

This raises an interesting question: Do White-headed Stilts breed with the Black-winged Stilts, and if so, does cross-breeding occur in Sri Lanka? While positive evidence for this is lacking, some tantalizing clues suggest that they could do so. In 2001, a national newspaper published the photograph of a stilt in Ruhuna National Park (south-east Sri Lanka) with features of both the White-headed and Black-winged Stilt (photographic evidence provided). Authorities, who examined the photograph, suggest that the bird is probably a hybrid of the White-headed and Black-winged Stilt (De Silva 2003). There are a few other sightings of similar birds from the south-eastern quarter during the winter migratory season. While the possibility of interbreeding between the two species is suggested by these observations, the question is where such possible hybridization could occur. As White-headed Stilts and the (putative) hybrids are recorded in Sri Lanka mainly during the winter migratory season, it is unlikely that interbreeding would occur in the Island. Any possible hybridization would therefore conceivably take place where the home-ranges of the two species overlap during the breeding season. This suggests the Indonesian region, where the White-headed and Black-winged stilts occur together for much of the year.

It is significant to note that (as in Sri Lanka) White-headed Stilts visit India during the winter migratory season (Lopez and Mundkur 1997; Kotagama 2005). Since the majority of records of White-headed Stilts are from the eastern regions of India and the south-eastern quarter of Sri Lanka, it suggests strongly that the birds probably arrive in both countries from home-ranges which are farther East; once again suggesting the Indonesian

region. White-headed Stilts appear to be expanding their range in the Oriental region. As indicated above, the first author (SWK) has photographed White-headed Stilts in Sri Lanka and has shown that the species was known from India for many years (Kotagama 2005). (The Natural History Museum in Tring, has a specimen labelled "from British India" dating back to the 19<sup>th</sup> century). In addition to Sri Lanka, the species has been recorded from India (Lopez and Mundkur 1997; Kotagama 2005), South-east Asia (Nial Moores pers. comm.), Indonesia (Hayman *et al.* 1987) and Japan (Akira Hibi pers. comm.). Some authorities (Tony Prater, C.S. Roselaar, and Ray Pierce pers. comm.; De Silva 2000b) suggest that the White-headed Stilts visiting Sri Lanka could come from Sumatra or Java.

It is now clear that the White-headed Stilt is an irregular winter visitor to Sri Lanka in small numbers (Kotagama *et al.* 2006). We further suspect that the birds visiting India and Sri Lanka may be a part of a post-breeding dispersal.

The occurrence of White-headed Stilts in Sri Lanka and the possibility of hybridization with the nominate are interesting phenomena which merit further observation and study.

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#### REFERENCES

- DE SILVA, R.I. (1996): The Australian Stilt in Sri Lanka. *Malkoha* 3(1): 4.  
 DE SILVA, R.I. (2000a): An Australian Wader *Himantopus himantopus leucocephalus*, in Sri Lanka. *Loris* 22(3): 15-17.  
 DE SILVA, R.I. (2000b): A further note on the Australian Stilt *Himantopus leucocephalus* in Sri Lanka. *Loris* 22(4): 27.  
 DE SILVA, R.I. (2002): A note on neck feathering in Stilts. *Loris* 23(1&2): 27-28.  
 DE SILVA, R.I. (2003): An Unusual Stilt from Sri Lanka. *Loris* 23(3&4): 50.  
 HAYMAN, P., J. MARCHANT & T. PRATER (1987): Shorebirds: an identification guide to the waders of the world. London. Christopher Helm.  
 KOTAGAMA, S.W. (2005): A Tilt to the Stilt story. *Loris* 24(1&2): 28.  
 KOTAGAMA, S.W., R.I. DE SILVA, A.S. WIJEYASINGHE & V. ABEYGUNAWARDANE (2006): Avifaunal list of Sri Lanka. Pp. 164-203. In: Bambaradeniya, C.N.B. (Ed.): Fauna of Sri Lanka – Status of Taxonomy, Research and Conservation. The World Conservation Union (IUCN) Colombo, Sri Lanka and Government of Sri Lanka.  
 LOPEZ, A. & T. MUNDKUR (EDS) (1997): The Asian Waterfowl Census 1994-1996: Results of the Coordinated Waterbird Census and Overview of the Status of Wetlands in Asia. Wetlands International. Kuala Lumpur.

