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SHORT COMMUNICATION

A FIRST RECORD OF *CAMACINIA HARTERTI* KARSCH, 1890 (ODONATA: LIBELLULIDAE) FROM ARUNACHAL PRADESH, INDIA

Arajush Payra, K.A. Subramanian, Kailash Chandra & Basudev Tripathy

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A first record of *Camacinia harterti* Karsch, 1890 (Odonata: Libellulidae) from Arunachal Pradesh, India

Arajush Payra¹ , K.A. Subramanian² , Kailash Chandra³ & Basudev Tripathy⁴

^{1,3,4}Zoological Survey of India, M Block, New Alipore, Kolkata, West Bengal, 700053 India

²Zoological Survey of India, Southern Regional Centre, 130, Santhome High Road, Chennai, Tamil Nadu 600028, India

¹arajushpayra@gmail.com (corresponding author), ²subbuka.zsi@gmail.com, ³kailash611@rediffmail.com, ⁴tripathyb@gmail.com

Abstract: The large forest dwelling libellulid dragonfly *Camacinia harterti* Karsch, 1890 is recorded from Arunachal Pradesh and India for the first time in 115 years. The present record is based on a single male specimen collected from Namdapha Tiger Reserve, Arunachal Pradesh, India. We provide detailed diagnostic characters in photographs and information on the global distribution of the species.

Keyword: Eastern Himalaya, Namdapha Tiger Reserve, new record, northeastern India, Odonata.

The genus *Camacinia* Kirby, 1889 (Libellulidae) includes three known species globally, viz.: *Camacinia gigantea* Brauer, 1867, *Camacinia harterti* Karsch, 1890, and *Camacinia othello* Tillyard, 1908 (Schorr & Paulson 2019). Species of *Camacinia* are found from southeastern Asia to the Solomon Islands, northern Australia, and New Guinea. Among the three species, *C. othello* occurs in New Guinea, Aru Islands, Solomon Islands, and northern Australia (Kalkman 2009). *C. gigantea* is widely distributed, ranging from India to Vietnam and southwards to New Guinea (Sharma

2010) and *C. harterti* is recorded from southern China, Sumatra, peninsular Malaysia, Borneo, and Thailand (Wilson & Dow 2013). Until recently *Camacinia* was considered to be represented by one species in India, *C. gigantea* (Fraser 1936; Subramanian & Babu 2017), however, Wilson (2018), synonymized *C. harmandi* Martin, 1900 with *C. harterti*, as proposed by Ris (1913), thus adding Martin's (1900) record from Sikkim to the historical distributional range of *C. harterti*.

Here, we report for the first time the occurrence of *C. harterti* Karsch, 1890 from Arunachal Pradesh in northeastern India, based on a single male specimen. We also provide updated global distribution of the species and detailed additional description of the specimen along with photographs.

MATERIALS AND METHODS

A single male specimen was collected from Namdapha Tiger Reserve in Arunachal Pradesh. Field photographs of the individual were taken using a Nikon

