

New status for Fraser's forgotten *Aciagrion approximans krishna*, stat. nov. (Odonata: Zygoptera: Coenagrionidae) from the Western Ghats of India

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Aciagrion Selys, 1891 is one of the taxonomically difficult and poorly known genera of Oriental damselflies. *Aciagrion hisopa* race *krishna* Fraser, 1921 was described from Mahabaleshwar, Maharashtra, India. However, later Fraser (1933) doubted the taxonomic necessity of this taxon. His notion of *Aciagrion hisopa* (Selys, 1876) was erroneous, as evidenced by syntypes of this species in Selys' collection, so the ssp. *krishna* is not conspecific with *A. hisopa*. Topotypic specimens of ssp. *krishna* from the Western Ghats were compared to specimens of *Aciagrion approximans* (Selys, 1876) from the Khasi Hills, Meghalaya, which are topotypic because of the recent designation of the neotype of this species in Selys' collection. These two series were found to be very close to each other but differing at the level of subspecies, so we propose a new subspecies status and combination, *Aciagrion approximans krishna* Fraser, 1921. The range and geographical variation of *A. approximans* beyond India is clarified.

<http://zoobank.org/urn:lsid:zoobank.org:pub:85B16FB2-4ED5-4DA7-9649-EAB791D51494>

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Introduction

In his monograph titled: "Dragonflies (Odonata) of British India including Ceylon and Burma", Fraser (1933) reported for the region six species of the genus *Aciagrion* Selys, 1891. Of these, three species shared the common structural feature of the male cerci being bifid in profile: a larger species *A. olympicum* Laidlaw, 1919 from West Himalayas, and two smaller species, *A. hisopa* from "India, Burma and Ceylon; Malaysia" and *A. approximans* from Khasi Hills, Assam (with junior synonyms *A. tillyardi* Laidlaw, 1919 and *Enallagma assamica* Fraser, 1919). The latter species was a subject of long taxonomical confusion since the holotype of *A. approximans* had an unknown geographical origin, was described very briefly, and lost. Many authors preferred to use the name *A. tillyardi* as valid for this species (see Kosterin, Constant, & Wilson, 2014 for a review). As a result, in the IUCN list of threatened taxa both *A. tillyardi* and *A. approximans* were considered valid species (Dow, 2009; Sharma, 2010). This confusion was recently resolved by Kosterin et al. (2014) in favour of Fraser's point of view by designation of a specimen in Selys' collection from Khasi Hill as the neotype of *Pseudagrion approximans* (Selys, 1876).

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This unequivocally made *Aciagrion approximans* (Selys, 1896) a valid name for the species common in Khasi Hills, but its range elsewhere requires clarification.

A. hisopa appeared in the Indian checklists after the paper by Laidlaw (1919) devoted to the Asian representatives of the genus, who listed *A. approximans*, *A. tillyardi* (later synonymised by Fraser, 1933; see also Kosterin et al., 2014) and *A. hisopa* for India. Among them, *A. tillyardi* was described as a new species and *A. hisopa occidentalis* (Laidlaw, 1919) as a new “race” under *A. hisopa*, in a few lines. The status of the latter taxon was later elevated to *A. occidentale*. It is clear from this paper that Laidlaw’s concept of *A. hisopa* Selys was very different from the original description the species.

Fraser (1933, p. 335) considered *A. hisopa* and *A. approximans* as very close and claimed the following differences between them: “posterior lobe of prothorax not crenate behind; black markings on dorsum of segments 2 and 10 restricted” in the former versus “posterior lobe of prothorax trilobate behind; black markings on dorsum of segments 2 and 10 very broad”. However, Fraser’s notion of *A. hisopa* contradicted that of Asahina (1990) who applied this name to a species from Thailand and by Kosterin (2012) who applied it for a species in Cambodia. Both of these authors illustrated the cerci as almost conical in lateral view, with only a small blunt subventral tooth, and both referred to the syntypes of *A. hisopa* from Peninsular Malaysia as having the same shape of the cerci. In fact, with respect to *A. hisopa* Fraser (1933, p. 341, figure 147) contradicted himself by writing “superiors . . . deeply bifid as viewed in profile” but showing them only slightly incised to form a subventral tooth on his schematic drawing of his, figure 147.

