

## OPEN ACCESS

The Journal of Threatened Taxa is dedicated to building evidence for conservation globally by publishing peer-reviewed articles online every month at a reasonably rapid rate at [www.threatenedtaxa.org](http://www.threatenedtaxa.org). All articles published in JoTT are registered under [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/) unless otherwise mentioned. JoTT allows unrestricted use of articles in any medium, reproduction, and distribution by providing adequate credit to the authors and the source of publication.



# Journal of Threatened Taxa

Building evidence for conservation globally

[www.threatenedtaxa.org](http://www.threatenedtaxa.org)

ISSN 0974-7907 (Online) | ISSN 0974-7893 (Print)

## NOTE

### FISH FAUNA OF NANDUR-MADHMESHWAR WETLAND, MAHARASHTRA, INDIA

Prashant Wagh, Sudhakar Kurhade, Shrikant Jadhav & Deepa Jaiswal

26 June 2018 | Vol. 10 | No. 7 | Pages: 11973–11979

10.11609/jott.4246.10.7.11973-11979



For Focus, Scope, Aims, Policies and Guidelines visit <http://threatenedtaxa.org/index.php/JoTT/about/editorialPolicies#custom-0>

For Article Submission Guidelines visit <http://threatenedtaxa.org/index.php/JoTT/about/submissions#onlineSubmissions>

For Policies against Scientific Misconduct visit <http://threatenedtaxa.org/index.php/JoTT/about/editorialPolicies#custom-2>

For reprints contact [info@threatenedtaxa.org](mailto:info@threatenedtaxa.org)

## Partners



صندوق محمد بن زايد  
للمحافظة على  
الكائنات الحية  
The Mohamed bin Zayed  
SPECIES CONSERVATION FUND



zooh!  
ZÜRICH

Member



Publisher & Host





## FISH FAUNA OF NANDUR-MADHMESHWAR WETLAND, MAHARASHTRA, INDIA

Prashant Wagh<sup>1</sup>, Sudhakar Kurhade<sup>2</sup>, Shrikant Jadhav<sup>3</sup> & Deepa Jaiswal<sup>4</sup>

<sup>1,2</sup>New Arts, Commerce and Science College, Ahmadnagar, Maharashtra 414 001, India

<sup>3,4</sup>Zoological Survey of India, Freshwater Biology Regional Centre, Hyderabad, Telangana 500048, India

<sup>1</sup>prashantsinnarkar@gmail.com, <sup>2</sup>sudhakarkurhade@gmail.com,

<sup>3</sup>shrikantjadhavzsi@gmail.com (corresponding author),

<sup>4</sup>deepajzsi@gmail.com

Nandur-Madhmeshwar Wetland (NMW) is located at Khangaon Thadi Village (20.008°N & 74.131°E), Niphad Tehsil of Nasik District of Maharashtra (Fig. 1). A stone weir was constructed during 1907–1913 across the river Godavari just below the confluence of Kadava and Godavari Rivers at Nandur-Madhmeshwar. The water released from Godavari and lake Beale (Darna) reservoir is stored at Nandur-Madhmeshwar and subsequently released through canals for irrigation. Silt and organic matter that are carried away with water flow accumulate in the lake, due to which islands and shallow water ponds have been created. This resulted in the biologically enriched conditions by which aquatic vegetation has been stabilized. Huge amounts of silt have been deposited in the dam since 1913; consequently much of the lake is now marshland or very shallow water. Because of its outstanding ecological, faunal, floral and zoological significance the area was declared a sanctuary in 1950. The sanctuary has interspersed grasslands with

semi-evergreen forests.

Even though some studies are available on the fish fauna of Godavari River, information on the fish fauna of NMW is limited. David (1963) studied fishes of the Godavari River but did not provide any collection data. Khedkar (2005) and Yadav (2005b) studied the fishes of Nathsgar wetlands, Jaikwadi on Godavari River, Paithan, Aurangabad. Recently, Maharashtra Pollution Control Board and Central Institute of Fishery Education (MPCB & CIFE 2011) studied the fishes by selecting various sites of the Godavari River including Nandur-Madhmeshwar wetland and reported 24 species from this wetland. The present study conducted a detailed survey in the wetland area. The study aims to ascertain the distribution and abundance of fishes and to identify threats so as to provide conservation measures.

We collected the fishes from the wetland (outside the sanctuary area) during 2010–2012. Fishes were collected by hand net, cast net and also obtained from local fishermen. Fishes were preserved in 4% formalin and identified using available literature (Jayaram 1991, 2010; Menon 1987, 1992; Talwar & Jhingran 1991; Jayaram & Dhas 2000; Jayaram & Sanyal 2003). The fish specimens are deposited in the museum collection of the Western Regional Centre, Zoological Survey of India, Pune (Accession No. ZSI/WRC P/5397 to P/5435). Assuming that the fishing effort for a given type of net was constant, the relative abundance of the fish



ISSN 0974-7907 (Online)  
ISSN 0974-7893 (Print)

OPEN ACCESS



DOI: <http://doi.org/10.11609/jott.4246.10.7.11973-11979> | ZooBank: urn:lsid:zoobank.org:pub:D63EF824-7A3E-4E3E-BA60-F7D22F99EC01

Editor: Anonymity requested.