### 9. REDESCRIPTION OF JAPANESE CATALUFA *PRISTIGENYS NIPHONIA* (CUVIER & VALENCIENNES, 1829): A NEW DISTRIBUTIONAL RECORD FROM SOUTH INDIAN WATERS

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*Pristigenys niphonia* (C & V 1829) - Smith 1966  
*Myripristis refulgens* Val. 1862 : 1169 (Seychelles)  
*Priacanthus refulgens* Sauvage, 1891 Hist. Nat. Madag.

Poiss 16: 129, Pl 5, fig 5 (E. coast Madagascar)  
*Pristigenys macrophthalmus* (Agassiz, 1835)  
*Pricanthus niphonia* Cuv. & Val., 1829 Hist. Nat. Poiss.



3: 107 (Japon). Schlegel, 1843, Fauna Jap.: 21, Pl. 7a (Japon)  
*Pseudopriacanthus niphonia* Bleeker, 1869 and 1876 -  
 Atl. Ich. Pl 352, fig 3 (Celebes). Smith 1963, Fishes  
 Seychelles: 13, Pl 9, B.

Agassiz (1835) first listed *Pristigenys substriatus* (without description) as a new combination for *Chaetodon substriatus* (Blainville, 1818), a fossil species of Eocene Monte Bolca Formation in Italy, which was earlier erroneously reported by Volta (1796) as the present day species *Chaetodon striatus*. Agassiz (1839) gave a short description of this species and considered it to be a genus near *Beryx*. As a consequence, it was listed in the Family Berycidae in the classification of fossils by Woodward (1901) and Eastman (1905). However, after Agassiz 1839, Bleeker (1869) described the genus *Pseudopriacanthus* to include *Priacanthus niphonius* Cuvier, 1829. Morrison (1889) formally named this species as the type of the genus and also allocated *Priacanthus altus* Gill and *Priacanthus meyeri* Gunther (as a synonym of *niphonius*) to the group as did Boulenger (1895). However, the genus *Pristigenys* was not included until a century after its description. White (1936) had first noted the similarity between the genus *Pristigenys* and *Pseudopriacanthus* in question, synonymized them, and transferred *Pristigenys* from Family Berycidae to Priacanthidae, hence the name *Pristigenys* and *Pseudopriacanthus* are used interchangeably. Since there is no contrary evidence, Fritzsche (1981) recommended that all recent species of *Pseudopriacanthus* be referred as *Pristigenys* based on the suggestions of White (1936) and Myers (1958).

Simultaneously, numerous brief descriptions in various classifications and regional faunal works, literature dealing exclusively with Priacanthidae as a group started with that of Bleeker (1873) who had given description on the species of Indonesian region; Morrison (1889) reviewed the American species; Boulenger (1895) and Fowler (1931) described the species *Pristigenys niphonia* of Japanese waters. Caldwell (1962) and Randall (1978) reviewed the western Atlantic species; and Eggleston (1974) the western Pacific and eastern Indian Ocean. Myers (1958) and Smith (1966) gave comparative descriptions for the species under the genus *Pristigenys*. Starnes (1988) gave a review on the genus *Pristigenys* and its phylogenetic relation with other species of the Family Priacanthidae of Indo-Pacific region.

Though several species of Family Priacanthidae have been reported from the Indian waters, none of the species of the genus *Pristigenys* were reported so far, except by Philip (1994) who recorded *P. niphonia* based on a single specimen collected from Wadge bank (7° N; 77° E). Recently, nine specimens of *P. niphonia* were collected from the demersal trawl catches of the vessel *Matsya Varshini* (36.5m OAL;

GRT-268.8 tonnes) of Fishery Survey of India, during the period 1999-2002, during an intensive survey carried out in the Wadge bank and Gulf of Mannar for the perch resources of this region. Description of the species with the salient features of the skeletal structure are also given in this paper. A redescription for this species was given based on the nine specimens collected from the same area. Meristic counts and measurements were taken following Starnes (1988). Potassium hydroxide solution (5%) was used for cleaning the bones for osteological studies. In naming the various bones the works of Berg (1940), Starnes (1988) and Cannon (1987) were followed.