Earlier Fraser (1921) described a “race” “*Aciagrion hisopa* race *krishna*” (that according to current ICZN rules formally means a subspecies *Aciagrion hisopa krishna* Fraser, 1921) from “Mahableswhar”, presently Mahabaleshwar, Maharashtra, India. The description occupied 12 lines and does not mention any differences from the nominotypical “race” or any other taxon. In his monograph, Fraser (1933, p. 342) provided a detailed description of “*A. hisopa*” noting that “the above description is made from specimens from Mahabaleswhar, Satara and Poona districts, and is a description of the race named *krishna*”, but again he did not mentioned diagnostic characters of this “race”. In fact, at this moment Fraser was already inclined to dismiss “races” in the species which he considered to be *Aciagrion hisopa*, as follows: “A number of such races exist, and differ only in the markings of the hinder segments of the abdomen, so that it does not seem worthwhile to separate them; in the type the end segments are unmarked with black.”

Ambiguity of Fraser’s notion of what is *A. hisopa*, too subtle differences indicated by him between this species and *A. approximans* (Fraser, 1933), and unclear diagnostic characters and uncertain validity of the “race” *krishna* (Fraser, 1921) require clarification of these taxa. Subsequent researchers following Fraser have used the name *A. hisopa* and some have been reluctant to recognise subspecies in Maharashtra (from where the types come) due to the aforementioned confusion (e.g. Tiple & Koparde, 2015). The latest checklist of Indian odonate fauna lists only *A. hisopa hisopa* (Subramanian, 2014). For this reason we decided to study topotypic specimens of *A. approximans* and ssp. *krishna*, collected by the first and last authors in 2012–2015, and compare them to each other, to syntypes of ssp. *krishna* preserved in the Natural History Museum UK, and to the syntypes of *A. hisopa* preserved in Royal Belgian Institute of Natural Sciences, Brussels (RBINS). Studying of topotypes was necessary in addition to the type specimens since *Aciagrion* damselflies show a considerable intra-populational, age-related and seasonal variation which should be taken into account in search for diagnostic characters, and because the old type specimens are very much darkened due to their being one and a half centuries old. Fixation of the neotype of *A. approximans* Kosterin et al., 2014 made Khasi Hills, Meghalaya, India, without more precise location, the type locality of this taxon.

Fraser’s study area at Mahableswhar, hence the type locality of “*Aciagrion hisopa* race *krishna*”, was described in considerable detail as follows (Fraser, 1921, pp. 540–544): “a small,



Figure 1. Syntype of *Aciagrion approximans krishna* comb. nov. (*A. hisopa*, race *krishna* sensu Fraser, also see Kimmins 1966). (a) Left lateral habitus; (b) close-up of male anal appendages; (c) labels accompanying the specimen. Photo courtesy Natural History Museum UK/Ben Price.

rather dirty, artificial lake used exclusively as a dhubikhanakh and a stream which resulted from the water percolating through the band which encloses the lake to the west. This stream meanders for but a short distance in the dry season and may be said to terminate at Lingmala, two miles from Mahableshwar.” Fraser noted: “Only one species appears to breed in the lake, but most of the other dragonflies breed in the stream whilst a few ascend from the plains below.” Below two species were, however, mentioned for the lake, “*Crocothemis servilia* var. *erythraea*” and *Chloroneura quadrimaculata*, while most others were mentioned for the stream. As to the habitat of “*A. hisopa* race *krishna*”, only the following was mentioned: “Prior to a series of heavy thunderstorms, on the 23rd May [an error, it should be 24 April; see Figure 1c], a large number of these insects emerged from the water”, without explanation of which water. By exclusion (by two instead of one species mentioned for the lake) it may be concluded that this was a stream, but the lake would be a more typical habitat for *Aciagrion*.

Materials and methods

The topotypes of *A. approximans* were collected between Sohra and Shillong, East Khasi Hills District, Meghalaya; the topotypes of “*A. hisopa* race *krishna*” were collected at Lingmala Waterfall, Satara District, Maharashtra (See Table 1 for all the sampled localities) which is presumably downstream of the exact type locality (see above; Fraser, 1921) and Kaas Lake, Satara District, Maharashtra (see Table 2 for details of all localities).