Date of publication: 26 June 2018 (online & print)

Manuscript details: Ms # 4246 | Received 09 May 2018 | Finally accepted 06 June 2018

Citation: Wagh, P., S. Kurhade, S. Jadhav & D. Jaiswal (2018). Fish fauna of Nandur-Madhmeshwar wetland, Maharashtra, India. *Journal of Threatened Taxa* 10(7): 11973–11979; <http://doi.org/10.11609/jott.4246.10.7.11973-11979>

Copyright: © Wagh et al. 2018. Creative Commons Attribution 4.0 International License. JoTT allows unrestricted use of this article in any medium, reproduction and distribution by providing adequate credit to the authors and the source of publication.

Funding: None.

Competing interests: The authors declare no competing interests.

Acknowledgements: The authors PW and SK are thankful to the Principal, New Arts, Commerce & Science College, Ahmadnagar for facilities. We are grateful to Dr. Kailash Chandra, Director, Zoological Survey of India, Kolkata and to Dr. P.S. Bhatnagar, Scientist-D & Officer-in-Charge, Zoological Survey of India, Western Regional Centre, Pune for facilities and encouragement.



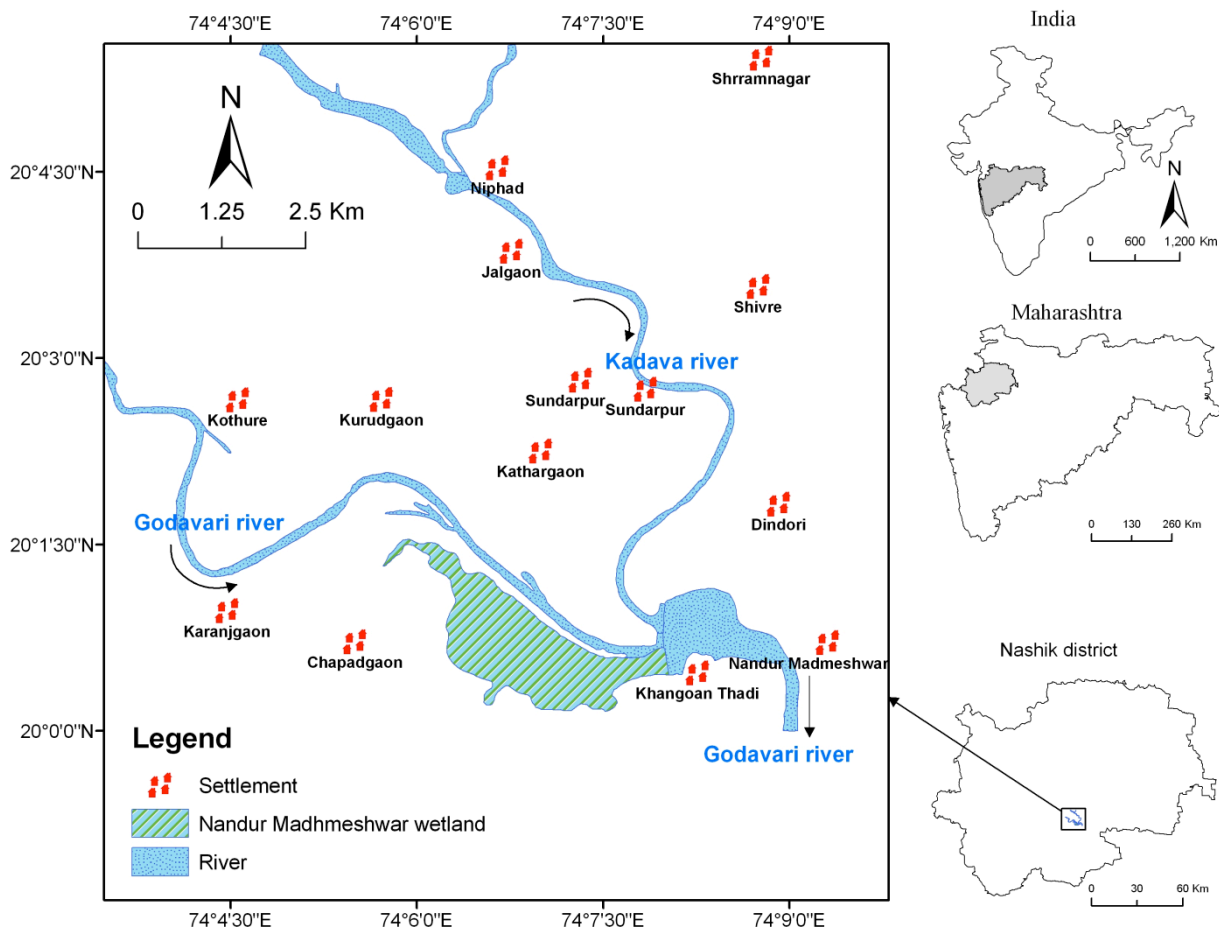


Figure 1. Map of Nandur-Madhmeshwar Wetland, Nasik District, Maharashtra.

was grossly classified into four categories as given by Dahanukar et al. (2012), namely abundant (76–100 % of the total catch), common (51–75 % of the total catch), moderate (26–50 % of the total catch), and rare (1–25 % of the total catch).

