorsal view just turns caudad without a concavity before the apical part to form the 'heel'. Drawings of the appendages of *I. gracilis* spp and *I. peregrinus* from Ris (1916), Fraser (1933) and Asahina (1976) are reproduced in Figures 1b-e + 2a-c. *Indolestes cyaneus* has more robust cerci with a less attenuated and inflated apical part (Figure 1a) (Fraser 1933). The coloration of the cerci, with distinctly darker apical portion, is as in *I. peregrinus*

(Asahina 1976), while in *I. gracilis gracilis* they are almost dark throughout (Fraser 1933; Asahina 1976). However this character may vary with age, individually and geographically. The paraprocts in *I. gracilis expressior* ssp. nov. (Figure 4h) are bluntly rounded in dorsal view, as should be in *I. gracilis*.

The body coloration and pattern, with straight margins of the synthorax median black band and the solid abdominal black markings not divided into anterior/posterior or left/right parts, is similar to those in *I. gracilis* and contrasted to *I. peregrinus* (Asahina 1976). Moreover, reduction of the humeral spots is similar to the nominotypical subspecies *I. g. gracilis* from Sri Lanka. Lieftinck (1940) pointed that in that subspecies, these spots are variable from complete absence to 3-4 isolated spots or even fused into irregular fascia (as in *I. g. davenporti* and *I. birmanus*). The small spot below the mesopleural suture in the holotype of *I. gracilis expressior* ssp. nov. (Figure 4d) is brown and diffuse at margins, as it often happens with a variable, environmentally induced melanisation in some damselflies, e.g. in northern populations of *Enallagma cyathigerum* Charpentier, 1840 in Eurasia (Kosterin & Zaika 2010).

Yokoi & Souphanthong (2014: fig. 4) provided a drawing of the appendages of a male of «*Indolestes* sp. 3» (Figure 5) from Paksong, Bolaven Plateau, Champasak Province, southern Laos. Their shape is very similar to *I. gracilis expressior* ssp. nov., so that specimen most probably represents the same subspecies. Unlike the here described holotype, the photo of the general habitus of this specimen shows a complete humeral stripe (Ibid.: pl. 1). However, the great variation of the humeral pattern is common in Sympecmatinae and observed in *I. gracilis gracilis* (Lieftinck, 1940), hence is expected in *Indolestes gracilis expressior* as well, perhaps depending on environmental conditions.

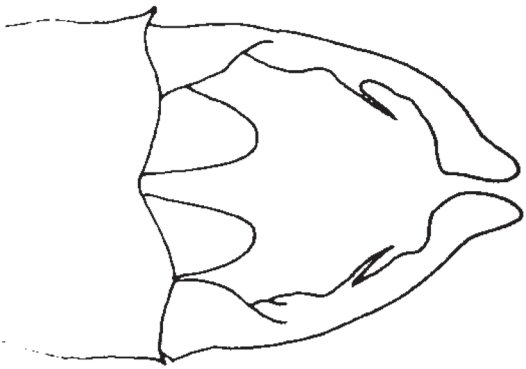

Figure 5. Male anal appendages, dorsal. – *Indolestes ?gracilis expressior* ♂ ssp. nov. after Yokoi & Southpanthong (2014: fig. 4, as *Indolestes* sp. 3).

Distribution

The subspecies is known from eastern Cambodia and (tentatively) southern Laos.

Habitat

The holotype was startled from a bush branch in a secondary growth at the left bank of the large river which form the well-known Buu Sraa Waterfall. There were also some shallow stagnant pond and pools nearby. This place was at 502 m a.s.l. (as to Google Earth) and was surrounded by countryside but close to the evergreen forest in the river valley downstream of that place. The Laotian male presumably of this new subspecies was collected at 1310 m a.s.l. (Yokoi & Souphanthong 2014). The nomino-typical Sri Lankan subspecies inhabits mountains, with localities between 1800 and 2500 m a.s.l. (Bedjanič et al. 2014: 76-77).

Discussion

I. gracilis sensu lato ranges from Sri Lanka through western (Western Ghats) and southern (Tamil Nadu State) India (Ris 1916, Fraser 1933), while *I. peregrinus* ranges from S China to Korea and Japan (Asahina 1976; Wilson 2009). East Cambodia is situated far to the east from the range of the former and far to the south from the range of the latter. Hence *I. gracilis expressior* subsp. nov seems to represent the hitherto unknown south-eastern, Indochinese subspecies of this species, characterised by a more elaborated shape of the cerci with a more modified apical part.