Table 1. Details of all the *Aciagrion approximans* specimens collected during our surveys. See Table 2 for more details on the localities [“Near Sohra” is the topotype locality for *A. a. approximans*, while Mahabaleshwar and Satara are those for *A. a. krishna*.]

Species/sub-species	Specimen code	Sex	Locality	Date	Collector
<i>A. a. approximans</i>	NCBS-AE239	Male	Khonoma	12 May 2013	S. Joshi
<i>A. a. approximans</i>	NCBS-PZ495	Male	Near Sohra	14 May 2014	K. Kunte
<i>A. a. approximans</i>	NCBS-PZ496	Female	Near Sohra	14 May 2014	K. Kunte
<i>A. a. approximans</i>	NCBS-PZ497	Male	Near Sohra	14 May 2014	K. Kunte
<i>A. a. approximans</i>	NCBS-PZ498	Male	Near Sohra	14 May 2014	K. Kunte
<i>A. a. approximans</i>	NCBS-PZ499	Male	Near Sohra	14 May 2014	K. Kunte
<i>A. a. approximans</i>	NCBS-PZ500	Male	Near Sohra	14 May 2014	K. Kunte
<i>A. a. approximans</i>	NCBS-PZ501	Male	Near Sohra	14 May 2014	K. Kunte
<i>A. a. krishna</i>	NCBS-AI946	Male	Mahabaleshwar	24 November 2014	R. Jhaveri
<i>A. a. krishna</i>	NCBS-AI947	Female	Mahabaleshwar	24 November 2014	R. Jhaveri
<i>A. a. krishna</i>	NCBS-AI948	Female	Mahabaleshwar	24 November 2014	R. Jhaveri
<i>A. a. krishna</i>	NCBS-AI949	Female	Mahabaleshwar	24 November 2014	R. Jhaveri
<i>A. a. krishna</i>	NCBS-AI950	Male	Mahabaleshwar	24 November 2014	R. Jhaveri
<i>A. a. krishna</i>	NCBS-AI953	Female	Satara	25 November 2014	R. Jhaveri
<i>A. a. krishna</i>	NCBS-AI954	Male	Satara	25 November 2014	R. Jhaveri
<i>A. a. krishna</i>	NCBS-AI955	Male	Satara	26 November 2014	R. Jhaveri
<i>A. a. krishna</i>	NCBS-AI956	Female	Satara	26 November 2014	R. Jhaveri
<i>A. a. krishna</i>	NCBS-AI957	Male	Satara	26 November 2014	R. Jhaveri
<i>A. a. krishna</i>	NCBS-AI958	Male	Satara	26 November 2014	R. Jhaveri
<i>A. a. krishna</i>	NCBS-AI959	Male	Satara	26 November 2014	R. Jhaveri
<i>A. a. krishna</i>	NCBS-AI960	Female	Satara	26 November 2014	R. Jhaveri
<i>A. a. krishna</i>	NCBS-AI961	Male	Satara	26 November 2014	R. Jhaveri
<i>A. a. krishna</i>	NCBS-AI974	Male	Satara	26 November 2014	R. Jhaveri
<i>A. a. krishna</i>	NCBS-AI975	Female	Satara	26 November 2014	R. Jhaveri
<i>A. a. krishna</i>	NCBS-AI976	Male	Satara	26 November 2014	R. Jhaveri
<i>A. a. krishna</i>	NCBS-AI977	Male	Satara	26 November 2014	R. Jhaveri
<i>A. a. krishna</i>	NCBS-AI978	Female	Satara	26 November 2014	R. Jhaveri
<i>A. a. krishna</i>	NCBS-AI979	Female	Satara	26 November 2014	R. Jhaveri
<i>A. a. krishna</i>	NCBS-PZ996	Female	Shendurney WLS, Kerala	2 May 2013	S. Joshi
<i>A. a. krishna</i>	NCBS-PZ997	Male	Shendurney WLS, Kerala	2 May 2013	S. Joshi

Table 2. Localities sampled (See Figure 5 for the map of India with the following localities marked).

