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NOTE

FIRST RECORD OF AFRICAN SAILFIN FLYING FISH *PAREXOCOETUS MENTO* (VALENCIENNES, 1847) (BELONIFORMES: EXOCOETIDAE), FROM THE WATERS OFF ANDAMAN ISLANDS, INDIA

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First record of African Sailfin Flying Fish *Parexocoetus mento* (Valenciennes, 1847) (Beloniformes: Exocoetidae), from the waters off Andaman Islands, India

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The family Exocoetidae comprises of 74 species belonging to seven genera and four subfamilies (Collette et al. 1984; Fricke et al. 2019). These fishes are distributed from the tropical to temperate waters (Lewallen et al. 2010; Nelson et al. 2016). This family is characterized by a prominently enlarged paired fins, which assist in gliding over the water (Davenport 1994). Based on the number of enlarged fins (either pectoral or both pectoral and pelvic) the species known to monoplane glider and biplane glider (Breder 1930). The subfamily Parexocoetinae, a monoplane glider consists of a single genus (*Parexocoetus*) with three species. The genus *Parexocoetus* is distinguished from the other members of the family by the presence of strongly protrusible mouth and having a process on the ex-occipital directly articulating with the cleithrum.

Andaman & Nicobar archipelago, a biodiversity-rich Island ecosystem, harbours around 1,434 fish species under 576 genera belonging to 165 families and 33 orders (Rajan et al. 2013). Only five species of flying fishes belonging to four genera were reported from the

islands (Rajan et al. 2013). Only one species of genus *Parexocoetus*, *P. brachypterus*, commonly known as sailfin flying fish, familiar in the Andaman Islands, is captured in sardine gillnet ('tharni net') and marketed in the local market. *P. mento*, a species originally described from the eastern Indian ocean near Pondicherry, is recorded for the first time in the Andaman Islands showing an extended geographical distribution. A brief description of the species recorded is described herein.

Twenty-three specimens were collected from the gill net fishermen of Junglighat marine fish landing centre (11.659°N & 72.721°E), Andaman & Nicobar Islands. The specimens were caught as bycatch of sardine gill net of mesh size of 20mm and hanging coefficient of 0.55. The specimens collected were of poor quality due to the improper handling practices and their low market value. The specimens were preserved in 5% formalin solution. The morphometric measurements were taken in nearest 0.01 mm using the Mitutoyo CD-6"ASX digital calliper. The terminologies used in the present study follow Parin (1996). The morphometric measurements

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were transformed into ratios for size independent comparison. Both morphometric and meristic characters were compared with relevant literature. A total of 23 specimens examined are deposited in the Fisheries Museum of ICAR-CIARI, Port Blair.

Systematics

Order: Belontiiformes L.S. Berg, 1937

Family: Exocoetidae Risso, 1827

Genus: *Parexocoetus* Bleeker, 1865

Species: *Parexocoetus mento* (Valenciennes, 1847)
(Fig. 1; Table 1)

Materials Examined: CIARI/MF 06–29, 23.iii.2019, 23ex, 91.0–108.0mm SL, Junglighat Fish Market, Port Blair, Andaman Islands, India (11.659°N & 72.721°E), coll. Gladston & Ajina.

Description: The body is elongated and moderately compressed laterally with blunt and short snout (Fig 1A). The upper jaw is protrusible (Fig. 1B) and the lower jaw

little extended when closed (Fig 1B). The entire body is covered with deciduous ctenoid scales. Caudal fin lobes unequal, and lower lobe is large and elongated. Lateral line scales well developed and passing through lower part of mid-lateral region. A well-developed lateral-line branch is present and descending from the pectoral fin base. Greatest body depth is 20–23 % of the standard length and head 22–29 % of standard length. Morphometric measurements of *P. mento* are given in Table 1. Body proportions are expressed as a percentage of standard length and head length.

