

CEPF SMALL GRANT FINAL PROJECT COMPLETION REPORT

Organization Legal Name:	Bombay Natural History Society (BNHS)
Project Title:	Status of freshwater fishes in the Sahyadri-Konkan Corridor: diversity, distribution and conservation assessments in Raigad.
Date of Report:	08-05-2015
Report Author and Contact Information	Mr. Unmesh Gajanan Katwate Dr. Rupesh Raut

CEPF Region: Western Ghats & Sri Lanka Hotspot (Sahyadri-Konkan Corridor)

CEPF Strategic Direction 2: Improve the conservation of globally threatened species through systematic conservation planning and action.

Grant Amount: \$ 18,366.36

Project Dates: 1st July 2013 to 31st January 2015

Implementation Partners for this Project (please explain the level of involvement for each partner):

Dr. Neelesh Dahanukar

Indian Institute of Science, Education and Research (IISER)

Involvement in field study, species identification, publication of project results in peer reviewed scientific journals and setting conservation priorities for the fishes of Raigad District. Systematics and genetic study of freshwater fishes collected during project period.

Dr. Rajeev Raghavan

Department of Fisheries Resource Management

Kerala University of Fisheries and Ocean Studies (KUFOS), Kochi, India

Conservation Research Group (CRG), St. Albert's College, Kochi, Kerala, India

Involvement in fish study, species identification, and publication of project results in peer reviewed journals. Contribution in systematic study of fishes of Raigad District and implementing regional conservation plans.

Dr. Mandar Paingankar

Department of Zoology, University of Pune

Involvement in field surveys, fishing expeditions, species identification and publication of project results in scientific journals. Contribution in molecular study of fishes of the Raigad District.

Dr. Sanjay Molur

Zoo Outreach Organization (ZOO)

Coimbatore, Tamil Nadu 641 035, India

Involvement in developing strategic conservation plans for fishes in northern Western Ghats through IUCN Red List assessment of fishes.

International Union for Conservation of Nature (IUCN)

Developing strategic conservation plans for fishes in northern Western Ghats through IUCN Red List assessment of fishes.

Maharashtra Forest Department
Project involvement through participation in workshop and logistic support.

Katkari community members and villagers in Raigad District.
Active involvement in project and conservation activities, to establish a local platform for implementing freshwater conservation plans in Raigad District.

Conservation Impacts

Please explain/describe how your project has contributed to the implementation of the CEPF ecosystem profile.

The project has directly contributed to the implementation of CEPF IP 2.1 “**Promote partnerships to identify, evaluate, and advocate for suitable mechanisms that incorporate critical links (biological corridors) into the protected area network in the priority corridors**” because it has facilitated the conservation of **globally threatened species** like *Pethia lutea*, *Pethia setnai*, *Hypselobarbus mussullah*, *Parapsilorhynchus discophorus*, *Tor khudree*, *Monopterus indicus* and *Horabagrus brachysoma* etc. Project has generated ecological and distributional data regarding these lesser known organisms, which has **helped in IUCN Red List assessment**, to infer conservation status of these species. The project also help to study less known fish taxa in the Western Ghats by the description of three new freshwater fish species like *Pethia lutea*, *Pethia longicauda* and *Badis britzi* as well as in reviewing the taxonomic identity of fishes like *Pethia setnai*, *Pethia punctata*, *Pethia ticto* and *Horabagrus brachysoma*. The description of new fish species and reports of occurrence of threatened freshwater fish species falls in the CEPF priority sites within an Investment Corridor, namely Sahyadri-Konkan Corridor.

Please summarize the overall results/impact of your project against the expected results detailed in the approved proposal.