No.	Locality	District	State	Altitude	GPS coordinates
1	Khonoma (in paddyfields on the Khonoma–Mesoma road)	Kohima	Nagaland	1400–1500 m	25°65'53.21" N, 94°02'00.78" E
2	Near Sohra (on Shilong–Sohra road, 17 km before Sohra)	East Khasi Hills	Meghalaya	633 m (also observed at 1000–1200 m)	25°22'727" N, 91°45'101" E
3	Mahabaleshwar (upstream of Lingmala Waterfall in Venna River)	Satara	Maharashtra	1230 m	17°92'21.62", N 73°69'36.38" E
4	Satara (Kaas Lake)	Satara	Maharashtra	1126 m	17°72'84.71" N, 73°80'79.05" E
5	Shendurney WLS	Kollam	Kerala		8°84'78.98" N, 77°25'60.18" E

Aciagrion damselflies were observed *in vivo* and collected during surveys taken place during 2012–2015. Collected specimens are deposited at the Research Collections Facility at the National Centre for Biological Sciences, Bangalore. Close-up photos were made using a Leica MC 120 HD attached to a Leica S8 APO (Leica Microsystems, Germany) microscope and stacked using the software CombineZM [www.hadleyweb.pwp.blueyonder.co.uk] for the male anal appendages and prothorax which are considered diagnostic characters for this species (Fraser, 1933).

The syntype of Fraser's race "*krishna*" from Mahabaleshwar were photographed (photos of anal appendages and the labels were also helpfully provided) and sent to us by Benjamin Price of the Natural History Museum, London, and the photos of two syntypes preserved in Selys Lonchamps' collection at Royal Belgian Institute of Natural Sciences, Brussels, were kindly provided by Jérôme Constant.

Results

Aciagrion approximans approximans (Selys, 1876)

Re-description

This description is of topotypes (Specimen Codes NCBS-PZ495 : NCBS-PZ501) of *Aciagrion approximans approximans* from a locality 17 km from Sohra towards Shillong, East Khasi Hills District, Meghalaya.

Male. Hind wing: 18 mm, Abdomen: 26–27 mm.

Head: Labium brown, with a black stripe adjacent to base; labrum light brown; anteclypeus light brown, postclypeus black; frons partly light; black after the base of the antennae; occiput and vertex dark; behind vertex a bluish-white streak connects two subrectangular spots which are light blue in colour; antennae black; ocelli reddish-brown; eyes olive green with two dark brown stripes with an olive green streak between them (in live specimens).

Thorax: Prothorax black dorsally, light violet on the sides, dorsal half of the anterior lobe light violet; posterior lobe with a clear trilobate structure. Pterothorax with a light violet antehumeral stripe about half as wide as dark humeral stripes, sides sky blue and the central surface pale coloured. Legs light with a black dorsal side of femora and black spines. Postnodals 11–13; antenodals 2. Pterostigma dark violet or black in live specimens, brown, lighter anteriorly in dead specimens.

Abdomen: Segments 2–8 broadly black on dorsum; in each segment black colour broadens distally before a light terminal ring on each segment. In live/freshly pinned specimens, segments 8 and 9 completely violet-blue; many specimens having segment 10 with a black dorsal marking, reminiscent of the "X" mark found in some *Pseudagrion* species. This marking is variable: some specimens with a very faint marking and some with the segment dorsal half completely black. Due to post mortem changes, several specimens show black on segment 8 and 9 so that the blue markings are obscured. Anal appendages black but the ventral half of the paraprocts brown. Cerci in lateral view longer than broad; deeply bifid with both the arms bluntly protruding to about the same length (Figure 2d). The concavity which forms the bifurcation in the paraprocts is shallower than cerci; paraprocts slightly shorter than cerci in length, broader in width (but less so than *krishna*, see below).

Female. Hind wing: 17–18 mm, abdomen: 25–27 mm.

Immature females pass through a series of age-specific coloration forms before attaining the adult coloration as seen in many other Coenagrionidae (e.g. *Ischnura graellsii*; see Cordero, 1990). In teneral females, the ground colour is dull-brown in tenerals and changes gradually to violet markings as the female matures. Only the mature female is described here.