Abbreviations for anatomical terms used in the text figures are as follows:

AR = articular; B = basipterygium; BH = basihyal; BrR = branchiostegal ray; C = cleithrum; CC = Coracoid; CH = ceratohyal; D = dentary; DHH = dorsal hypohyal; ECT = ectopterygoid; EH = epihyal; Ep = Epural; H = hyomandibula; HH = hypohyal; HP = hypural; IH = interhyal; IO = interopercle; M = maxilla; MES = mesopterygoid; MET = metapterygoid; O = opercle; PA = parietal; PC = postcleithrum; PG = pectoral girdle; PH = Parahypural; PL = palatine; PM = premaxilla; PO = preopercle; PS = pectoral spine; PTT = post-temporal; Q = quadrate; S = scapula; SC = supracleithrum; SOP = subopercle; SY = symplectic; UH = urohyal; VHH = ventral hypohyal.

### Description

D. X+ 11 P.17-18 V. I+ 5 A III +10 Ll. 36-37; LS. 40; VRS. 33-35; Gr. 5-7 +17-19 (22-26); scales of midlateral area with 22-24 (smaller specimens) and 27-33 (in larger specimens) spinules and 23 vertebra.

### Diagnosis

Body ovate, highest overall width found immediately behind the operculum. Fourth and fifth dorsal spines are longer than the rest. Soft part of the dorsal and anal fin broadly pointed. The pelvic fin soft rays of younger specimens (58.5 mm) reaching beyond the anal fin origin and falling short in larger size group (> 210 mm). Teeth (canines) differentiated into large and small; the outer series of upper jaw is wider and larger than the lower jaw.

**Colour:** Body reddish orange, head, fins and operculum red to silvery. Five silvery white bars on head and body, where the first bar at first dorsal fin origin, pass through posterior end of the operculum and extending to the base of the pectoral fin. Second beneath the fourth and fifth dorsal spine extending to belly and third bar originated just beneath the ninth dorsal fin and extending to first anal spine, fourth and fifth bars at



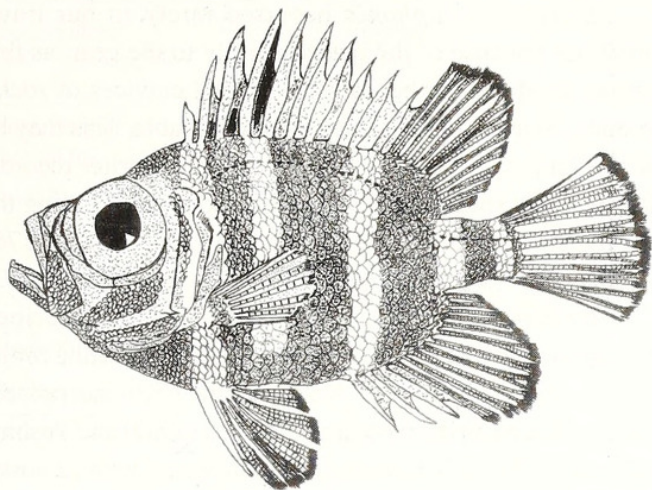


Fig. 1: *Pristigenys nipponia*  
(Cuvier & Valenciennes, 1829) 250 mm

anterior and posterior of the caudal peduncle (Fig. 1). Origin of the membranous part of the dorsal, ventral and anal fins pinkish and dusky at posterior. Soft portion of dorsal, ventral and anal fins with black margin and white submarginal band.

**Osteology:** Bones are thick, hard and oily; the cranium is depressed, broad in the posterior part and narrow anteriorly. Neurocranium robust and convex in profile around the extremely large orbital region. A large myodome opening to brain cavity behind orbit, supraoccipital, parietal and epiotic crests prominent. Parietal small and paired articulating anteriorly with occipital. Supraoccipital broad, crest-bearing portion projecting well forward between posterior extensions of frontal and posteriorly to very near foramen magnum. Neural process of the first vertebra fused dorsomedially to form spine-like structure unlike the *Priacanthus* spp. Vertebra 23 (10 trunk + 13 caudal), first one fused to exoccipitals and basioccipital; neural process of the first vertebra fused to foramen magnum in larger specimens. Predorsal bone 1. Parasphenoid thick laterally flattened with ventral groove with centro-lateral ridge, a thick sheet of bone extends dorsally throughout its length, articulates anteriorly with ventral surface of the flattened posterior end of the vomer and ventral surface of the ethmoid cartilage.