- 1) Baseline information generated on the diversity and distribution of freshwater fishes in rivers of the Konkan region within the Sahyadri-Konkan Corridor with report of total 59 freshwater fish species from the study area and description of total three new fish species across the Western Ghats. Taxonomic description on correct identity of several least studied fish species have been delivered by applying integrative taxonomic approaches like morphological, molecular and osteology study. Please refer Appendix 1 & 2.
- 2) Improved knowledge and understanding of the distribution pattern of several threatened freshwater fish species including *Pethia setnai*, *Pethia lutea*, *Hypselobarbus mussullah*, *Monopterus indicus*, *Horabagrus brachysoma* etc. with respect to various environmental factors.
- 3) Among the 59 freshwater fish species reported from the study area and other fish species studied throughout the northern Western Ghats, we prioritize seven threatened and endemic freshwater fish species for implementing long term conservation plans. The species includes *Pethia lutea*, *Pethia setnai*, *Hypselobarbus mussullah*, *Parapsilorhynchus discophorus*, *Tor khudree*, *Monopterus indicus* and *Horabagrus brachysoma*. The taxonomic and distribution data generated from project has helped to evaluate IUCN Red List status for species like *Pethia lutea* and *Pethia setnai*. Across the study area in Raigad District, we have delineated four sites as critical freshwater fish habitats, namely Bhira (18.441°N & 73.267°E, 50m), Walan Kond (18.225°N & 73.489°E, 91 m), Shivathar Ghal (18.161°N & 73.622°E, 119 m) and Ghagar Kond (17.974°N & 73.521°E, 10 m) near westward foothills of Mahabaleshwar owing to presence of rich endemic fish diversity and ongoing anthropogenic threats.
- 4) Traditional knowledge of local fishing communities regarding endangered (EN) freshwater fish species like *Tor khudree* and *Hypselobarbus mussullah* was used to infer the distribution and

population status of these threatened fish species present across the study area. Local knowledge regarding breeding season of these threatened fish species was used to suggest conservation measures.

5) Network establishment and strengthening community involvement through workshops and institutional collaborations with IISER, CRG-Kerala, IUCN- ZOO-WILD and ATREE. Project has facilitated and encourages the local community like Katkari to involve in project activities through participation in fishing practices and workshop. Local network establishment for implementation of future fish conservation plans by forming local fish monitoring groups of tribal fishermen near Saje Adiwasi Wadi (18.480°N & 73.313°E, 112m) and Birwadi (18.097°N & 73.505°E, 25 m) in viz. Kundalika and Savitri River basin.

Please provide the following information where relevant:

Hectares Protected: – NIL

Species Conserved

Pethia lutea – Endangered (EN) B2ab(iii) proposed IUCN Redlist status

A newly described fish species from west flowing rivers of the Raigad and Ratnagiri District. The project helps to systematically study the population of *Pethia lutea* in study area and to infer their distribution in northern Western Ghats, which has helped to assess conservation status for this fish species. The species has been categorized as Endangered (EN) because of its fragmented population, low area of occupancy and multiple anthropogenic threats to the surviving population. IUCN Red List assessment conducted for this species has helped to priorities this species for implementing future conservation actions.

Pethia setnai – Vulnerable (VU) B2ab(iii)

Grant has helped to discover a new population of threatened fish like *Pethia setnai* from Terekhol River, in Sindhudurga District of Maharashtra. The study helps to understand distribution range and genetic divergence among *Pethia setnai* across the Western Ghats. A new information generated on the taxonomy, distribution and anthropogenic pressure faced by this species may help to implement conservation measures.

Hypselobarbus mussullah – Endangered (EN) B2ab(iii,v)

Taxonomic identity of *Hypselobarbus mussullah* provided in study conducted by Knight et al. 2014, has helped to assess correct taxonomic position of *Hypselobarbus sp.* from the study region. Earlier records of the *Hypselobarbus curmuca* is therefore should be considered as *Hypselobarbus mussullah*, according to Knight et al. 2014. However population of this species has been reported from sites like Kolad, Bhira and Mahad. New data generated on distribution of this species will help in reassessing the IUCN Red List status and to implement further conservation actions.

Parapsilorhynchus discophorus – Vulnerable (VU) B1ab(iii)

Grant has help to discover a new population of this threatened fish from areas like Shivathar Ghal (18.161°N & 73.622°E, 119 m) and Ghagar Kond (17.974°N & 73.521°E, 10 m). The population we found is very low and fragmented across the study area, hence this species claims further conservation actions.

Tor khudree – Endangered (E) A2acde

Population of *Tor khudree* was recorded only from the upper catchment areas like Walan Kond and Shivathar Ghal in Savitri River basin. We didn't found any records of *Tor khudree* from rest of the areas, secondary information collected from tribal areas also suggest that *Tor khudree* were

only found in unpolluted river channels near Walan and Shivathar Ghal. Surprisingly a protected population of Tor khudree through community sanctuary at Walan Kond were recorded during study period. More information on the Walan Kond community sanctuary and its role in Tor khudree (Mahaseer) fish conservation was published and attached as appendix.

