

## NOTE ON THE VALIDITY OF THE IDENTIFYING CHARACTER OF A RARE LOACH *NEMACHEILUS MONILIS* HORA

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There are several instances where diagnostic characters of a particular species become irrelevant and inadequate when species descriptions are based on very few specimens. This is because the meristic characters would be in a very narrow range owing to the smaller number of specimens examined. It would be further complicated, if a dichotomous key is prepared based on that study. The characters would not help to discriminate it from other related species when more specimens belonging to both species are later available with wide range in the specific character than it was when the species was described. Here we address an example of the validity of the key characters used in distinguishing the species *Nemacheilus monilis* Hora.

**Materials and Methods:** Specimens examined were from the collections made under various projects in streams/rivers of Western Ghats that are kept in the Manonmaniam Sundaranar University Museum of Natural History (MSUMNH). Comparative type material was examined at Zoological Survey of India (ZSI), Calcutta. Meristic counts were made following Kottelat (1990).

The genus *Nemacheilus* (following Bleeker, 1863) has three valid Indian species *Nemacheilus anguilla*, *N. corica* and *N. monilis*. *N. corica* is found in northern India while the other two species are known to occur in peninsular India. The generic name available in different forms of spelling has created doubt among taxonomists. *Nemacheilus*, *Nemachilus*, and *Noemacheilus* are the three forms of name for the same genus as available in literature. Among them *Noemacheilus* has been used for long time till recently by various authors (eg. Menon, 1987; Indra *et al.* 1998; Menon, 1999; Zacharias & Minimol, 1999; Rema Devi & Indra, 2000), *Nemachilus* (Hora, 1921) and *Nemacheilus* (Kottelat, 1984; Sawada, 1982; Kottelat, 1990; Talwar & Jhingran, 1991; Banarescu & Nalbant, 1995; Jayaram, 1999).

Kottelat (1990) showed *Nemacheilus* as the valid genus name and other available names are erroneous. The generic name *Nemacheilus* has been also widely used for Nemacheilines of other closely related genera (Menon, 1999; Talwar & Jhingran, 1991). Banarescu & Nalbant (1995) classified the sub family Nemacheilinae into many genera of which *Schistura*, *Mesonemacheilus*, *Longischistura*, *Nemachilichthys* and *Oreonectes* are from peninsular India, and this has been followed by Jayaram (1999). Zacharias & Minimol, 1999 while describing a new nemachiline species from Periyar Tiger Reserve of Kerala named it as *Noemacheilus menoni*. For comparison they used two species, *Noemacheilus triangularis* and *Noemacheilus guentheri* with the genus name as *Noemacheilus* however, this belongs to the genus *Mesonemacheilus*. But the two new recent

additions, *Schistura nagodiensis* Sreekantha *et al.*, 2006 and *Schistura sharavathiensis* Sreekantha *et al.*, 2006, to the sub family Nemacheilinae are correctly placed in *Schistura*.

*Nemacheilus monilis* Hora, 1921 was described as *Nemachilus monilis* from Bhavani river at the base of Nilgiri hills with two specimens as types. This species has been shown to occur in various streams/rivers inside Nilgiri Biosphere Reserve (Shaji, 1998; Arunachalam & Manimekalan, 2000). It had been considered to be restricted to Nilgiri hills until it was reported by Indra *et al.* (1998) from Chinnar river showing its extension to Anamalai hills.

*N. monilis* is diagnosed by number of branched dorsal rays and the moniliform spots along the lateral line (Hora, 1921; Menon, 1987; Jayaram, 1999). Description and the key were based on two specimens. Rajan (1955) reported *N. monilis* to have eight branched dorsal rays, in the two specimens he collected from the type locality and Indra *et al.* (1998) too observed similarly. As per the description of Hora (1921) the specimens are said to have seven branched dorsal rays which distinguished it from the other species *N. anguilla*, which has eight branched dorsal rays. When we examined the specimens of *N. monilis* collected from the type locality and also the specimens from other streams of Nilgiri hills, we found all the specimens to have eight branched dorsal rays. The longest specimen in our collection was 72.8mm SL.

Since the meristic character, the number of branched dorsal rays, so far used to distinguish *N. monilis* from *N. anguilla* has been found to be similar in both the species, it could not be considered as a distinct character.