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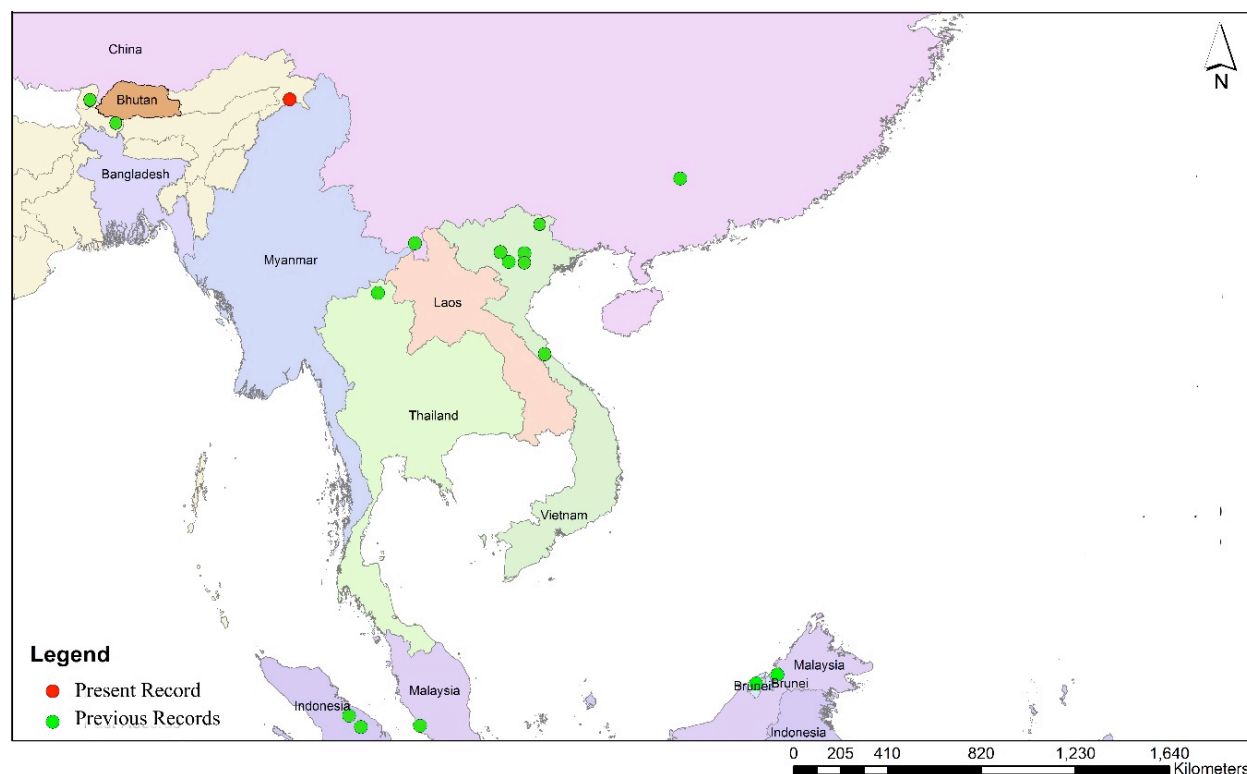


Figure 1. Distribution of *Camacinia harterti* Karsch, 1890.

P900 camera. The geo-coordinates of the collection locality was recorded using a Garmin (E-trex 30) GPS. The length of the different parts of the specimen was measured by using a digital vernier calliper. Photos of anal appendages and secondary genitalia of the collected specimen were taken using a Leica S8APO with MH120 HD camera. The specimen is deposited in the National Zoological Collection of the Zoological Survey of India, Kolkata.

RESULTS

Camacinia harterti Karsch, 1890 (Image 1 A–F)

Material examined

ZSI 7806/H13, 1 male, Loc. Near Deban, Namdapha Tiger Reserve, Changlang District, Arunachal Pradesh, India (27.493°N & 96.376°E, 410m), 23.vi.2017, coll. Arajush Payra & Atum Rumdo.

Detailed description of male and measurements

Length (in mm): abdomen + anal appendages – 41; forewing – 49.8; hindwing – 48.5.

Head: dorsal side of eyes encircled with maroon and rest of the eyes brownish to pale blue with small black blotches. Ocelli white; vertex coppery; frons and post clypeus orange fading to yellow. Anteclypeus yellowish

to brown, with a narrow horizontal yellow line above. Labrum orange; labium matt yellow.

Thorax: area of humeral suture broadly brownish; mesepisternum to metepimeron orange to matt yellow.

Legs: coxae and trochanter brownish-orange in all legs. Posterior of femora in first pair coppery and remaining segments are black.

Wing: hyaline; pterostigma black, covering 2.5 cells. Nodal index in forewing: 14–17/16–13; hindwing: 17–13/ 12–16. One cubital nerve in forewing and two in hind wing. The discoidal cell of fore wing three-celled and in hind wing two-celled. Single row of cell between IR3 and Rspl. The base of forewing was tinted with dark brown to golden yellow. Subcostal space and cubital space with blackish-brown streaks. The base of hindwing was dark brown to golden yellow. Area of subcostal space, cubital space, up to discoidal cell tinted with dark brown to black. Posterior to cubital space, discoidal cell, area of tornus and anal loop tinted with golden yellow.

Abdomen: S1 to S3 light yellow; S4 light orange above and yellowish bellow; S5 to S9 bright red; S10 brownish to black with an orange patch on dorsum. Epiprocts dark brown, as long as S9; paraprocts orange as seen in dorsal view, more than half the length of epiprocts. Anterior lamina of secondary genitalia black to brown; orange rounded hamule lobe with blackish apex. Genital lobe