Pectoral fins long, reaching to or beyond the origin of the dorsal fin, it is about 48 to 55 % of the standard length. Pectoral fin rays 10–12, mostly 12, middle elongated. Single dorsal fin with all soft rays, originated posterior to the body same line of anal fin origin. Dorsal fins with about 10–11 fin rays (mostly 10) with middle ones are elongated and reach up to the origin of upper caudal fin lobe. Pelvic fins as same as the length of



Image 1. *Parexocoetus mento* collected from Junglighat market of Andaman Islands:

A—whole specimen | B—extended lower jaw when mouth closed | C—protrusible mouth | D—otolith (Sagitta, the largest otolith) | E—first gill with rakers | F—spinules in gill rakers. © S.M. Ajina & Y. Gladston.

Table 1. Morphometric measurements of *Parexocoetus mento* (N=23). Body proportions are expressed as a percentage of standard length and head length.

Characters	Mean	Range	CV
TL(cm)	12.10	11.00–13.40	5.68
SL(cm)	9.91	9.10–10.80	4.58
PDL/SL	0.70	0.66–0.74	2.73
PPeL/SL	0.53	0.50–0.54	2.67
PPL/SL	0.29	0.25–0.31	5.61
PAL/SL	0.72	0.69–0.75	2.72
BD/SL	0.21	0.20–0.23	5.11
PpIL/SL	0.28	0.26–0.32	5.93
pAIL/SL	0.22	0.20–0.24	5.78
PL/SL	0.51	0.47–0.55	4.15
PFL/SL	0.20	0.17–0.22	6.47
AL/SL	0.18	0.16–0.20	6.32
HOD/SL	0.23	0.20–0.28	10.54
HL/SL	0.26	0.22–0.29	7.04
SnL/HL	0.21	0.15–0.27	14.86
ED/HL	0.36	0.31–0.43	7.54
IOL/HL	0.39	0.33–0.48	9.65
IOL/ED	1.09	1.00–1.38	7.72
SnL/ED	0.58	0.44–0.78	14.02

CV—coefficient of variation: TL—total length | SL—standard length | PDL—pre-dorsal length | PPeL—pre-pelvic length | PPL—pre-pectoral length | PAL—pre-anal length | BD—body depth | PpIL—distance from pectoral fin origin to pelvic fin origin | pAIL—distance from pelvic fin origin to anal fin origin | PL—pectoral fin length | PFL—pelvic fin length | AL—Length of anal fin base | HOD—height of dorsal fin | HL—Head length | SnL—snout length | ED—eye diameter | IOL—interorbital length.

anal fin base with 5–6 rays (mostly 6), with third ray is longest, inserted near to anal fin origin than the pectoral fin origin. Anal fin originated the same line or after 2–3 rays of dorsal fin, base length is same or nearer to height of dorsal fin. The anal fin number equal to the number of dorsal fin rays, 10–11 (mostly 10). Predorsal scales 16 to 20 (mostly 18). Gill rakers elongated and serrated (Fig 1F), on first arch 18–24 (mostly 21) numbers present (Fig 1E). Vomerine teeth present.

Otoliths are comparatively large and oval (Fig. 1D).

Colour: Dark bluish-green dorsally, silver on ventral side. A large black spot present in the dorsal fin which touches the fin base, pectoral fin greyish white to transparent in colour.

Range: Pelagic in nearshore and neritic waters, rare in open ocean, found in the Atlantic, Indian, and Pacific Ocean (Parin 1986; Russell & Houston 1989; Sommer et al. 1996).

The present study records *P. mento*, the first time

from the Andaman Islands. The species has earlier known Red Sea, Africa, Marshall Islands, Fiji, Japan, Australia, and Mediterranean Sea (Russell & Houston 1989; Parin 1986). The original description of the species in from southeastern coast of India near Pondicherry. The existence of *P. mento* revealed additional biodiversity of fish in Andaman Islands and also shows the new geographical distribution in this region.

The earlier distribution of the species known from Mediterranean coast of Palestine (Bruun 1935), Aegean Sea (Kosswig 1950; Ben-Tuvia 1966; Fischer & Bianchi 1984; Parin 1986) Gulf of Sidra (Ben-Tuvia 1966; South-east Mediterranean Sea (Ben-Tuvia 1966, 1985; Fischer & Bianchi 1984; Parin 1986; Golani 1996) and from Albania (Fischer & Bianchi 1984; Parin 1986).