Branchiostegal rays six with well-developed scales over most of the length, the first one is rudimentary in the smaller specimen (58 mm TL), four rays associated with anterior ceratohyal remaining two with epihyal. Interhyal of the hyoid arch small, narrow providing hind end attachment to the opercular complex at the inner side of the preopercular angle and lies right angle to the hind end of the epihyal. Epihyal broad anteriorly and narrow posteriorly attached to ceratohyal.

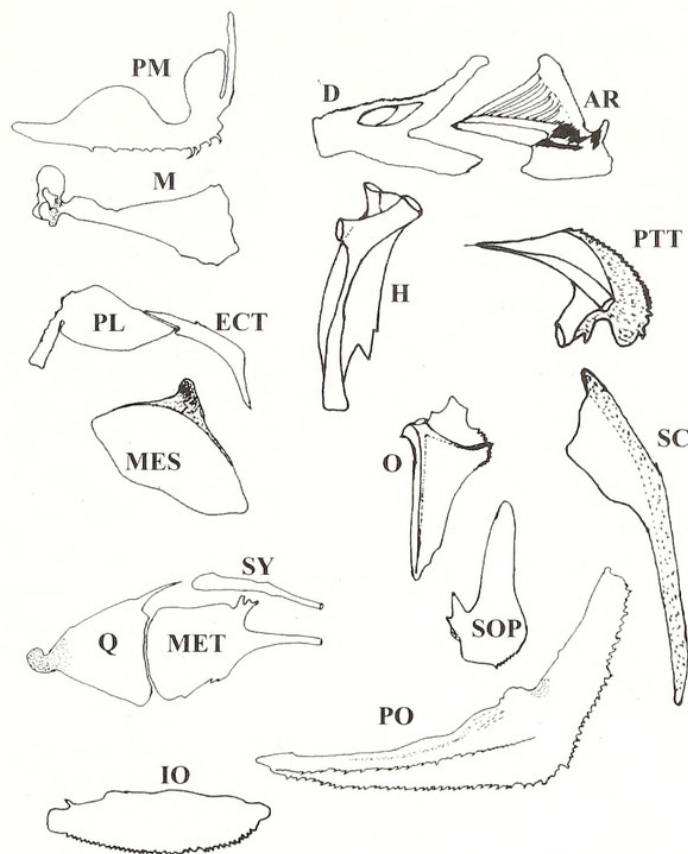


Fig. 2: Lateral view of jaws and parts of opercular series of *P. nipponia*

Ceratohyal narrow anteriorly and broad posteriorly. Urohyal triangular unpaired and broad posteriorly, embedded free in the muscular mass of the throat and connected posteriorly to the rear end of the cleithrum by ligaments (Fig. 3). Preopercle large, crescent-shaped with prominent tripointed spines at postventral angle (Fig. 2).

Palatine with a tooth-bearing shelf ventrolaterally articulating posteroventrally with ectopterygoid; prepalatine with elongate process articulating with maxilla (Fig. 2). Ethmoidal pointed anteriorly and relatively narrow, its lateral flanges folded ventrally, lateral ethmoid with a large foramen. Anterior and posterior lamella of the lateral ethmoid divergent ventrally, straddling on palatine, articulating with frontal, parasphenoid and vomer. Vomerine articulation with lateral ethmoid narrow bearing a foramen medially. Premaxilla with well-developed ascending process and an expansive and complex process articulating with maxilla alveolar ramus with large dorsal flange centrally. Dentary large; paired posteriorly forked bearing small conical teeth, not in rows on dorsal arm (Fig. 2). Articular more or less spear-shaped with thick basal part, a sail-like broad anterior part which fits into the socket of the dentary. Broad metapterygoid articulating anteriorly with quadrate, anterodorsally with ectopterygoid ventrally with rod-like symplectic (Fig. 2).