Head: Labium brown; labrum brown with a small black stripe traversing between labrum and clypeus; clypeus and frons of the same dark brown colour; vertex black. The back of the head is marked by a violet-blue stripe which connects postocular spots; S1 and S2 of antenna dark

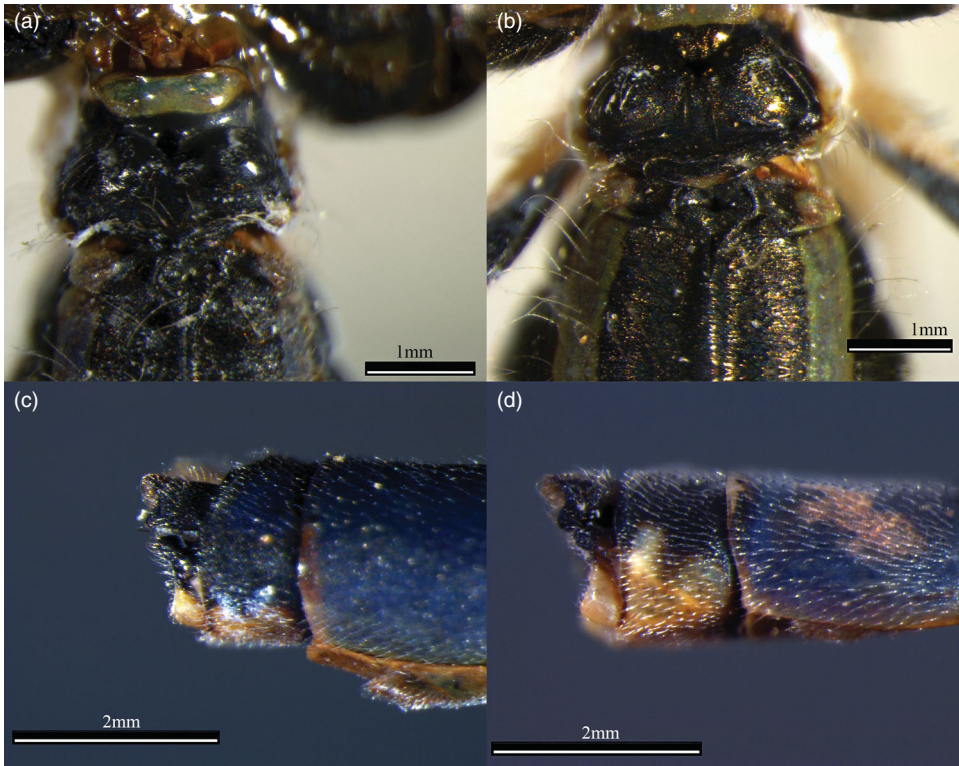


Figure 2. Structures of *Aciagrion approxmans* spp.: (a) prothorax of female *Aciagrion approxmans krishna* (NCBS-AI953); (b) prothorax of female *Aciagrion approxmans approxmans* (NCBS- PZ496); (c) anal appendages of *Aciagrion approxmans krishna* (code: NCBS-AI974) (from “Satara”); (d) anal appendages of *Aciagrion approxmans approxmans* (code: NCBS- PZ497) (from “Near Sohra”).

brown, the remaining segments black. Dorsal 2/3rd of the eyes dark brown with a faint olive green streak running across it, rest of the eyes olive green.

Thorax: Prothorax (see Figure 2b) light coloured, with dorsum of the median lobe black; a blue-green antehumeral stripe runs across the pterothorax onto the sides of the prothorax; black humeral stripes thick; sides of thorax pale bluish green. Legs pale brown in colour with black spines; femora marked with black on dorsal surface; distal end of tibiae, proximal ends of trochanters and claws marked with black. Postnodals 13–15; pterostigma dark brown. Wings slightly enfumed.

Abdomen: Abdomen marked dorsally with black, bluish-green on sides and pale brown ventrally. Segments 2–9 show a ring of blue-violet or bluish green colour at proximal end. Segments 8 and 9 blue with black dorsum; segment 10 fully black or its dorsal half is black and the ventral half is brown or blue. Anal appendages dark bluish or black; ovipositor reaching as far as anal appendages; a robust spine present on the segment 8.

For a live photo of a male topotype of *Aciagrion approxmans* see Figure 3a.

***Aciagrion approxmans krishna* Fraser, 1921**

Re-description

This description is of topotypes (Specimen Codes NCBS-AI946 : NCBS-AI979) of “*Aciagrion hisopa krishna*” from Satara District and Mahabaleshwar (Maharashtra, India).