This species was originally described from the Pondicherry waters by Valenciennes in 1847. The further taxonomic description, systematic position, and distribution of the species from the Mediterranean Sea given by Ben-Tuvia (1966) and Parin (1986). According to Parin (1986) the adults of *P. mento* can be distinguished by a combination of characters including elongate, compressed body rounded ventrally, with the presence of pectoral branch of the lateralline, protrusible upper jaw and subequal rays in dorsal and anal fins. Since it is a characteristic of the genus, these characters are similar in *P. brachypterus* (Fischer & Bianchi 1984). The major difference between the two species is the dorsal fin height which reaches till caudal fin lobe in *P. mento*, whereas it extends far beyond in *P. brachypterus*. In both the species, middle ray is longest in dorsal and pectoral fins. Similarly the lower jaw of the *P. mento* is little extended while in *P. brachypterus* both the jaws are sub equal when closed. The dark black spot in the dorsal fin is also a comparable character between the species; it is big and dark in *P. mento* reaching the base while smaller in *P. brachypterus* which not extended to the base of fins. In both the species, however, pectoral fins long but not reaching beyond the posterior part of anal fins. Pelvic fins medium-sized, reaching not far beyond anal fin origin, their insertion closer to anal fin origin than to pectoral fin insertion in both the species.

Dorsal and anal fin rays of *P. mento* in the present collection is 10 to 11 which is within the range of 9–12 by Parin, 1986 while in *P. brachypterus* it is reported as 12–14 (Fischer & Bianchi 1984). Pre-dorsal scale of 16–20 was recorded in the present study, while it is 20–24 in *P. brachypterus* (Fischer & Bianchi 1984). According to this comprehensive examination and comparison of diagnostic morphological characters, it is confirmed the distribution of *P. mento* in Andaman waters.



Although the species is known to Western Pacific and Indian ocean from Marshall island to Japan to southern Africa and Red Sea; eastern Mediterranean from port Said to Gulf of Sirda and Near Rhodes Islands (Ben- Tuvia 1966; Fischer & Bianchi 1984; Parin 1986), the present study records a new geographic distribution of *P. mento*. Hence the Andaman waters as mentioned previously may harbour two *Parexocoetus* species, *P. brachypterus* and *P. mento*, similar as per the conclusion of Fischer & Bianchi (1984) from the Mediterranean Sea.

In Andaman & Nicobar Islands, both the species are caught in selective lesser sardine gill nets as bycatch. The present record on the species is an additional species to biodiversity database of fishes of Andaman waters.

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Article

Elevational pattern and seasonality of avian diversity in Kaligandaki River Basin, central Himalaya

– Juna Neupane, Laxman Khanal, Basant Gyawali & Mukesh Kumar Chalise, Pp. 16927–16943

Communications

A highway to hell: a proposed, inessential, 6-lane highway (NH173) that threatens the forest and wildlife corridors of the Western Ghats, India

– H.S. Sathya Chandra Sagar & Mrunmayee, Pp. 16944–16953

Species diversity and feeding guilds of birds in Malaysian agarwood plantations

– Nor Nasibah Mohd Jamil, Husni Ibrahim, Haniza Hanim Mohd Zain & Nur Hidayat Che Musa, Pp. 16954–16961

Evaluating performance of four species distribution models using Blue-tailed Green Darner *Anax guttatus* (Insecta: Odonata) as model organism from the Gangetic riparian zone

– Kritish De, S. Zeeshan Ali, Niladri Dasgupta, Virendra Prasad Uniyal, Jeyaraj Antony Johnson & Syed Ainul Hussain, Pp. 16962–16970

Butterfly species richness and diversity in rural and urban areas of Sirajganj, Bangladesh

– Sheikh Muhammad Shaburul Imam, Amit Kumer Neogi, M. Ziaur Rahman & M. Sabbir Hasan, Pp. 16971–16978

Chroococcalean blue green algae from the paddy fields of Satara District, Maharashtra, India

– Sharada Jagannath Ghadage & Vaneeta Chandrashekhar Karande, Pp. 16979–16992

Short Communications

Avifaunal diversity along the riverine habitats of Papikonda National Park, Andhra Pradesh, India

– Paromita Ray, Giridhar Malla, Upma Manral, J.A. Johnson & K. Sivakumar, Pp. 16993–16999