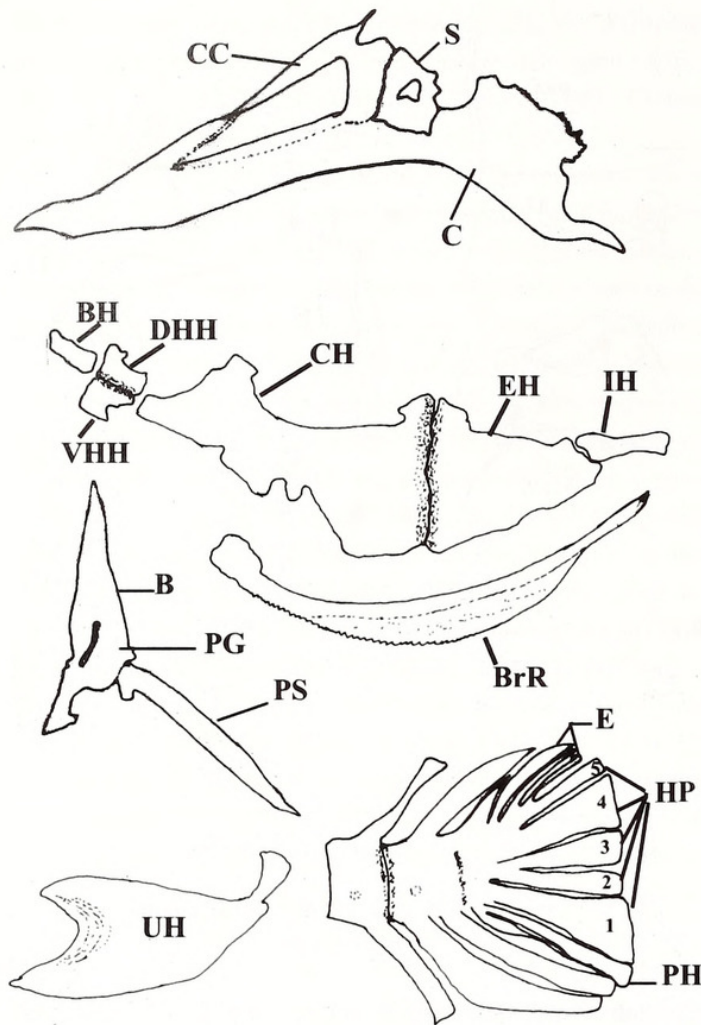


Fig. 3: Lateral view of pectoral girdle, hyoid series, pelvic girdle, urohyal and caudal skeletal of *P. niphonia* (250 mm TL)

Sphenoticum angulate, deflected ventrally behind orbit and moderately produced posteriorly. Epiotic more or less circular in shape, paired and being roof of the auditory capsule articulating with parietals pterotic and occipitals. The middle region of the bony ridge of the epiotic crest drawn into posteriorly directed spine. Pectoral girdle with cleithrum elongate and little curved (Fig. 3).

Pectoral girdle consists of cleithrum, scapula and coracoid. Cleithrum paired and bent, and this is the largest bone of pectoral girdle (Fig. 3). Scapula paired quadrangular bone and it is pierced by a foramen. Coracoid paired, dorsal portion is broad and ventral portion is rod-like. The pelvic girdle includes Basipterygium, which is embedded freely in the flesh of the abdominal wall (Fig. 3). Anal spine 3; Pterigophore 2; first two spines articulated with a single pterigophore. Caudal fin 16, caudal with three epurals, five hypurals and a single parahypural with a large hypurapophysis (Fig. 3).

## Discussion

*Pristigenys niphonia* occurred rarely in our trawl samplings because of the inaccessibility to the gear, as this species lived near or beneath ledges and crevices of rocky grounds (Starnes 1988), which are untrawlable. This may be the reason for the absence of this species in earlier records. However, the species was recorded in four hauls during the past three years from the same or nearby area (8° 37' N; 76° 14' E).