Thirty-nine fish species belonging to seven orders, 14 families and 30 genera were recorded from the study area (Table 1). Cypriniformes was the most dominant order contributing 20 species followed by Perciformes seven, Siluriformes seven, Synbranchiformes two and Osteoglossiformes, Anguilliformes and Beloniformes one species each. Cyprinidae was the most dominant family representing 17 species followed by Channidae three and Bagridae three. Some of the fishes collected from NMW are shown in Image 1. Of the total fish species obtained, 19 fish species were found to be common, out of which 11 had a uniform distribution throughout the study period in different months. Sixteen species showed moderate abundance while one was rare. Three invasive alien species were also recorded from the study area namely, *Cyprinus carpio*, *Clarias gariepinus*

and *Oreochromis mossambicus*. The introduction of alien species causes serious threat to native fish fauna with regards to competition for food, predation and disruption of the aquatic food chain (Daniels 2006; Raghavan et al. 2008; Knight 2010). The list includes typical primary freshwater fishes.

The fish diversity in NMW is high as compared to various protected areas in Maharashtra such as Sanjay Gandhi National Park (S=14) (Singh & Yazdani 1988), Pench National Park (S=33) (Yadav 2004), Nathsagar Wetland (S=33) (Yadav 2005b), Bhimashankar Wildlife Sanctuary (S=21) (Yadav & Jadhav 2009), Radhanagari Wildlife Sanctuary (S=20) (Jadhav & Jadhav 2014a), Chandoli National Park (S=11) (Jadhav & Jadhav 2014b), and low as compared to Ujani Wetland (S=54) (Yazdani & Singh 2002), Melghat Tiger Reserve (S=96) (Yadav, 2005a), Tadoba-Andhari Tiger Reserve (S=84) (Yadav 2006). The number of fish species is higher than those recorded by MPCB & CIFE (2011) from this wetland.

*Notopterus notopterus* is quite common in some areas of the wetland. Some specimens of *N. notopterus*

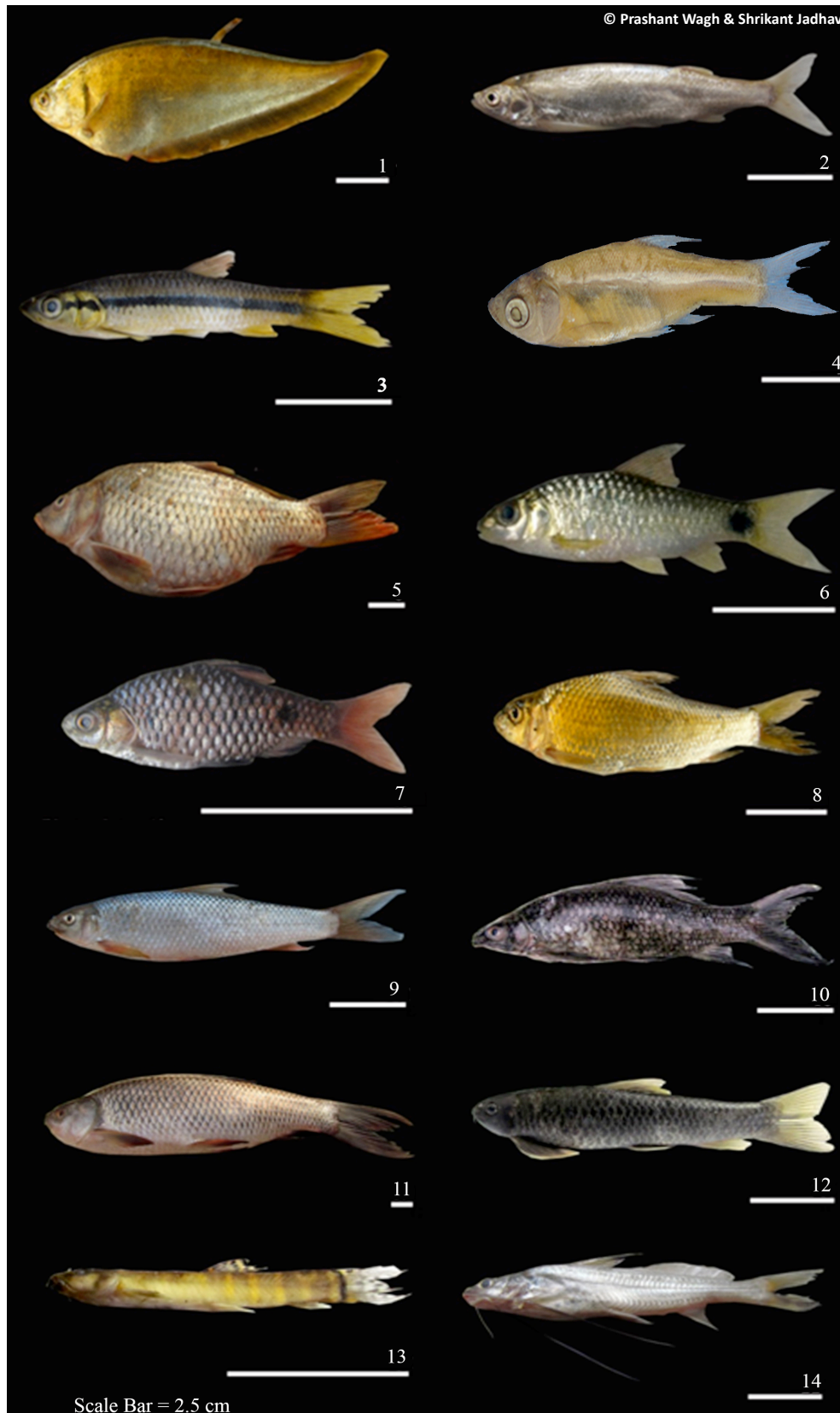
**Table 1. List of freshwater fish species recorded from Nandur-Madhmeshwar Wetland in the present study.**