Medetomidine may cause heart murmur in Cougars and Jaguars: case report

– Thiago Cavalheri Luczinski, Gediendson Ribeiro de Araújo, Matheus Folgareini Silveira, Murillo Dapará Kirnew, Roberto Andres Navarrete, Jorge Aparecido Salomão-Jr, Letícia Alecho Requena, Jairo Antonio Melo dos Santos, Marcell Hideki Koshiyama, Cristiane Schilbach Pizzutto & Pedro Nacib Jorge-Neto, Pp. 17000–17002

Description of a new species of *Omyomymar* Schauff from India with a key to Oriental species and first report of *Palaeoneura markhoddlei* Triapitsyn (Hymenoptera: Mymaridae) from the Indian subcontinent

– H. Sankararaman & S. Manickavasagam, Pp. 17003–17008

Incursion of the killer sponge *Terpios hoshinota* Rützler & Muzik, 1993 on the coral reefs of the Lakshadweep archipelago, Arabian Sea

– Rocktim Ramen Das, Chemmencheri Ramakrishnan Sreeraj, Gopi Mohan, Kottarathil Rajendran Abhilash, Vijay Kumar Deepak Samuel, Purvaja Ramchandran & Ramesh Ramchandran, Pp. 17009–17013

Contribution to the macromycetes of West Bengal, India: 63–68

– Rituparna Saha, Debal Ray, Anirban Roy & Krishnendu Acharya, Pp. 17014–17023

Notes

A rare camera trap record of the Hispid Hare *Caprolagus hispidus* from Dudhwa Tiger Reserve, Terai Arc Landscape, India

– Sankarshan Rastogi, Ram Kumar Raj & Brides Kumar Chauhan, Pp. 17024–17027

First distributional record of the Lesser Adjutant *Leptoptilos javanicus* Horsfield, 1821 (Ciconiiformes: Ciconiidae) from Sindhuli District, Nepal

– Badri Baral, Sudeep Bhandari, Saroj Koirala, Parashuram Bhandari, Ganesh Magar, Dipak Raj Basnet, Jeevan Rai & Hem Sagar Baral, Pp. 17028–17031

First record of African Sailfin Flying Fish *Parexocoetus mento* (Valenciennes, 1847) (Beloniformes: Exocoetidae), from the waters off Andaman Islands, India

– Y. Gladston, S.M. Ajina, J. Praveenraj, R. Kiruba-Sankar, K.K. Bineesh & S. Dam Roy, Pp. 17032–17035

A first distribution record of the Indian Peacock Softshell Turtle *Nilssonina hurum* (Gray, 1830) (Reptilia: Testudines: Trionychidae) from Mizoram, India

– Gospel Zothanmawia Hmar, Lalbiakzuala, Lalmuansanga, Dadina Zote, Vanlalhruaia, Hmar Betlu Ramengmawii, Kulendra Chandra Das & Hmar Tlawmte Lalremsanga, Pp. 17036–17040

A frog that eats foam: predation on the nest of *Polypedates* sp. (Rhacophoridae) by *Euphyllotis* sp. (Dicroglossidae)

– Pranoy Kishore Borah, Avrajjal Ghosh, Bikash Sahoo & Aniruddha Datta-Roy, Pp. 17041–17044

New distribution record of two endemic plant species, *Euphorbia kadapensis* Sarojin. & R.R.V. Raju (Euphorbiaceae) and *Lepidagathis keralensis* Madhus. & N.P. Singh (Acanthaceae), for Karnataka, India

– P. Raja, N. Dhatchanamoorthy, S. Soosairaj & P. Jansirani, Pp. 17045–17048

Cirsium wallichii DC. (Asteraceae): a key nectar source of butterflies

– Bitupan Boruah, Amit Kumar & Abhijit Das, Pp. 17049–17056

Hyecoum pendulum L. (Papaveraceae: Ranunculales): a new record for the flora of Haryana, India

– Naina Palria, Nidhan Singh & Bhoo Dev Vashistha, Pp. 17057–17059

Addendum

Erratum and addenda to the article 'A history of primatology in India'

– Mewa Singh, Mridula Singh, Honnavalli N. Kumara, Dilip Chetry & Santanu Mahato, Pp. 17060–17062

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