Monopterus indicus – Vulnerable (VU) B2ab(iii)

The grant has helped to reinvestigate topotypic population of *Monopterus indicus* from Robber's Cave of Mahabaleshwar which is a part of CEPF priority sites, in Sahyadri Konkan Corridor. Molecular study of topotypic population and other specimens collected from northern Western Ghats may highlight systematics of *Monopterus sp.* in Western Ghats. We recorded population of this highly cryptic species from Phansad Wildlife Sanctuary, Patalganga River and Tamhini Wildlife Sanctuary; new data on distribution of this threatened endemic Swamp Eel will help to priorities sites for conservation.

For more details please refer Appendix 1 & 2.

Corridors Created: NIL

Describe the success or challenges of the project toward achieving its short-term and long-term impact objectives.

The short term and long term objectives of the project were to

- 1) generate first information on diversity and distribution of freshwater fishes in west flowing rivers of the Raigad District and other parts of the Konkan region of Maharashtra;
- 2) study has improved the knowledge and understanding of the distribution of many threatened freshwater fish species in the study area;
- 3) along with description of new freshwater fish species this study also have given many new records of previously unrecorded freshwater fishes from this region;
- 4) data generated on population and distribution of freshwater fish species has helped in assessing IUCN Red List status for the different less known fish species;
- 5) this baseline data generated will be useful to plan conservation measures for the freshwater fishes of in the Western Ghats.

The project was in fact very successful; sites like Bhira, Shivathar Ghal, Walan Kond and Ghagar Kond have been selected as critical freshwater habitats for further monitoring. The project also helped in developing local network by facilitating community involvement in project activities. Community support of Katkari tribe for the freshwater fish conservation in study area will be useful to strongly implement further fish conservation actions in northern Western Ghats. The project has also provided an alternate source of livelihood to the fishermen's of Katkari Community by involving in project activities.

Were there any unexpected impacts (positive or negative)?

The project was aimed to involve schedule tribes like Katkari Community in project activities, to establish a local network for freshwater fish conservation in northern Western Ghats. Throughout the project period we achieved a great success in involving members of Katkari Community in freshwater conservation. Besides the Katkari, other villagers from study sites like Roha, Birwadi and Mahad were enthusiastically supported our project and get involved in conservation programs and that was an unexpected outcome from this project to us.

Lessons Learned

Describe any lessons learned during the design and implementation of the project, as well as any related to organizational development and capacity building. Consider lessons that would inform projects designed or implemented by your organization or others, as well as lessons that might be considered by the global conservation community.

Project has selected only six major river systems of Raigad District against more than 30 small and major west flowing rivers present in Konkan region of Maharashtra, to understand and study fishes from one of poorly studied region (success)

Project has helped to establish a fish museum as a subhead under well renowned museum of Bombay Natural History Society. This contribution by CEPF-ATREE project in establishing a fish museum will help other researchers to study fishes of Indian subcontinent (strength and success).

However two year project period to do proper taxonomic identification of all collected fish samples is very less as decided earlier while writing for project grant. Against the new fish species described and many new records of fish species provided from this project, there are high chances to find more unique and undescribed fish species from this region. Generating new data from other remaining west flowing rivers of Konkan is necessary to have a complete dataset on freshwater fishes of northern Western Ghats.

Generating ecological data on species distribution and population size is mandatory to help IUCN Red List assessment process to estimate conservation status of the species (strength and success)

Community participation in project activities has helped to establish a network and platform to implement further conservation actions (success).

Project Design Process: (aspects of the project design that contributed to its success/shortcomings)

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Two year project period to do proper taxonomic identification of all collected fish samples is very less as decided earlier while writing for project grant. Against the new fish species described and many new records of fish species provided from this project, there are high chances to find more unique and undescribed fish species from this region. Generating new data from other remaining west flowing rivers of Konkan is necessary to have a complete dataset on freshwater fishes of northern Western Ghats.

Project Implementation: (aspects of the project execution that contributed to its success/shortcomings)

Raising international costs on fuel, transport and for field equipment in future, needs to be considered before finalizing budget plan. This had an impact on budget management as money expended under certain subheads was higher than what initially approved.