Boulenger (1895) and Fowler (1931) described *Pristigenys niphonia* with 11-12 dorsal fin rays, while Smith (1966) observed only 11 which agree with the present findings. Based on the reports of Caldwell (1962) and Yoshino and Iwai (1973), it is expected that *P. niphonia* with 12 dorsal fin and 11 anal soft rays is very rare. The LL varied between 34-40 (Boulenger 1895; Fowler 1931), 37-43 (Starnes 1988), 35-38 (Smith 1966) which overlap 36-37 recorded in the present study. A significant variation observed in gill rakers count of the specimen collected from Japan waters as 17 (Boulenger 1895) to 30 (Fowler 1931); it varied between

Table 1: Proportions of morphometric data of *Pristigenys niphonia* (N=9)

Morphometric Characters	Proportions	
	Mean	± SD
Total Length / standard Length	1.21	0.13
Standard length / pre pectoral	2.31	0.18
Standard length / pre pelvic	2.31	0.16
Standard length / pre anal	1.47	0.17
Standard length / pre dorsal	2.90	0.22
Standard length / dorsal fin	1.88	0.13
Standard length / anal fin	4.19	0.10
Standard length / first dorsal fin length	14.72	0.24
Standard length / length of 10th dorsal fin	6.11	0.40
Standard length / length of 5th dorsal fin	4.16	0.39
Standard length / soft dorsal height	6.89	0.72
Standard length / pectoral height	4.88	0.37
Standard length / Pelvic height	3.55	0.72
Standard length / anal height	4.61	0.24
Standard length / head length	2.49	0.02
Standard length / eye diameter	5.18	0.14
Standard length / post orbital	8.86	0.10
Standard length / preorbital	13.64	2.81
Standard length / interorbital	9.76	0.24
Standard length / body depth	2.01	0.18
Head length / eye diameter	2.08	0.13
Head length / post orbital	3.55	0.14
Head length / preorbital	5.47	1.16
Head length / interorbital	3.91	0.27



**Table 2:** Comparison of descriptions from different areas

Descriptions	Fowler, 1931 Japan	Boulenger, 1895 Japan	Smith, 1966	Starnes, 1988 W. Indian Ocean	Present report
Indo-Pacific					
Dorsal fin	X, 11-12	X, 11-12	X, 11	X, 10-12	X, 11
Anal Fin	III, 10	III, 10	III, 10	III, 10	III, 10
LI. scales	34-40	34-40	35-38	37-43	34-37
Gill Rakers	9 + 21	17	14-26	27-29	5-7 +17-19 22-26
Head length in Standard length	2.5	2.5	2.5	2.5	2.5
Body depth in Standard length	1.8	2	1.9-2.0	1.9	1.9-2.09

24 and 26 (Smith 1966, western Indian Ocean) and 22-24 (present record). Three light bars observed on the body of the specimens collected from South Africa (Smith 1966), 4-5 bars from Indo-Pacific region (Starnes 1988) and five bars in the present observation. Starnes (1988) recorded specimens of 270 mm with 40-50 spinules of mid-lateral scales and also suggested that this may be fewer in smaller specimens, the present specimen has 27-37 spinules.

The pertinent records on the occurrence of this species are along coast of East Africa and along the extensive mid Indian Ocean ridge that includes Socotra, Chagos, Rodrigues and St. Paul, possible north to Maldives, Sri Lanka, however, according to FAO records it is questionable in India. Computation of some body parts (Body depth, head length, height of dorsal fin, pectoral fin, ventral fin) in standard length and others (Eye diameter, upper jaw length, dorsal spine length,

pectoral fin length, ventral fin length) in head length (Table 1) of the present specimens are very close to *P. nipponia* collected by Smith (1966) from south Africa (Table 2), which supports the theory of common geographical distribution of marine ichthyofauna of India and Africa, perhaps the distribution of this species has extended to the northern latitudes in the Indian Ocean.