Order/Family/Scientific name	IUCN status	Relative abundance
<b>Order: Osteoglossiformes</b>		
<b>Family: Notopteridae</b>		
<i>Notopterus notopterus</i> (Pallas, 1769)	LC	C
<b>Order: Anguilliformes</b>		
<b>Family: Anguillidae</b>		
<i>Anguilla bengalensis</i> (Gray, 1831)	LC	R
<b>Order: Cypriniformes</b>		
<b>Family: Cyprinidae</b>		
<i>Salmostoma balookee</i> (Sykes, 1839)	LC	M
<i>Salmostoma bacaila</i> (Hamilton, 1822)	LC	M
<i>Devario malabaricus</i> (Jerdon, 1849)	LC	C
<i>Rasbora daniconius</i> (Hamilton, 1822)	LC	C
<i>Amblypharyngodon mola</i> (Hamilton, 1822)	LC	M
<i>Cyprinus carpio</i> Linnaeus, 1758	EX	M
<i>Puntius amphibius</i> (Valenciennes, 1842)	DD	M
<i>Puntius chola</i> (Hamilton, 1822)	LC	M
<i>Systemus sarana subnasutus</i> (Valenciennes, 1842)	LC	M
<i>Puntius sophore</i> (Hamilton, 1822)	LC	C
<i>Pethia conchonius</i> (Hamilton, 1822)	LC	C
<i>Hypselobarbus curmuca</i> (Hamilton, 1807)	VU	M
<i>Cirrhinus reba</i> (Hamilton, 1822)	LC	M
<i>Labeo boggut</i> (Sykes, 1839)	LC	M
<i>Labeo calbasu</i> (Hamilton, 1822)	LC	M
<i>Labeo rohita</i> (Hamilton, 1822)	LC	M
<i>Garra mullya</i> (Sykes, 1839)	LC	C
<b>Family: Nemacheilidae</b>		
<i>Schistura denisoni</i> (Day, 1867)	LC	M
<i>Indoreonectes evezardi</i> (Day, 1872)	LC	M
<b>Family: Cobitidae</b>		
<i>Lepidocephalichthys thermalis</i> (Valenciennes, 1846)	LC	C
<b>Order: Siluriformes</b>		
<b>Family: Bagridae</b>		
<i>Mystus bleekeri</i> (Day, 1877)	LC	C
<i>Mystus cavasius</i> (Hamilton, 1822)	LC	C
<i>Mystus malabaricus</i> (Jerdon, 1849)	NT	M
<b>Family: Siluridae</b>		
<i>Ompok bimaculatus</i> (Bloch, 1794)	NT	C
<i>Wallago attu</i> (Bloch & Schneider, 1801)	NT	C
<b>Family: Clariidae</b>		
<i>Heteropneustes fossilis</i> (Bloch, 1794)	LC	A
<i>Clarias gariepinus</i> (Burchell, 1822)	EX	C
<b>Order: Beloniformes</b>		
<b>Family: Belonidae</b>		
<i>Xenentodon cancila</i> (Hamilton, 1822)	LC	M
<b>Order: Synbranchiformes</b>		
<b>Family: Mastacembelidae</b>		
<i>Macroglyptothorax pancalus</i> Hamilton, 1822	LC	C
<i>Mastacembelus armatus</i> (Lacepede, 1800)	LC	C
<b>Order: Perciformes</b>		
<b>Family: Ambassidae</b>		
<i>Chanda nama</i> Hamilton, 1822	LC	C
<i>Parabassia ranga</i> (Hamilton, 1822)	LC	C
<b>Family: Cichlidae</b>		
<i>Oreochromis mossambicus</i> (Peters, 1852)	EX	C
<b>Family: Gobiidae</b>		
<i>Glossogobius giuris</i> (Hamilton, 1822)	LC	C
<b>Family: Channidae</b>		
<i>Channa gachua</i> (Hamilton, 1822)	LC	C
<i>Channa punctata</i> (Bloch, 1793)	LC	A
<i>Channa marulius</i> (Hamilton, 1822)	LC	A