Other lessons learned relevant to conservation community:

There is urgent need to undertake thorough taxonomic investigation of certain groups of fishes. Knowledge we have about diversity and distribution of fishes in Western Ghats is old and underestimated and there is still hope to generate new knowledge with new descriptions. Research focused on thorough taxonomic inventories is needed to help conservation community to leave a long standing impact on conservation of freshwater resources in Western Ghats biodiversity hotspot.

ADDITIONAL FUNDING

Provide details of any additional donors who supported this project and any funding secured for the project as a result of the CEPF grant or success of the project.

Donor	Type of Funding*	Amount	Notes
Bombay Natural History Society (BNHS)	Kind contribution	Rs. 14,64,000	Office and laboratory facilities, computing desks, library, equipments, additional manpower for field surveys. PI salary, accountant salary for two years, additional field assistant
Indian Institute of Science Education and Research (IISER), Pune	Molecular taxonomy	Rs. 10,20,000	DNA extraction and sequencing. Molecular taxonomy of all collected fish samples from CEPF-ATREE project. Direct contribution in field surveys across the Western Ghats. Developing strategic conservation plans for fishes in northern Western Ghats through IUCN Red List assessment of fishes.
Conservation Research Group, St. Albert's College, Kochi, India	Kind contribution	-	Systematic fish taxonomy of fishes of Raigad District and implementing regional conservation plans. Direct contribution in field surveys across the Western Ghats. Developing strategic conservation plans for fishes in northern Western Ghats through IUCN Red List assessment of fishes.
Zoo Outreach Organization (ZOO)	Kind contribution	-	Developing strategic conservation plans for fishes

Coimbatore, Tamil Nadu 641 035, India			in northern Western Ghats through IUCN Red List assessment of fishes.
International Union for Conservation of Nature (IUCN)	Kind contribution	-	Developing strategic conservation plans for fishes in northern Western Ghats through IUCN Red List assessment of fishes.
Maharashtra Forest Department	Kind contribution	-	Contribution in workshop and field surveys.

****Additional funding should be reported using the following categories:***

- A*** *Project co-financing (Other donors contribute to the direct costs of this CEPF project)*
- B*** *Grantee and Partner leveraging (Other donors contribute to your organization or a partner organization as a direct result of successes with this CEPF project.)*
- C*** *Regional/Portfolio leveraging (Other donors make large investments in a region because of CEPF investment or successes related to this project.)*

Sustainability/Replicability

Summarize the success or challenge in achieving planned sustainability or replicability of project components or results.

A follow up grant to conserve critical freshwater fish habitats and study poorly known fish diversity from Konkan region of Western Ghats has been planned. A proposal to study other parts of Konkan is prepared for other funding agencies like Mohammed Bin Zayed Conservation Grant, Rufford Small Grant, Rolex Award etc.

Summarize any unplanned sustainability or replicability achieved.

Project result has helped to successfully achieve grant to study less known freshwater fishes of Great Nicobar Island in the Andaman Sea. The project is funded by Scientific Exploration Society (SES) through 'Inspiration Explorer Award 2015' to PI.

Safeguard Policy Assessment

Provide a summary of the implementation of any required action toward the environmental and social safeguard policies within the project.

We have provided the compliance prior to the start of project for following listed CEPF policies while ensuring negligible adverse impact on natural resources. On the other hand in many aspects this project essentially leaved a strong positive impact on conservation of freshwater fishes in Sahyadri Konkan Corridor of Western Ghats biodiversity hotspot.

- (i) Environmental Assessment;
- (ii) Indigenous People's Planning Framework and
- (iii) Process Framework for Involuntary Resettlement.

Performance Tracking Report Addendum

CEPF Global Targets				
(Enter Grant Term)				
Provide a numerical amount and brief description of the results achieved by your grant. Please respond to only those questions that are relevant to your project.				
Project Results	Is this question relevant?	If yes, provide your numerical response for results achieved during the annual period.	Provide your numerical response for project from inception of CEPF support to date.	Describe the principal results achieved from 1st July 2013 to 31st January 2015 (Attach annexes if necessary)
1. Did your project strengthen management of a protected area guided by a sustainable management plan? Please indicate number of hectares improved.	NO			Please also include name of the protected area(s). If more than one, please include the number of hectares strengthened for each one.
2. How many hectares of new and/or expanded protected areas did your project help establish through a legal declaration or community agreement?	NO			
3. Did your project strengthen biodiversity conservation and/or natural resources management inside a key biodiversity area identified in the CEPF ecosystem profile? If so, please indicate how many hectares.	NO			
4. Did your project effectively introduce or strengthen biodiversity conservation in management practices outside protected areas? If so, please indicate how many hectares.	YES	-	300 Hectare	The project activities like field surveys with local participants, awareness and education campaigns at Walan Kond in Savitri River basin has resulted in distribution mapping of Endangered species like Deccan Mahseer <i>Tor cf. khudree</i> . The project has accelerated people's interest in conservation of Mahseer population at Walan Kond.
5. If your project promotes the sustainable use of natural resources, how many local communities accrued tangible socioeconomic benefits? Please complete Table 1 below.	YES	-	1	Schedule tribe like Katkari has been socioeconomically benefited through their active participation in project activities.