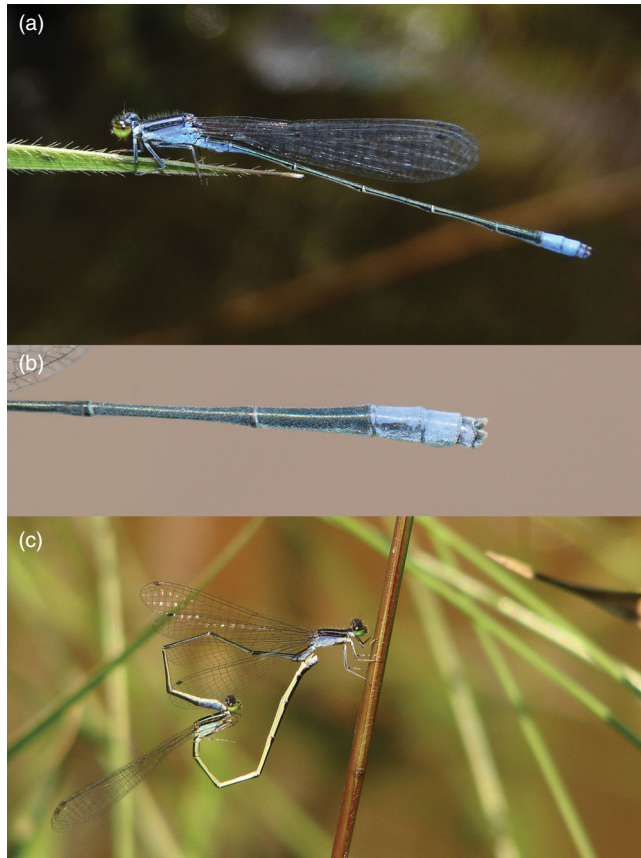


Figure 3. Live photos of *Aciagrion approximans* spp.: (a) *Aciagrion approximans approximans* male from “Near Sohra” (photo by Vivek Sarkar); (b) abdominal end segments of male *Aciagrion approximans kishna* from Amboli, Sindhudurg District, Maharashtra showing the lower half of the eighth segment marked with black (photo by Shantanu Joshi); (c) *Aciagrion approximans kishna* copula from “Satara” (photo by Rishidh Jhaveri).

Male. Hind wing: 15 mm, abdomen: 24–25 mm.

Head: Labium and labrum pale with a black transverse stripe; anteclypeus pale yellow along with genae and frons; postclypeus black; vertex and back of head black encompassing brilliant blue postocular spots and a blue stripe which connects them across. Dorsal 40% of eye tipped with dark brown with a faded green streak running across at middle.

Thorax: Prothorax pale blue on sides; dorsum of anterior lobe conspicuously violet; dorsum of median and posterior lobes black; posterior lobe having a black trilobate “sublobe” structure, very similar to *A. approximans approximans*. Antehumeral stripes violet-blue, slim; sides of pterothorax violet-blue. Postnodals 10–11; antenodals 2. Pterostigma dark violet or black in life, dirty brown slightly proximally in dead specimens.

Abdomen: Segments 1 and 2 violet on sides; segment 2 broadly black on dorsum; segments 3–7 with dorsal half black and ventral half blue; segments show a blue ring at their proximal end. Segment 8 blue, the lower half marked with black in some specimens. Segment 9 blue; dorsum of the segment 10 broadly black.

Anal appendages are similar to the topotypes of *A. approximans*. Cerci deeply bifid; both cerci and paraprocts protruding approximately to the same length (Figure 2a). Paraprocts are slightly variable; similar to those of the topotypes of *A. approximans* in some specimens while appearing conical and less conspicuously bifid in most specimens.

Variation in non-topotypical specimens. SJ observed this taxon also in non-topotypical localities in, namely Hiranyakeshi, Amboli, Sindhudurg District, Maharashtra State, 2–7 November 2012; Cannington Forest, Nilgiri District, Tamil Nadu State 11 April 2013 (also see <http://www.indianodonata.org/sp/339/Aciagrion-approximans> for images from these and other localities online), These specimens were compared to the topotypical descriptions for inconsistencies in the morphology.

The postocular-spots are slightly variable. Some males show a blue band traversing the back of the head not noticeably broadening to postocular spots. The lower half of segment 8 is black in some specimens or with a faint black band across the middle of the segment, laterally (Figure 3b).