Abundance categories: A - Abundant, C - Common, M - Moderate, R - Rare; EX - Exotic, S - Number of species IUCN (2013): LC - Least Concern, NT - Near Threatened, DD - Data Deficient, VU - Vulnerable. Taxonomic status as per Eschmeyer et al. (2016)

resemble *Chitala chitala* externally, hence MPCB & CIFE (2011) presumably consider them as *C. chitala*, but our study suggests that it is just the lack of understanding of taxonomy and incorrect identification of species. *C. chitala* records from Maharashtra are misidentifications of *N. notopterus* and *C. chitala* is distributed only in the Ganges and Brahmaputra basins of northern India (see Chaudhry 2010). The two species of genus *Salmostoma*, namely, *S. bacaila* and *S. balookee* are abundant in rainy season and found in turbid waters where vegetation is rich. *Rasbora daniconius* and *Devario malabaricus* have

been found in adjacent canals and rocky pools. Both the species are common. The specimens of *Puntius amphibius*, *P. sophore*, *P. chola*, and *Pethia conchonius* were caught from the adjacent canals, rocky pools and from the banks of the river where grassy vegetation is abundant, but these species have low food value in the local market. MPCB & CIFE (2011) reported *Pethia shalynius* and *P. phutunio* from the study area, but we could not collect these two species from the study area. Further, we collected some specimens of *P. conchonius* having dark bases on their scales and the dark spots



**Image 1.** Some fishes of Nandur-Madhmeshwar Wetland

1 - *Notopterus notopterus*, 2 - *Salmostoma bacaila*, 3 - *Rasbora daniconius*, 4 - *Amblypharyngodon mola*, 5 - *Cyprinus carpio*, 6 - *Puntius amphibius*, 7 - *Pethia conchonius*, 8 - *Systomus sarana subnasutus*, 9 - *Labeo boggut*, 10 - *Labeo calbasu*, 11 - *Labeo rohita*, 12 - *Garra mullya*, 13 - *Schistura denisoni*, 14 - *Mystus bleekeri*.



Image 2. Some fishes of Nandur-Madhmeshwar Wetland

15 - *Mystus cavasius*, 16 - *Mystus malabaricus*, 17 - *Wallago attu*, 18 - *Ompok bimaculatus*, 19 - *Clarias gariepinus*, 20 - *Heteropneustes fossilis*, 21 - *Xenentodon cancila*, 22 - *Macrognathus pancalus*, 23 - *Mastacembelus armatus*, 24 - *Chanda nama*, 25 - *Parambassis ranga*, 26 - *Glossogobius giuris*, 27 - *Channa punctata*, 28 - *Channa marulius*.

coalesce with these dots. Presumably, MPCB & CIFE (2011) in their list designated these specimens as *P. shalynius*, but at present, on the basis of morphological characters we consider them as *P. conchonioides*. In spite of that, *P. shalynius* is endemic to Manipur, northeastern India and our observations suggest that this species is not present in this wetland.

The Critically Endangered *Parapsilorhynchus prateri* (Dahanukar 2011) reported by MPCB & CIFE (2011) from NMW is quite interesting. We could not collect *P. prateri* from this wetland. The species is truly hill stream and its occurrence in NMW needs confirmation. Although *Labeo rohita* and *Catla catla* are commercially significant in the local market, their population in the area is rare. Further, our observations indicate that in this wetland there are very good populations of fish species, namely: *Ompok bimaculatus*, *Wallago attu*, *Notopterus notopterus*, *Mystus malabaricus*, *Mastacembelus armatus*, *Heteropneustes fossilis*, *Channa punctata*, *Channa marulius* and *Garra mullya*. We have also collected two specimens of Spotted Snakehead albino fish *Channa punctata*, which is already reported elsewhere (see Jadhav et al. 2013).