If you answered yes to question 5, please complete the following table.

Additional Comments/Recommendations

We are grateful to CEPF and ATREE for funding this project; we also like to thank RIT at ATREE for giving support throughout the project period. This project has helped to establish a ground platform for freshwater fish conservation in northern Western Ghats, and also help BNHS through capacity building for freshwater fish study. Organisations like Indian Institute of Science Education and Research (IISER), Pune; Conservation Research Group (CRG), Kerala and Zoo Outreach organization have been great collaborators throughout the project. International Union for Conservation of Nature and Zoo Outreach organization have provided guidance while assessing conservation status of the fish species, through Red List assessment of Western Ghats freshwater fish species conducted in 2014 at Coimbatore. We are thankful to Maharashtra Forest Department for providing necessary logistical support. At last we also thank BNHS team, Chetana Katwate, Rajendra Pawar and Vishwas Shinde for active contribution in field studies and research. It was truly a memorable experience working with CEPF-ATREE Western Ghats Team and I look forward to future associations.

Information Sharing and CEPF Policy

CEPF is committed to transparent operations and to helping civil society groups share experiences, lessons learned, and results. Final project completion reports are made available on our Web site, www.cepf.net, and publicized in our newsletter and other communications.

Please include your full contact details below:

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List of appendices

Appendix 1. Contributions to the IUCN Freshwater Biodiversity Assessment in the Western Ghats.

Appendix 2. Manuscripts published through CEPF-ATREE small grant project.

Appendix 3. Technical report.

Appendix 1. Contributions to the IUCN Freshwater Biodiversity Assessment in the Western Ghats.

Species data generated from the CEPF-ATREE small grant project on freshwater fishes of Konkan region of Western Ghats were compiled and added to the IUCN Species Information Service (SIS) as part of the IUCN Freshwater Fish Assessments of the Western Ghats, conducted in May, 2014 at Coimbatore through Zoo Outreach Organization.

The status of the following species was assessed by me; Dr. Neelesh Dahanukar, IISER and Dr. Rajeev Raghavan, CRG. The assessments were evaluated and uploaded to the IUCN data base.

1. *Monopterus indicus*
2. *Horabagrus brachysoma*
3. *Mystus vittatus*
4. *Mystus seengtee*
5. *Mystus malabaricus*
6. *Mystus gulio*
7. *Aplocheilichthys lineatus*
8. *Indoreonectes evezardi*
9. *Schistura denisoni*
10. *Tor khudree*
11. *Puntius mahecola*
12. *Puntius amphibius*
13. *Pethia lutea* – new species published
14. *Pethia ticto*
15. *Pethia punctata*
16. *Pethia conchoniensis*
17. *Pethia setnai*
18. *Pethia longicauda* – new species published
19. *Pethia nigripinna*
20. *Haludaria pradhani*
21. *Haludaria fasciata*
22. *Haludaria afasciata*
23. *Haludaria melanampyx*
24. *Haludaria*
25. *Parapsilorhynchus tentaculatus*
26. *Parapsilorhynchus discophorus*
27. *Labeo dussumieri*
28. *Labeo calbasu*
29. *Hypselobarbus mussullah*
30. *Garra mullya*
31. *Esomus danricus*
32. *Devario aequipinnatus*
33. *Dawkinsia filamentosa*
34. *Oryzias setnai*
35. *Badis britzi* – new species published

Appendix 2. Manuscripts published through CEPF-ATREE small grant project.