No *Indolestes* spp. have been reported for Vietnam (Do & Dang 2006). Yokoi & Souphanthong (2014) listed three not identified *Indolestes* spp. from Laos, with their «*Indolestes* sp3» most probably representing *I. gracilis expressior* ssp. nov. Since subspecies is an entity of intraspecies variation, specifically geographical variation, it is undesirable to describe a subspecies by one or two specimens. However, I am quite convinced in existence of this Indochinese taxon because of the unique apical part of the cercus in an area so remote from other subspecies. Of course, further specimens are needed to reveal the variation of the new species and its range and to finally prove its distinctness. Quite likely, it may appear bona species. Note, however, that this was the first and only *Indolestes* specimen obtained on my five 2-3 week long expeditions to Cambodia in 2010-2014, that is they are very rare. To postpone the description until a consider-able collection accumulates from Cambodia would mean for a long time to operate in discussions of the fauna of Cambodia with an unnamed taxon, among so many others of Indochinese Odonata (e.g. Yokoi & Souphanthong 2014), that is inconvenient.

Acknowledgements

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Taxonomical notes on *Indolestes* Fraser, 1922 (Lestidae, Zygoptera). 2. *Indolestes birmanus* (Selys, 1891) is bona species.

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Abstract

The holotype of *Lestes birmana* Selys, 1891 (currently *Indolestes birmanus* (Selys, 1891)), housed in Museo Civico di Storia Naturale di Genova, is examined and depicted for the first time. Its cerci are not attenuated apically, hence this taxon cannot be a subspecies of *Indolestes gracilis* (Hagen in Selys, 1862).

Key words: dragonfly, Odonata, *Indolestes burmanus*, Myanmar, Thailand

Introduction

The name *Lestes birmana* Selys, 1891 was erected by Selys (1891) in a conditional way. In his paper (Selys 1891) devoted to a collection by Leonardo Fea from Burma (presently Myanmar) in Museo Civico di Storia Naturale di Genova, he identified a male specimen collected on 28.06.1888 [recte 18] in 'Puepoli' (presently Papun, Kayin State; 18°04' N 97°27' E, 155 m asl) as *Lestes divisa* Hagen in Selys, 1862 (presently considered in the binomen *Indolestes divisus*) and mentioned it using this name as a headline. However, he pointed out a conspicuous difference from the typical *divisa* from Ceylon (type locality: Ramboda Pass), a broad and continuous black humeral stripe, and added the following note: "Cette bande noire n'étant pas mentionnée dans la diagnose de la *divisa*, si ce n'est pas une simple omission, l'espèce de M. Fea serait nouvelle, et je proposerais de la nommer *Lestes birmana* qui se distinguerait de la *divisa* de Ceylon par le devant du thorax noir avec une bande bleue antéhumérale de chaque coté" (Selys, 1891: 495) ["The black band was not mentioned in the diagnosis of *divisa*, and if it is not a mere oversight, the species by M. Fea should be new, and I should propose to name it *Lestes birmana*, which would differ from *divisa* of Ceylon by a black front of the thorax with a blue antehumerale stripe on either side."] In spite of the conditional erection, the name *Lestes birmana* Selys, 1891, being proposed before 1961, is available according to ICZN Art. 15.1.

Basing solely on the thoracic pattern, Ris (1916) identified his series of males and females from Sembaganur, Madura, South India (presently in Tamil Nadu State) as the taxon in question, which he regarded as a subspecies of *Lestes gracilis* Hagen in Selys, 1862 (*L. gracilis birmanus*). Importantly, he noted: "Verbreiterung des Appendix superior meist stumpfer als bei *gracilis*, doch ist dieser Punkt individuell variabel" ["Broadening of the superior appendage is usually blunter than in *gracilis*, but this point is individually variable"] (Ris 1916: 14).

Note that, as mentioned above, Selys (1891) identified the type specimen of *L. birmana* under the title "*Lestes divisa"*, which was his main option of his identification of it. Both *divisa* and *gracilis* were described from Ceylon but have quite dissimilar cerci: blunt in *divisa* (Figure 1b) and attenuated apically in *gracilis* (Figure 1c) (Fraser 1933: fig. 31; see also Kosterin 2015: fig. 1b-d). Hence, in spite of Ris' note on "usually" blunter cerci, identification of his specimens as *Lestes birmanus* was problematic. Fraser (1930: 96) solved this problem by proposing a new name "*Ceylonolestes davenporti* (Ris) nov. nom." for "*Lestes gracilis birmanus* Ris nec Selys". Fraser (1930) based his description of characters of this taxon on his specimens from Western Ghats with the appendages as in *gracilis* (see Fraser 1933: fig. 31) but the complete humeral stripes as in *birmanus*. However, since he proposed the new name rather than described a new taxon, this name is based on the type series by Ris (1916).