MPCB & CIFE (2011) reported 24 species from NMW, out of which nine species were not recorded in our study namely: *Chitala chitala*, *Pethia shalynius*, *P. phutunio*, *Ompok malabaricus*, *Parapsilorhynchus prateri*, *Salmostoma novacula*, *Rasbora labiosa*, *Macroglyptus aral*, and *Strongylura strongylura*. The occurrence of the species *C. chitala*, *P. shalynius*, *P. prateri*, and *S. strongylura* needs confirmation as stated earlier. *S. strongylura* is a marine species and does not come that far inland and is likely a misidentification of *Xenentodon cancila*. Nevertheless, in our study 21 species were reported for the first time from this wetland. Out of these, 15 species were identified as commercially important and fetch a good market price. One of the greatest assets of this wetland is not only is it a good habitat for birds but also provides good fishing opportunities for fishers and also for local tribals for their livelihood.

The fish fauna of the wetland is threatened due to introduced species as well as anthropogenic activities. Heavy siltation is causing the reservoir to fill up gradually. Excessive fishing and grassland patches of the sanctuary area are overgrazed by domestic buffalo and cattle facilitate the spread of invasive alien plants. Invasion by exotic plants *Eichhornia crassipes* and *Parthenium* sp. is serious and need to be removed. Diesel engines, which are used along with electric pumps to draw water, cause immense pollution in the area (Kumar et al. 2002). The

avifauna of the area is considerably disturbed because of blasting undertaken in the area for mining purposes. The reservoir surroundings are intensively cultivated for wheat, maize, sugarcane and vegetables. For the conservation of the valuable biodiversity of the wetland, awareness programmes should be conducted among the local people. Grazing activities in the wetland area should be controlled. To protect these ecologically important areas, the surrounding areas need to be declared as an eco sensitive area, for the better conservation of biodiversity.

## References

- Chaudhry, S. (2010). *Chitala chitala*. The IUCN Red List of Threatened Species 2010: e.T166510A6225101. <http://doi.org/10.2305/IUCN.UK.2010-4.RLTS.T166510A6225101.en> Downloaded on 19 November 2016; <http://doi.org/>
- Dahanukar, N. (2011). *Parapsilorhynchus prateri*. The IUCN Red List of Threatened Species 2011: e.T172471A6898894. <http://doi.org/10.2305/IUCN.UK.2011-1.RLTS.T172471A6898894.en> Downloaded on 19 June 2018.
- Dahanukar, N., M. Paingankar, R. Raut & S. Kharat (2012). Fish fauna of Indrayani River, northern Western Ghats, India. *Journal of Threatened Taxa* 4(1): 2310–2317; <http://doi.org/10.11609/JOTT.o2771.2310-7>
- Daniels, R.J.R. (2006). Introduced fishes: a potential threat to the native freshwater fishes of peninsular India. *Journal of the Bombay Natural History Society* 103(2–3): 346–348.
- David, A. (1963). Studies on fish and fisheries of the Godavari and Krishna River systems. Part 1. *Proceedings of the National Academy of Science India* 33(2): 263–293.
- Eschmeyer, W.N., R. Fricke & R. van der Laan (eds.) (2016). Catalog of Fishes electronic version. <http://research.calacademy.org/ichthyology/catalog/fishcatmain.asp>. Online version downloaded on 21 March 2016.
- Jadhav, S.S. & M.J. Jadhav (2014a). 'Freshwater Fishes'. *Fauna of Radhanagari Wildlife Sanctuary. Conservation Area Series*, 52. Zoological Survey of India, Kolkata, 39–51pp.
- Jadhav, S.S. & M.J. Jadhav. (2014b). 'Freshwater Fishes'. *Fauna of Chandoli National Park. Conservation Area Series*, 51. Zoological Survey of India, Kolkata, 41–47pp.
- Jadhav, S., P. Wagh, S. Kurhade & A. Mahabal (2013). A case of unusual colour morph in Spotted Snakehead *Channa punctata* (Bloch, 1793) in Nandur-Madhmeshwar wetland, Maharashtra, India. *Min-Newsletter of FFSG* 1: 21–25.
- Jayaram, K.C. (1991). Revision of the genus *Puntius* Hamilton from Indian region (Pisces: Cypriniformes, Cyprinidae, Cyprininae). Occasional Paper No.135. Records of the Zoological Survey of India, Kolkata, 178pp.
- Jayaram, K.C. (2010). *The Freshwater Fishes of the Indian Region*. 2<sup>nd</sup> edition. Narendra Publishing House, Delhi, 616pp.
- Jayaram, K.C. & J.J. Dhas (2000). Revision of the genus *Labeo* from Indian region with a discussion on its phylogeny and zoogeography. Occasional Paper No. 183. Records of the Zoological Survey of India, Kolkata, 143pp.
- Jayaram, K.C. & S. Sanyal (2003). A taxonomic revision of the fishes of the genus *Mystus* Scopoli (Family: Bagridae). Occasional Paper No. 207. Records of the Zoological Survey of India, Kolkata, 136pp.
- Khedkar, G.D. (2005). Studies on fish diversity in relation to the bird habitat from Nathasagar Bird Sanctuary Area, Nathasagar Reservoir, Paithan, dist. Aurangabad, Maharashtra. *Journal of Aquatic Biology* 20(2): 231–238.
- Knight, J.D.M. (2010). Invasive ornamental fish: a potential threat to