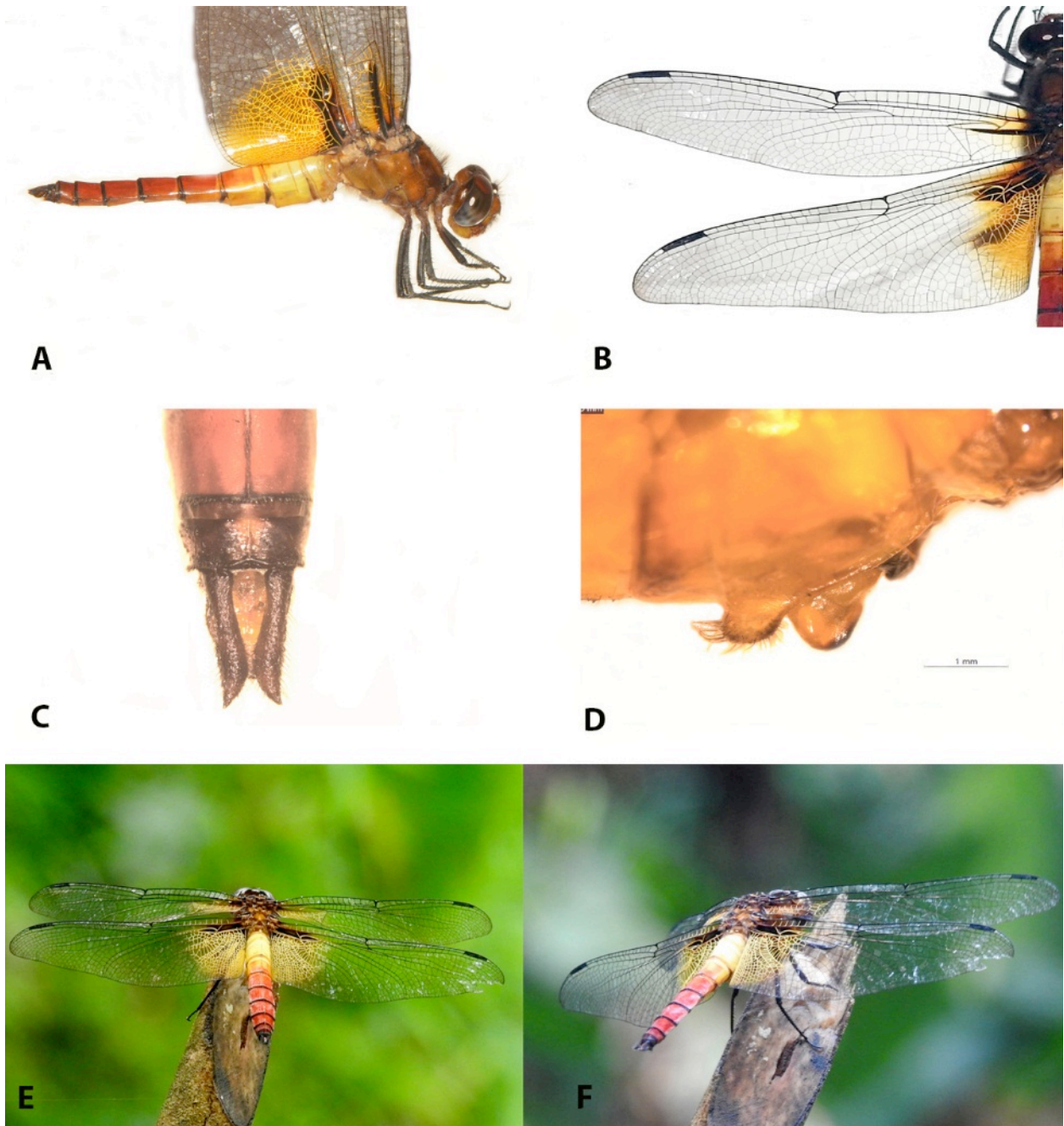


Image 1. *Camacinia harterti* Karsch, 1890: A—Lateral view of male | B—Wing venation | C—Anal appendages in dorsal view | D—Secondary genitalia | E & F—Habitus of male. © Arajush Payra.

orange with hairy apical part black.

Observation and Habitat

On 23 June 2017, during our visit to Deban (Namdapha Tiger Reserve), a single male individual was sighted along the road (Figure 1) about 70m distant from a nearby stream (Noa-Dihing River). It was perched on the tip of a tree branch about 1.5m above the ground. During our first attempt at capture, it flew upwards

and away. After 20–30 seconds of flight, it returned to the same perch. The place where the individual was observed was a tropical wet evergreen forest with significant canopy cover (Champion & Seth 1968) (Image 2 A–B).

DISCUSSION

C. harterti was described from Sumatra based on a female collected from Batu Sankahan in Deli Serdang

Table 1. Distribution records of *Camacinia harterti* in southern and southeastern Asian countries.