Fraser (1933) mentioned the taxon in question as bona species but within another genus, as *Ceylonolestes birmana*. He pointed out that the brief original description by Selys (1891) fitted exactly his *Ceylonolestes davenporti* Fraser, 1930, but noted "... I have no doubt the differences will easily be found. ... It is thus, for geographical reasons only at present, that I consider them to be two distinct species" (Fraser 1933: 71).

Later Asahina (1970) published a description and drawings (Figure 1a) of two males collected by Artur Svihla only on 25.04.1953 at Kalaw in Shan State of Myanmar (which is just 250 km NNW of Papun), indentified as *Lestes* (*Indolestes*) *birmanus* (Selys, 1891), bona species. Then *Indolestes birmanus* was reported, also as bona species, for a number of localities in northern Thailand (Chiang Mai, Tak and Loei Provinces) (Hämäläinen & Pinratana 1999).

Importantly, the apices of the cerci shown by Asahina (1970) (Figure 1a) are not attenuated into caudal direction as in *I. gracilis* (Figure 1c) but straight. They were shown crossed in dorsal view and hardly bent down in lateral view (Figure 1a). Besides, S9 is shown entirely dark (Figure 1a), while in *I. gracilis* ssp. its distal part is light (Fraser 1933: Kosterin 2015: fig. 1b, fig. 4g, h). The same characters can be seen on the photos of *I. birmanus* from Phu Kradung National Park, Thailand by Dennis Farrell (www.all odonata.org).

Nevertheless Dow (2010), following Ris (1916), treated the taxon in question as *I. gracilis birmanus* and tentatively retained synonymy of *Ceylonolestes davenporti* Fraser, 1933 to it, in spite of the gap between Western India and Myanmar. However, Dow (2010) left possible an option of them being distinct species.

Ris (1916), Fraser (1930; 1933) and Dow (2010) focused their attention to the similarity of the thoracic pattern of *birmanus* and specimens from Hindustan (denoted by Fraser as *davenporti*). At the same time, the holotype (by monotypy) of *Lestes birmana* was not examined since Selys (1891) and the shape of its anal appendages was never described verbally, nor depicted. However, this was crucial to judge if the true *birmana* had blunt cerci and so related to *divisa* (Figure 1b), as Selys (1891) supposed, or attenuated cerci and so related to *gracilis* (Figure 1c), as Ris (1916) and Dow (2010) supposed.

This is now fulfilled by the second author, Honorary Curator of Museo Civico di Storia Naturale 'Giacomo Doria', and the results are presented below.