- aquatic biodiversity in peninsular India. *Journal of Threatened Taxa* 2(2): 700–704; <http://doi.org/10.11609/JoTT.o2179.700-4>
- Kumar, P., N.B. Bhure & A.K. Nigam (2002).** Conservation of Nandur Madhmeshwar Wetland, India, pp. 139–146. In: Rahmani, A.R. & G. Ugra (eds.). *Birds of wetlands and Grasslands: Proceedings of Salim Ali Centenary Seminar on Conservation of Avifauna of Wetlands and Grasslands*. Bombay Natural History Society, Mumbai, x+228pp.
- MPCB & CIFE (2011).** A Technical Report on Assessment of Riverine Fisheries and linking with water quality Restoration Programme - River Godavari in Maharashtra”, 110pp. <http://mpcb.gov.in/images/pdf/RiverGodavari.pdf> downloaded on 16<sup>th</sup> January 2016.
- Menon, A.G.K. (1987).** *The Fauna of India and Adjacent Countries. Pisces, Vol. 4: Teleostei - Cobitoidea, Part 1 - Homalopteridae*. Zoological Survey of India, Kolkata, 259pp.
- Menon, A.G.K. (1992).** *The Fauna of India and Adjacent Countries. Pisces, Vol. 4: Teleostei - Cobitoidea, Part 2 - Cobitidae*. Zoological Survey of India, Kolkata, 113pp.
- Raghavan, R., G. Prasad, P.H.A. Ali & B. Pereira (2008).** Exotic fish species in a global biodiversity hotspot: observations from river Chalakudy, part of Western Ghats, Kerala, India. *Biological Invasions* 10(1): 37–40; <http://doi.org/10.1007/s10530-007-9104-2>
- Singh, D.F. & G.M. Yazdani (1988).** A note on the ichthyofauna of Sanjay Gandhi National Park, Borivali, Mumbai. *Journal of the Bombay Natural History Society* 85(3): 631–633.
- Talwar, P.K. & A.G. Jhingran (1991).** *Inland Fishes of India and Adjacent Countries - Vols. I & II*. Oxford & IBH Publishing Co. Pvt. Ltd., 1158pp.
- Yadav, B.E. (2004).** ‘Pisces’ Fauna of Pench National Park. Conservation Area Series - 20. Zoological Survey of India, Kolkata, 129–139pp.
- Yadav, B.E. (2005a).** ‘Pisces’ Fauna of Melghat Tiger Reserve. Conservation Area Series - 24. Zoological Survey of India, Kolkata, 231–296pp.
- Yadav, B.E. (2005b).** ‘Pisces’ Fauna of Nathsagar Wetland, Jaikwadi. Wetland Ecosystem Series - 7. Zoological Survey of India, Kolkata, 137–143pp.
- Yadav, B.E. (2006).** ‘Pisces’ Fauna of Tadoba Andhari Tiger Reserve. Conservation Area Series - 25. Zoological Survey of India, Kolkata, 137–160pp.
- Yadav, B.E. & S.S. Jadhav (2009).** ‘Pisces’ Fauna of Bhimashankar Wildlife Sanctuary. Conservation Area Series, 42 - Zoological Survey of India, Kolkata, 199–214pp.
- Yazdani, G.M. & D.F. Singh (2002).** ‘Pisces’ Fauna of Ujani Wetland. Wetland Ecosystem Series - 3. Zoological Survey of India, Kolkata, 143–156pp.





## OPEN ACCESS



The Journal of Threatened Taxa is dedicated to building evidence for conservation globally by publishing peer-reviewed articles online every month at a reasonably rapid rate at [www.threatenedtaxa.org](http://www.threatenedtaxa.org). All articles published in JoTT are registered under [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/) unless otherwise mentioned. JoTT allows unrestricted use of articles in any medium, reproduction, and distribution by providing adequate credit to the authors and the source of publication.