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#### REFERENCES

- AGASSIZ, L. (1835): Revue critique des poissons fossils figures dans l' *Itiolitologia Veronese*, *Neues Jahrbuch. Mineral. Neues Jahrbuch. Mineral.* 1835: 290-316.
- AGASSIZ, L. (1839): Chapter 18. Des genres *Acrogaster*, *Podocys* et *Pristigenys*. Pp. 18-144. In: Agassiz, L.: *Researches sur les Poissons Fossiles*. Vol. 4. Petit Pierre ed., Neuchatel. 314 pp.
- BERG, L.S. (1940): Classification of Fishes both Recent and Fossils. *Travaux De l' Institute Zoologique De l' Academic Des Sciences De l' URSS*. 500 pp.
- BLEEKER, P. (1869): Neuvieme notice sur la faune ichthyologique du Japan. *Versl. Akad. Amsterdam*, 2 ser. 3: 237-352.
- BLEEKER, P. (1873): Revision des especes Indo-Archipelagique du groupe des Prianthini. *Ned. Tijdschr. Dierk.* 4: 170-177.
- BOULENGER, G.A. (1895): Catalogue of the Perciform fishes in the British Museum. 2<sup>nd</sup> ed. British Museum, London. 394 pp.
- CANNON, D.L. (1987): Marine Fish Osteology: A manual for archaeologists. Department of Anthropology Publication No. 18. Simon Fraser University, Burnaby, British Columbia. 133 pp.
- CALDWELL, D.K. (1962): Western Atlantic fishes of the family Priacanthidae *Copeia* 2: 417-424.
- EASTMAN, C.R. (1905): Les types des poissons fossils du Monte Bolca au Museum d' Histoire Naturelle de Paris. *Mem. Soc. Geol., Paris* 13(34): 1-33.
- EGGLESTON, D. (1974): Pricanthidae. Pp. 1-6. In: Fischer, W. & P.J.P. Whitehead (Eds): FAO species identification sheets for fishery purpose. Eastern Indian Ocean (fishing area 57) and western Pacific (fishing area 71), Vol. 3, FAO Rome, Unpaginated.
- FOWLER, H.W. (1931): Contributions to the biology of the Philippine Archipelago and adjacent regions. The fishes of the families Pseudochromidae, Lobotidae, Pempheridae, Priacanthidae, Lutjanidae, Pomadasysidae and Teraponidae collected by the United States Bureau of Fisheries Steamer "Albatross" chiefly in the Philippine seas and adjacent waters. *Bull. U.S. Natl. Mus.* 100(11): 1-388.
- FRITZSCHE, R.A. (1981): *Pseudopriacanthus* Bleeker, a synonym of the priacanthid genus *Pristigenys* Agassiz. *Copeia* 2: 490-492.
- MORRISON W.L. (1889): A review of the American species of Priacanthidae *Proc. Acad. Nat. Sci. Phila.* 41: 159-163.
- MYERS, G.S. (1958): The priacanthid fish genus *Pristigenys*, Stanford.



*Ichthy. Bull.* 7: 40-42.

PHILIP, K.P. (1994): Studies on the biology and fishery of the fishes of the Family Priacanthidae (Pisces:Perciformes) of Indian waters. Ph.D. thesis, Cochin University of Science and Technology. 169 pp.

RANDALL, J.E. (1978): Pricanthidae. Pp. 1-7. In: Fischer, W. (Ed.): Species identification sheets for fishery purpose western Central Atlantic (fishing area 31), Vol. 4, FAO Rome, Unpaginated.

SMITH, J.L.B. (1966): The rare big-eye, *Pristigenys nipponia* (C&V 1839), in south Africa. *Rhodes Univ. Dept. Ich., Occ. Pap.* 9: 97-102.

STARNES, W.C. (1988): Revision phylogeny and biogeographic comments on the circumtropical marine percoid fish Family Pricanthidae.

*Bull. Mar. Sci.* 43(2): 117-203.

VOLTA, G.S. (1796): Ittiolitologia verones del museo Bozziano ora annesso a quello del Conte Giovambattista Gazola e di altri gabinetti di fossili Veronesi con la versione Latina. 2 vols. Verona (original not seen).

WHITE, E.I. (1936): On certain Eocene Percoid fishes. *Ann. Mag. Nat. Hist.*, ser.10, 18: 48-54.

WOODWARD, A.S. (1901): Catalogue of fossil fishes in the British Museum Natural History. Part IV. British Museum, London. 636 pp.

YOSHINO, T. & TAMOTSU IWAI (1973): *Pristigenys multifaciata*, a priacanthid fish from the Ryukyu Islands. *Japan. J. Ichthyol.* 20(2): 61-66.

## 10. FISH DIVERSITY IN ACHENKOVI RIVER, KERALA, INDIA

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### Introduction

Western Ghats, located along the south-west coastline of the Indian subcontinent is extremely rich in its fish diversity and endemism (Gopalakrishnan and Ponniah 2000). The perennial river, Achenkovil flows through the central Travancore region in Kerala state and rises south of Devarmalai in the Western Ghats at an elevation of about 700 m. The river in its course is joined by a number of tributaries such as Kanai Ar, Kall Ar, Chittar, Kakkad Ar.