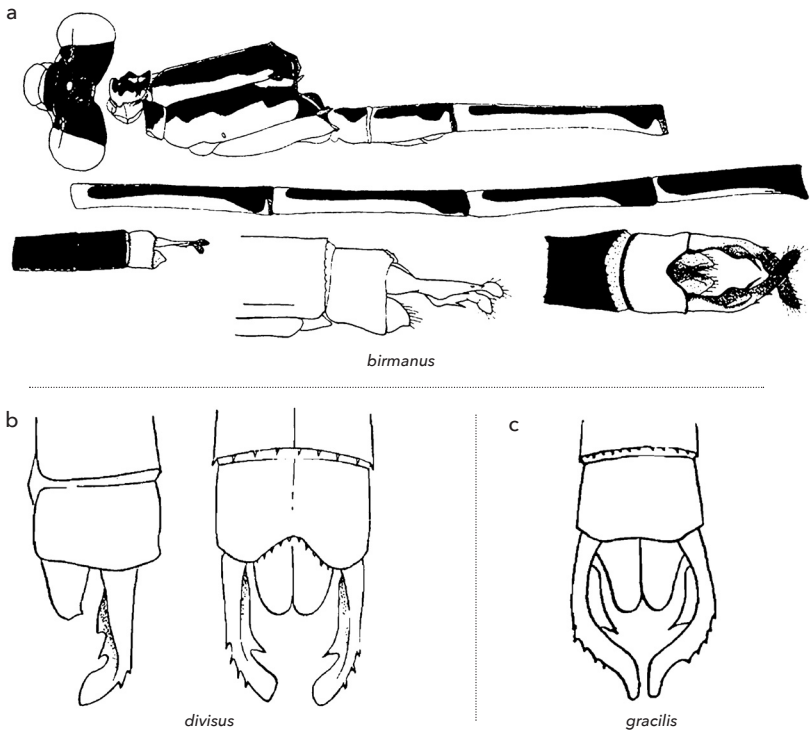


Figure 1. Details of some *Indolestes* spp. ♂♂ as illustrated in literature. – a, *I. birmanus*, body coloration and anal appendages, after Asahina (1970: figs 9-10, as *Lestes (Indolestes) birmanus*); b, *I. divisus* , anal appendages in lateral and dorsal view, after Fraser (1933: fig. 29, as *Ceylonolestes divisa*); c, *I. gracilis gracilis*, anal appendages in dorsal view, after Fraser (1933: fig. 28, as *Ceylonolestes gracilis*). Not to scale.

Holotype of *Lestes birmana* Selys, 1891

The holotype of *Lestes birmana* (Figure 2) is present in good condition in Museo Civico di Storia Naturale 'Giacomo Doria' (Figure 4a). It has a small handwritten yellow label "Puepoli / 18. VI. 88", a yellow label "Lestes / birmana Selys / (divisa? Hagen) / Puepoli / ♂" written by Selys' hand, a red label "HOLOTYPUS / ♂ / Lestes / birmana / Selys, 1891" and a pale gray printed label "Museo Civico di Genova" (Figure 4b).

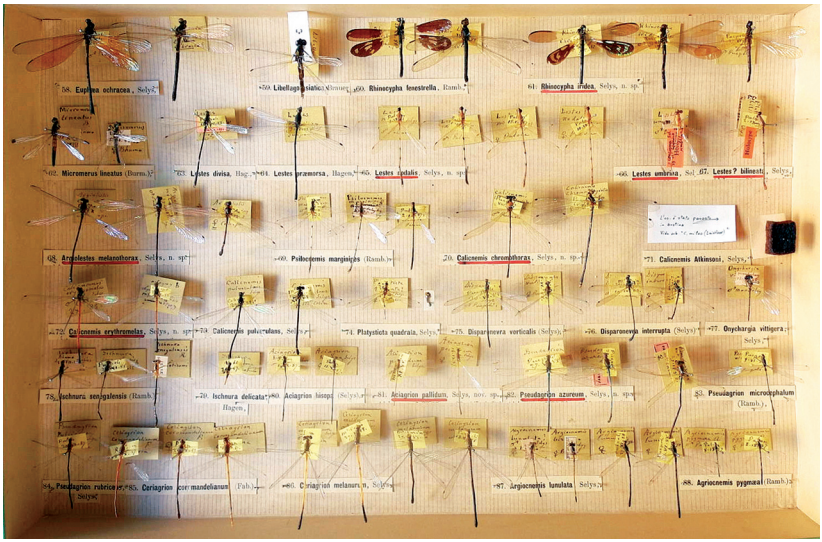
Of its diagnostic characters the following should be mentioned:

- a broad black humeral stripe with three slanting ledges at its lower margin (Figure 3d);
- S9 entirely black (Figure 3e), except for two pairs of tiny light spots, lateral and lateroposterior, seen only in lateral view (Figure 3f) ; S10 entirely light (Figure 3e);
- cerci in dorsal view long, with apices rather strait, moderately broadened and negligibly attenuated caudad and touching each other (Figure 3a).
- a small and short apical tooth on each paraproct, seen in dorsoposterior view (Figure 3b).

Figure 2. General habitus of the holotype of *Lestes birmana* Selys, 1891 (presently *Indolestes birmanus* (Selys, 1891)) preserved at Museo Civico di Storia Naturale 'Giacomo Doria', Genova. © Museo Civico di Storia Naturale "G. Doria", Genova.