Country	Localities	Number of Individuals collected/observed, Sex/ life stage and date of collection/observation	Reference
India	Sikkim	One male	Martin (1900)
	Buxa tiger Reserve, West Bengal	One female (31.iii.2018)	Anonymous (2019)
	Namdapha Tiger Reserve, Arunachal Pradesh	One male (23.vi.2017)	Present study
Indonesia	Batu Sankahan of Deliserdang District, Sumatra	One female	Karsch (1889)
	Balimbingan, Deli of northeastern Sumatra	One female	Lieftinck (1954)
Brunei	Lake Merinbum, Brunei Darussalam	One female during the 1990s	Orr (2001)
China	Henglongbei, Nanling National Forest Park, northern Guangdong	One male (28.vi.2000)	Wilson & Dow (2013)
	Xishuangbanna National Nature Reserve, Yunnan Province	One male (May 2016)	Zhang (2017)
Vietnam	Tonkin, northern Vietnam		Martin (1904)
	Tam Dao National Park, Vinh Phuc Province	One male (14.iv.2009); one male (01.vi.2016)	Do (2014); Kompier (2018)
	Xuan Son National Park, Phu Tho Province	One male (31.v.2014)	Kompier (2015)
	Phu Tho Province	Two adults (08.vi.2018); one adult (27.v.2017); one adult (31.vii.2017); one male (29. v.2016); two adults (30.v.2015); one male (18.iv.2015); one male (31.v.2014)	Kompier (2018)
	Quang Binh Province	One male (15.v.2017); two adults (20.v.2016); one adult (30.iv.2016)	Kompier (2018)
	Yen Bai Province	One adult (10.vi.2018)	Kompier (2018)
	Cao Bang Province	One male (03.vi.2016)	Kompier (2018)
Thailand	Chiang Rai	One male individual in 2003 and one male in 2004	Katatani et al. (2004)
Malaysia	Selangor of peninsular Malaysia	One male	Ris (1913)
	Mt. Marapok in Sabah, near the Sarawak border, Borneo	One male and one female	Ris (1913)

District by Karsch (1890). A female was observed ovipositing a phytotelm in the base of a tree root by Raymond Straatman at Balimbingan, Deli in northeastern Sumatra (Lieftinck 1954). In Borneo, this species was recorded by Ris (1913) and Orr (2001). Ris (1913) also reported it from Selangor in peninsular Malaysia. In northern Thailand, *C. harterti* was reported by Katatani et al. (2004). In Vietnam, several individuals were reported mainly from northern Vietnam by Do (2014); Tom (2015) and (Tom 2018) between 2014 and 2018. In China the species was reported by Wilson & Dow (2013) and recently by Zhang (2017) (See Table 1 for global distributional records of *C. harterti*).

In India *C. harterti* was first listed by Fraser (1920) from Sikkim and Bengal, but, later in “The Fauna of British India” series Fraser (1936) excluded *C. harteri* from Indian fauna and stated that the record of *C. harterti* from Sikkim was erroneous. Therefore, *C. harteri* has not generally been included in Indian fauna (Mitra 2004;

Subramanian & Babu 2017); however, Wilson (2018), after reviewing all the published literature pertaining to the records of *C. harterti*, validated the synonymy of *C. harmandi* with *C. harterti* as proposed by Ris (1913), and added both Martin’s (1900, 1904) records from Sikkim, India and Tonkin, northern Vietnam to the historical distributional range of *C. harterti*. Wilson (2018) also stated that, the record of *C. harterti* by Fraser (1920) from Bengal may be accurate as the northern limits of Bengal are continuous with Sikkim. But due to the lack of evidence regarding the details of involved specimens, Wilson (2018) excluded Bengal, from the historical range of *C. harteri*; however, the recent record of a female *C. harterti* from Buxa Tiger Reserve of West Bengal on 31 March 2018 by Dattaprasad Sawant (Anonymous 2019) supports Fraser’s (1920) record from Bengal (see Table 1 for global distributional records of *C. harterti*).

Our present record of *C. harterti* from Namdapha Tiger Reserve of Arunachal Pradesh, India represents



Image 2. The habitat where *C. harterti* was recorded on 23 June 2017 (A & B). © Arajush Payra

its third known locality in the country. The present record also provides new data vital to update the threat status of the species, as the species is currently treated as rare and insufficiently known (Wilson & Dow 2013; Wilson 2018). This discovery also points to the fact that northeastern India is still underexplored with respect to Odonata fauna and extensive surveys are required to document the rich biodiversity of the region.

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