Female. Hind wing: 15–16 mm, abdomen: 24–25 mm.

Head: Labium brown; labrum brown marked with a black stripe near clypeus; anteclypeus brown; postclypeus black; frons faded blue (violet-blue in fresh specimens); vertex black; blue postocular spots connected by a stripe of the same colour; in some specimens postocular spots very small, as in males.

Thorax: Prothorax (see Figure 2c) pale on sides; black on dorsum; interestingly a trilobate “sublobe” was also observed protruding from the posterior lobe, less conspicuous and somewhat flatter than in male. Pterothorax marked by a narrow violet antehumeral stripe, with black humeral stripes three times wider; sides of thorax violet. Postnodals 10–13; antenodals 2; pterostigma dirty brown, darker in live specimens.

Abdomen: Broadly black on dorsum; segments 1–7 marked as in male; segments 1 and 2 violet on sides, this blue colour fades on each successive segment and is present until segment 10; segment 8 and 9 black on dorsum with distal 1/4th of segment 9 forming a blue ring; segment 10 blue, black at base. Anal appendages short, bluish, conical; ovipositor extending slightly beyond the appendages; segment 8 with a robust spine.

Remarks

The specimens are overall darkened due to post mortem changes which are well known to occur in Odonata. Some specimens show a sort of pruinescence. Some specimens have retained the blue on segments 8, 9 and 10 while in some the distal abdominal segments have darkened to obscurity. All the descriptions are made from a combination of live specimens and pinned specimens. Due to high probability of post mortem changes we think it is important to describe characters observed in live or freshly pinned specimens for better clarity in the future.

Habitat

These damselflies prefer slow moving water; mainly seen in ponds or on the edges of flowing water among vegetation. At Satara they were seen in a lake while in Mahabaleshwar they were seen on the edges of a stream which then goes on to the Lingmala Waterfall. In Nagaland a healthy population was seen in rice fields in Khonoma. Females oviposit while on floating vegetation or on aquatic plants, while the male supports them. Females can be often seen away from water in grass patches.

Syntypes of *Aciagrion hisopa* (Selys, 1886)

Jérôme Constant, Curator of Odonata in the RBINS collection, kindly informed us that Selys' collection harbours two syntypes of *Pseudagrion hisopa* Selys, 1986, that is *Aciagrion hisopa* (Selys, 1896) in the present day taxonomy. Their detailed description will be presented elsewhere



Figure 4. Anal appendages of a syntype of *Aciagrion hisopa* (Selys, 1876). Photo courtesy of Royal Belgian Institute of natural Sciences, Brussels/ Jérôme Constant.

in a paper specially devoted to *A. hisopa*. At present we just point out that the syntypes have subconical cerci with a small ventral tooth (Figure 4) not bifid as in *approximans* and *krishna*.

Discussion

The subconical cerci, each with a small subventral tooth, cerci of the syntypes of *A. hisopa* Selys, 1876 (Figure 4) are unlike the bifid cerci of the both *A. approximans* Selys, 1876 and ssp. *krishna* Fraser, 1921, as seen in the neotype of the former (Kosterin et al., 2014) and the topotypes of both (this paper). Therefore, the taxon *krishna* Fraser, 1921 from Maharashtra does not belong to the species *Aciagrion hisopa*, as Fraser (1921, 1933) believed.

At the same time, *A. approximans* and ssp. *krishna* are very close to each other both morphologically (the size and appendage structure) and in the violet-blue ground colour and black pattern. Note that the diagnostic character claimed to distinguish them by Fraser (1933), namely a trilobate versus rounded hind lobe of the prothorax (see the citation in Introduction) is not valid: both insects have the hind lobe of the prothorax slightly trilobate. Besides, the two taxa are rather close geographically, both occurring within India, in Khasi Khills in the east and Western Ghats in the west, respectively. All these factors are enough to consider them conspecific.

The most important character which distinguishes the topotypic males of ssp. *krishna* from Western Ghats from the North-East Indian topotypic males of *approximans* is the difference in anal appendages, especially the paraprocts which are variable in the Western Ghats specimens (Figure 2c), but can still be separated from the North-East Indian relatives (Figure 2d). *A. a. krishna* males have paraprocts generally narrower and longer (almost as long as the cerci in some cases), in contrast to slightly broader and less bifid paraprocts of *A. a. approximans*. Besides, *A. a. krishna* males exhibit a trend of lateral melanisation of S8.