Figure 3. Details of the holotype of *Lestes birmana* Selys, 1891 (presently *Indolestes birmanus* (Selys, 1891)) preserved at Museo Civico di Storia Naturale 'Giacomo Doria', Genova. a-c, anal appendages in dorsal (a), dorsoposterior (b) and ventral (c) view; d, head and thorax; e, f, end of abdomen in dorsal (e) and lateral (f) view. Not to scale. © Museo Civico di Storia Naturale "G. Doria", Genova.

a



b

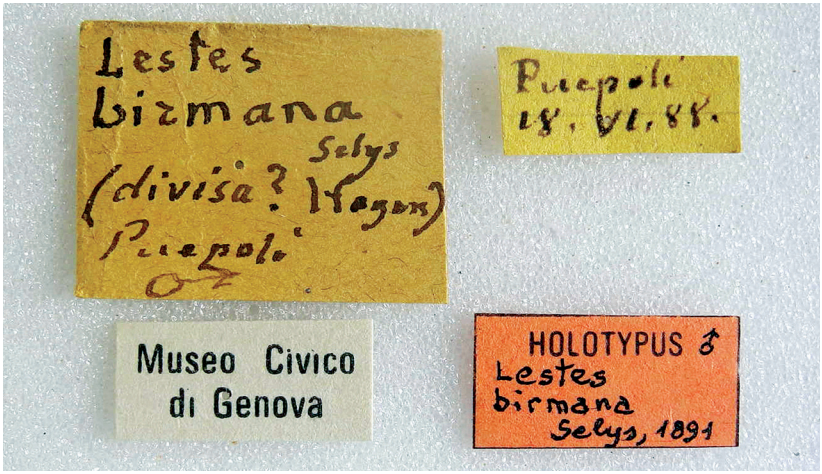


Figure 4. The box in Museo Civico di Storia Naturale 'Giacomo Doria' di Genova containing a part of specimens collected by Leonardo Fea, including the holotype of *Lestes birmana* Selys, 1891, and identified by Selys Longchamps (a), and the labels of the said holotype (b). Not to scale. © Museo Civico di Storia Naturale "G. Doria", Genova.

Discussion

Note that at present, the species to which this note is devoted is considered in the genus *Indolestes* Fraser, 1922. This genus, as well as the genus *Lestes* Leach, 1815, are now considered to be of the masculine gender, so the correct combination and spelling, according to the ICZN Art. 34.2, of the species is *Indolestes birmanus* (Selys, 1891). In the past, the mentioned genera, and also *Ceylonolestes* Kennedy, 1920 (presently a synonym of *Austrolestes* Tillyard, 1913, see Bridges 1994), were considered in the feminine gender, hence Selys (1891) and Fraser (1930; 1933), but not Ris (1916), used species epithets in these genera in the feminine gender. In Introduction, we mentioned the names in combinations and spellings as used by the cited authors. Below we will use the correct modern combinations and spellings.

The most important diagnostic character in *Indolestes* is the shape of cerci. The holotype of *birmanus* has their apices rather long, longer than in *I. divisus* (Figure 1b) but scarcely attenuated caudad, thus differing from *I. gracilis* (see Kosterin 2015, this issue). It may be said that their shape is intermediate between the two last mentioned taxa.

The diagnostic value of the short apical tooth on each paraproct is unclear. This trait was neither mentioned for *I. gracilis* or *I. divisus* nor shown in the drawing of *I. birmanus* (Figure 1a) by Asahina (1970). The paraprocts of the related species *Indolestes peregrinus* (Ris, 1916) are pointed but with attenuated tips (Asahina 1976; see also Kosterin 2015: figs 2a-d).

The humeral black pattern can be variable in Sympecmatinae. It is, for instance, variable in *I. gracilis gracilis* in Ceylon (Lieftinck 1940), from complete absence to 3-4 isolated spots or even fused into irregular fascia, as in the holotype of *birmanus*. However, the holotype of *birmanus* shows a peculiar colorational character: the black S9, while in such taxa as *gracilis* s. str., *divisus* and *davenporti* its apical part is always blue in males (Fraser 1933; Bedjanič et al. 2014). The same entirely black S9 is found in the Himalayan species *Indolestes cyaneus* (Selys, 1862), which also has a very slightly attenuated but much broader apices of the cerci, besides it has paired black dorsal spots on S2-6 and is larger (Fraser 1933). The characters of "*Lestes* (*Indolestes*) *birmanus*" depicted by Asahina (1970) (Figure 1a) are the same as in the holotype, except for the cerci apices being not at all attenuated caudad. Their crossing is just a matter of an orientation of a movable organ.

We may conclude that *Indolestes birmanus* is bona species.

One of the consequence of this solution is rejection of synonymy of the taxa *davenporti* Fraser 1930 and *birmanus* Selys, 1891 suggested by Dow (2010). For this reason, the specimens with attenuated cerci from the western and southern Hindustan should be denoted as *Indolestes gracilis davenporti* (Fraser, 1930) nom. resurr.

Acknowledgements

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