**Diagnostic characters:** *Nemacheilus monilis* has a relatively bigger body when compared to *N. anguilla*. The black moniliform blotches along the lateral line (Image 1<sup>w</sup>) about 20-22 in number in *N. monilis*, the first two blotches in the form of streaks, moniliform blotches sometimes interconnected by thin band (in some examples), posteriormost at the caudal base distinguishes it from *N. anguilla* which has a row of transverse spots that often is found to coalesce as a dark band along the lateral line (Image 2<sup>w</sup>). The lip over upper jaw of *N. monilis* is without any remarkable modifications which in *N. anguilla* has a pair of thick barbel like process interrupted by a median incision (Image 3<sup>w</sup>). The longer and pointed snout and longer barbels of *N. monilis* distinguishes it from *N. anguilla*. Yet another distinguishing character is the saddle-like dark brown vertical bands in the dorsal part of the body, though such bands are available in *N. monilis* but they are not as distinct and clear as in *N. anguilla*. There are 11-13 bands of varied thickness, mostly as wide as interspaces in *N. anguilla*.

### Materials examined

#### *Nemacheilus anguilla*

Holotype: No Date, Yenna river at Medha, Satara District, coll. Annandale, 45.4mm SL, ZSI Kolkatta F. 9692/1.

1ex., Krishna river, near Koyna Dam, Pune, M. Arunachalam, 1998 collection, 48.8mm SL, MSUMNH25.

#### *Nemacheilus monilis*

5ex. 24.iii.2000, Bhavani river at Chengal near Mettupalayam, Tamil Nadu, M. Arunachalam, 71.2-72.8mm SL,

<sup>w</sup> See Images 1-3 in the web supplement at www.zoosprint.org

MSUMNH32.

4ex., 03.ii.2001, Bemmenmaduvu, Moyar river. coll. M. Arunachalam, 64.5-72.9mm SL, MSUMNH36.

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## ACKNOWLEDGEMENTS

We thank Dr. Remadevi, Sr. Scientist, ZSI (SRS, Chennai) for valuable suggestions and for providing relevant copies of reprints from her personal collection; and to the anonymous reviewers.


**JOB DESCRIPTION FOR THE POST OF  
DIRECTOR (Administration and Development),  
MADRAS CROCODILE BANK/CENTRE FOR HERPETOLOGY**

The candidate should have a minimum of 5 years experience in an administrative post, preferably with experience in the direction and functioning of a non-government organization, including project proposal drafting, communication with local and international funding agencies, networking with students, scientists, potential funders and the general public. While knowledge of reptiles/wildlife is not essential, the candidate should have a genuine interest in learning about the field. Full working knowledge of English and computer usage is essential and knowledge of Tamil desirable (but not essential). Starting salary: Rs.35,000 per month (negotiable, based on experience) plus basic, comfortable accommodation on site (electricity, water included), insurance, Provident Fund. All senior MCB staff members are expected to make the effort to find part of their salary via grants generated by them. Partial list of activities and responsibilities of the Director:

1. Overall direction of the day-to-day activities at MCB/CFH along with the Projects Coordinator and Curator and fulfilling set targets.
2. Responsibility (along with the Projects Coordinator) for financial matters, including income from daily ticket sales and other sources with attention to frugal/cost-effective financial operation.
3. Communicating with the Trustees' Administrative Committee and Auditor on all important administrative and financial matters.
4. Fundraising/drafting project proposals for funding MCB/CFH development, research, educational, conservation activities.
5. Work with Staff, Trustees, Zoo Consultant, architect and engineer on development and execution of the new Masterplan for the total revamping of the Croc Bank.
6. Overall coordination, along with the Curator and Education Officer, of the Education, Paying Volunteer, Reptile Veterinary Programmes and similar activities.
7. Networking with other NGOs, reptile parks/zoos, students, scientists and colleagues of MCB/CFH.
8. Facilitate continuous publicity for MCB/CFH via all forms of public and electronic media and interact with the visiting public.
9. Fulfilling Government requirements such as Central Zoo Authority regulations, along with the Curator.
10. Fulfilling commitments of clean water, healthy conditions for the reptiles, staff and visiting public at MCB/CFH.
11. Hold regular operational meetings with senior and junior staff.
12. Regular project updates and quarterly report to the Trustees.

This is an opportunity for the right person to help the Trustees and Staff take a world renowned reptile park into the next dynamic stage of its development. It will take a lot of energy, cooperation and imagination and it is an exciting moment in the Madras Crocodile Bank's 31 year history. In general, the Director's job is to work with the Trustees and Croc Bank Staff to spearhead the development of MCB/CFH into a Centre of Excellence for Herpetology in India and as an outdoor laboratory with such diverse features as diploma courses in herpetology, reptile veterinary science, hosting visiting lecturers, training courses with formal academic affiliations, and model reptile enclosure designs for zoos. Applicants should send their complete CV, photograph, an informal statement of their interest in the position and at least three reference letters (with contact details) from persons who know them and their work.

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