ISSN 0974-7907 (Online); ISSN 0974-7893 (Print)

June 2018 | Vol. 10 | No. 7 | Pages: 11831–11998

Date of Publication: 26 June 2018 (Online & Print)

DOI: 10.11609/jott.2018.10.7.11831-11998

[www.threatenedtaxa.org](http://www.threatenedtaxa.org)

### Article

Association of grassland birds with *Saccharum-Imperata* patch in a northeastern tea estate of Bangladesh

-- Muntasir Akash, Tania Khan & Sayam U. Chowdhury, Pp. 11831–11843

### Communications

Assessment on the impacts of human-tiger conflict and community-based conservation in Bandhavgarh Tiger Reserve, Madhya Pradesh, India

-- Sandeep Chouksey & Somesh Singh, Pp. 11844–11849

Mapping the conflict of raptor conservation and recreational shooting in the Batumi Bottleneck, Republic of Georgia

-- Anna Sándor & Brandon P. Anthony, Pp. 11850–11862

Length-weight relationship and condition factor of *Bangana dero* (Hamilton, 1822) (Actinopterygii: Cypriniformes: Cyprinidae) from northeastern region of India

-- Kamlesh Kumar Yadav & Rani Dhanze, Pp. 11863–11868

An annotated checklist of the birds of upper Chenab catchment, Jammu & Kashmir, India

-- Neeraj Sharma, Suresh Kumar Rana, Pankaj Raina, Raja Amir & Muzaffar Ahmed Kichloo, Pp. 11869–11894

Floristic enumeration of Torna Fort (Western Ghats, India): a storehouse of endemic plants

-- Mayur D. Nandikar, Priyanka T. Giranje & Durga C. Jadhav, Pp. 11895–11915

### Short Communications

Parasitological findings and antiparasitic treatment of captive Jaguarundi *Herpailurus yagouaroundi* (Carnivora: Felidae) in a conservation center in Brazil

-- Nárjara Veras Grossmann, Anderson Silva de Sousa, Rebecca Martins Cardoso & Estevam Guilherme Lux Hoppe, Pp. 11916–11919

Pathological and immunohistochemical studies on hemangiosarcoma in tigers *Panthera tigris* and lions *Panthera leo*

-- N. Jayasree, Ch. Srilatha, N. Sailaja, R. Venu & W.L.N.V. Varaprasad, Pp. 11920–11924

Do Black-naped Hares *Lepus nigricollis* (Mammalia: Lagomorpha: Leporidae) have synanthropic association with wind farms?

-- V. Anoop, P.R. Arun & Rajah Jayapal, Pp. 11925–11927

A first confirmed record of the Indian Crested Porcupine *Hystrix indica* (Mammalia: Rodentia: Hystricidae) in the United Arab Emirates

-- Maral K. Chreiki, Mark D. Steer, Sami Ullah Majeed, Swamiti Kakembo & Steve Ross, Pp. 11928–11933

A taxonomic study of six species of the genus *Junonia* Hübner, [1819] (Insecta: Lepidoptera: Nymphalidae) from the northwestern Himalayan region in India

-- Deepika Mehra, Jagbir Singh Kirti & Avtar Kaur Sidhu, Pp. 11934–11947

### Partners



A first report and additional description of the assassin bug *Neostaccia plebeja* (Stål) (Heteroptera: Reduviidae) from India with comparative notes on *Staccia diluta* Stål from Assam, India

-- Balasaheb V. Sarode, Swapnil S. Boyane & Hemant. V. Ghatge, Pp. 11948–11954

First definitive record of a whip scorpion *Labochirus tauricornis* (Pocock, 1900) from Goa, India: with notes on its morphometry and pedipalp micro-morphology

-- Manoj Ramakant Borkar, Pp. 11955–11962

Distribution and population status of *Kingiodendron pinnatum* (Angiosperms: Fabaceae) an endemic and endangered legume tree in southern Western Ghats, Kerala, India

-- P.A. Jose, Siju Tom Kuruvila & N.M. Binoy, Pp. 11963–11968

*Polytrias indica* (Poaceae: Andropogoneae): the name, species identity and its distribution in India

-- Vatsavaya S. Raju & V. Sampath Kumar, Pp. 11969–11972

### Notes

Fish fauna of Nandur-Madhmeshwar wetland, Maharashtra, India

-- Prashant Wagh, Sudhakar Kurhade, Shrikant Jadhav & Deepa Jaiswal, Pp. 11973–11979

Biology and distribution of the Clouded Apollo *Parnassius mnemosyne* (Linnaeus, 1758) (Lepidoptera: Papilionidae), a rare butterfly in the Republic of Mordovia, Russia

-- A.B. Ruchin, Pp. 11980–11983

New Lycaenid butterfly records from Jammu & Kashmir, India

-- Shakha Sharma & Neeraj Sharma, Pp. 11984–11987

First record of a trogid beetle (Coleoptera: Scarabaeoidea: Trogidae) from the Western Ghats, India

-- Aparna Sureshchandra Kalawate & S.S. Patole, Pp. 11988–11991

Notes on the taxonomy and distribution of the Bengal Morning Glory *Ipomoea rubens* Choisy (Convolvulaceae) in India

-- J. Swamy & Pragada Venkata Ramana, Pp. 11992–11994

Macrofungus *Nitschkia macrospora* Teng (Ascomycetes: Nitschkiaceae), a new report to India

-- K.J. Nandan Patel, M. Krishnappa & V. Krishna, Pp. 11995–11996

### Miscellaneous

National Biodiversity Authority

Member



Publisher & Host