These differences seem clear enough to consider these taxa to be subspecies of the same species *Aciagrion approximans*: *Aciagrion approximans approximans* (Selys, 1876), type locality: East India, Khasi Hills. *Aciagrion approximans krishna* Fraser, 1921 stat. et comb. nov.; type locality: West India, Mahabaleshwar (see Figure 4 for topotype images).

Even though *Aciagrion hisopa* has been listed from India (e.g. Prasad & Varshney, 1995; Subramanian, 2014; Tiple & Koparde, 2015), the renewed status of this species in the Indian

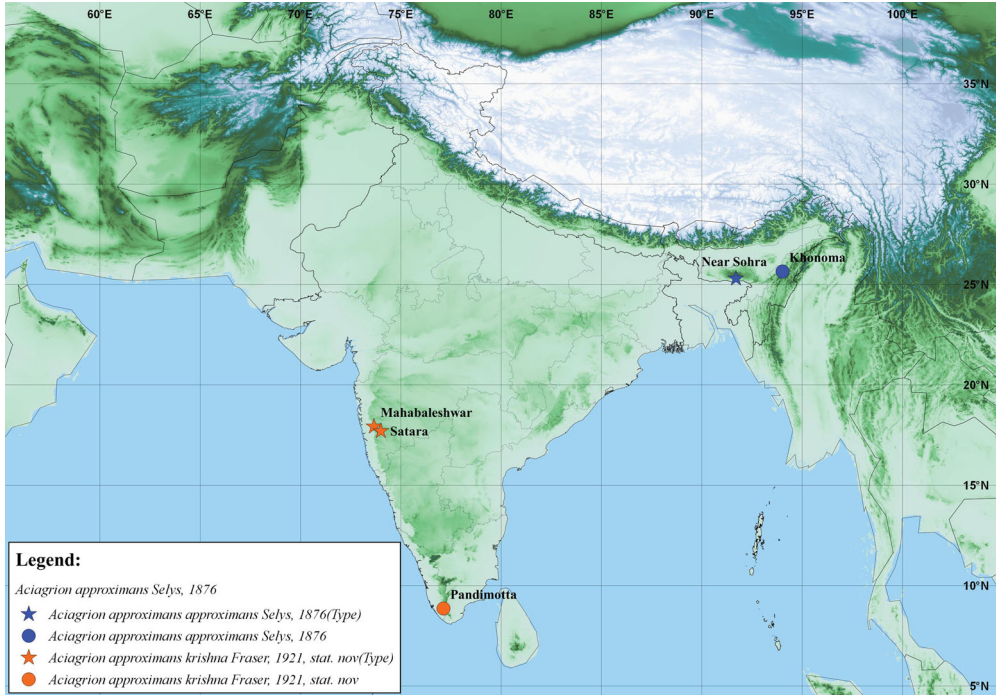


Figure 5. Map showing the sampled topotypical and non-topotypical localities.

context demands that material currently thought to be “*hisopa*” should be compared to the type of *A. hisopa* (Figure 4) as well as the neotype (Kosterin et al., 2014) and topotypes (Figures 2b, d, 3a) of *A. approximans*. The range of *A. approximans approximans* beyond North-East India is thought to extend to Thailand (Asahina, 1990; Hämäläinen & Pinratana, 1999; Kosterin, 2012), China (Wilson, 1999; 2000; Wilson & Reels, 2001, 2003; Wilson, Reels, & Xu, 2008; Wilson & Xu, 2007; Xu, 2005) and Cambodia (Kosterin, 2011, 2012, 2014; Kosterin, Chartier, Holden, & Mey, 2012). But this is yet to be proven by comparison of specimens from outside India with the topotypes from North-East India.

Aciagrion approximans krishna ranges in the Western Ghats of India and is distributed widely from Maharashtra to Kerala (see Figure 5 for the map of sampled localities); its possible presence in Central India is not excluded (Mitra, 1995). Which subspecies inhabits Orissa (Nair, 2011) should be assessed in the future.

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