The river has an average flow of about 2,287 Mm<sup>3</sup> and ultimately drains into the Vembanadu lake system.

Despite the occurrence of a large number of studies on the riverine fish fauna in Kerala (Biju *et al.* 1998, 1999a, b; Johnson and Soranam 2001; Kumar and Sushama 2001; Sushama 2003), there was paucity on the documentation of fish species and their distribution in Achenkovil river. Hence, the present study was undertaken to collect data on species richness and distribution of ichthyofauna in Achenkovil river basin.

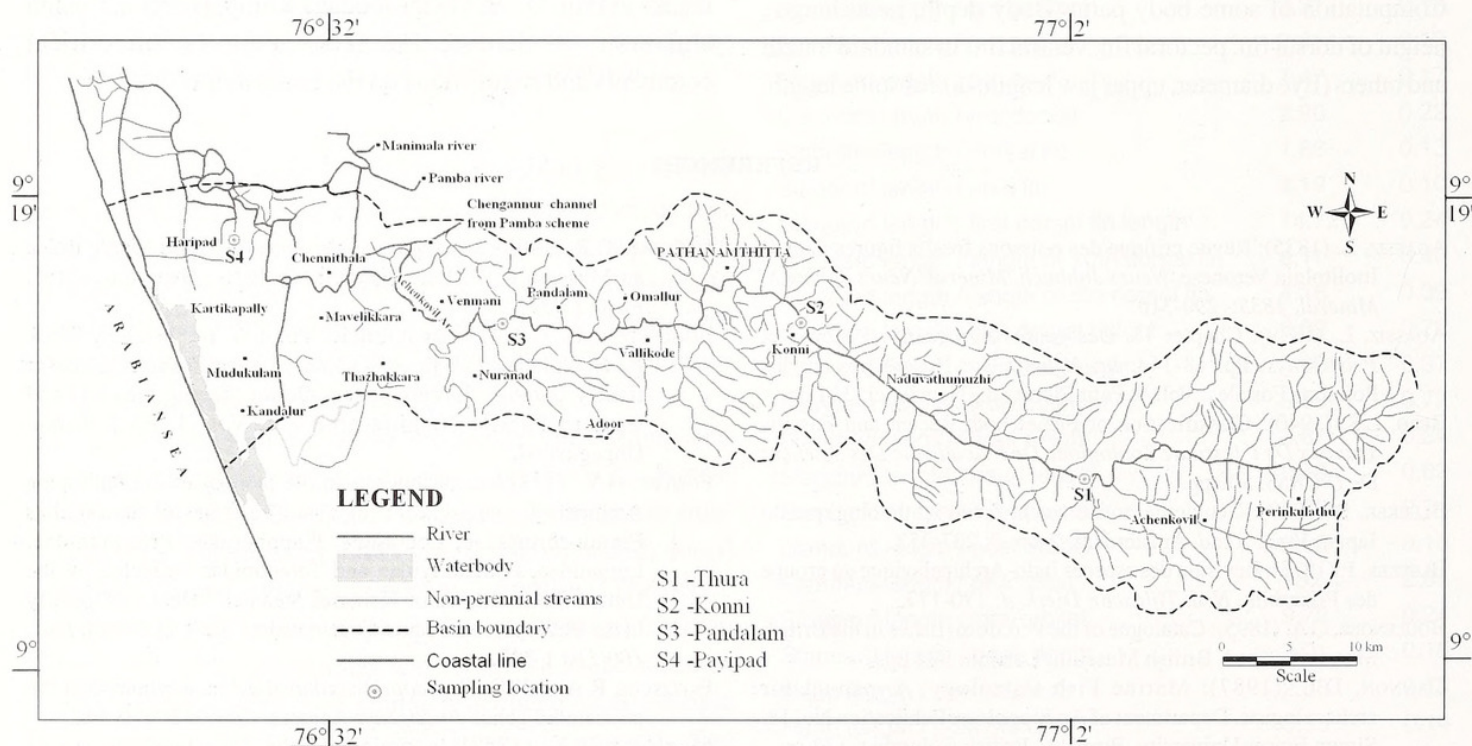


Fig. 1: Map showing the sampling stations in Achenkovil River Basin, Kerala



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