List of publications:

1. Katwate, U., Katwate, C. & Dahanukar, N. (2016) Freshwater fishes of Raigad District, northern Western Ghats of India. ____, manuscript in process...
2. Dahanukar, N., Kumar, P., Katwate, U. & Raghavan, R. (2015) *Badis britzi*, a new percomorph fish (Teleostei: Badidae) from the Western Ghats of India. *Zootaxa*, 3941(3):429–436. <http://dx.doi.org/10.11646/zootaxa.3941.3.9>
3. Katwate, U., Baby, F., Raghavan, R. & Dahanukar, N. (2014) The identity of *Pethia punctata*, a senior synonym of *P. muvattupuzhaensis* (Teleostei: Cyprinidae). *Zootaxa*, 3884(3):201–221. <http://dx.doi.org/10.11646/zootaxa.3884.3.1>
4. Ali, A., Katwate, U., Philip, S., Dhaneesh, K., Bijukumar, A., Raghavan, R. & Dahanukar, N. (2014) *Horabagrus melanosoma*: a junior synonym of *Horabagrus brachysoma* (Teleostei: Horabagridae). *Zootaxa*, 3881(4):373–384. <http://dx.doi.org/10.11646/zootaxa.3881.4.5>
5. Raghavan, R., Dahanukar, N., Knight, M., Bijukumar, A., Katwate, U., Krishnakumar, K., Ali, A. & Philip S. (2014) Predatory journals and Indian ichthyology. *Current science*, 107(5):740-742. <http://www.currentscience.ac.in/Volumes/107/05/0740.pdf>
6. Katwate, U., Paingankar, M.S., Raghavan, R. & Dahanukar, N. (2014) *Pethia longicauda*, a new species of barb (Teleostei: Cyprinidae) from the northern Western Ghats, India. *Zootaxa*, 3846(2): 235–248. <http://dx.doi.org/10.11646/zootaxa.3846.2.4>
7. Katwate, U., C. Katwate, R. Raghavan, M.S. Paingankar & N. Dahanukar (2014). *Pethia lutea*, a new species of barb (Teleostei: Cyprinidae) and new records of *P. punctata* from northern Western Ghats of India. *Journal of Threatened Taxa* 6(6), 5797–5818; <http://dx.doi.org/10.11609/JoTT.o3929.5797-818>
8. Katwate U. (2014) A compact amphibian field guide for Kerala, Book review: Common Amphibians of Kerala (Frogs and Toads) - P. S. Sivaprasad 6(5): 5795–5796Pp. <http://dx.doi.org/10.11609/JoTT.o4039.5795-6>
9. Katwate, U., M.S. Paingankar, S. Jadhav & N. Dahanukar (2013). Phylogenetic position and osteology of *Pethia setnai* (Chhapgar & Sane, 1992), an endemic barb (Teleostei: Cyprinidae) of the Western Ghats, India, with notes on its distribution and threats. *Journal of Threatened Taxa* 5(17): 5214–5227; <http://dx.doi.org/10.11609/JoTT.o3857.5214-27>
10. Paingankar, M.S., U. Katwate & N. Dahanukar (2014). A creepy fish of the northern Western Ghats: endemic and threatened swamp eel *Monopterus*. MIN Newsletter of the IUCN-SSC/WI Freshwater Fish Specialist Group South Asia & the Freshwater Fish

- Conservation Network of South Asia 2: 11-14pp;
http://www.zoosprint.org/ZoosPrintNewsLetter/MIN_January_2014.pdf
11. Katwate U. and Apte D. (2014). Where have all the mahseers gone? Hornbill, March-April 2014, 43-46pp. http://www.zoosprint.org/ZoosPrintNewsLetter/MIN_January_2014.pdf
 12. Katwate, C., R. Pawar, V. Shinde, D. Apte & U. Katwate (2014). How long will social beliefs protect the pride of River Savitri? MIN Newsletter of the IUCN-SSC/WI Freshwater Fish Specialist Group South Asia & the Freshwater Fish Conservation Network of South Asia 2: 21-24pp; http://www.zoosprint.org/ZoosPrintNewsLetter/MIN_January_2014.pdf

Appendix 3. Technical report.

Katwate, U. & Katwate, C. (2015) Status of freshwater fishes in the Sahyadri-Konkan Corridor: diversity, distribution and conservation assessments in Raigad. Grant report submitted to CEPF-ATREE Western Ghats Program. Bombay Natural History Society, India, 7-43pp.