Distribution trend of *Schizothorax richardsonii* (Gray, 1832) in Nagaland

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**Abstract**

In the present investigation, *Schizothorax richardsonii* (Gray) only representative of the sub-family Schizothoracinae recorded in Nagaland waters is taken stake of. *Schizothorax richardsonii* (Gray) commonly known as *Alwan snow trout* in English, and in various tribal names in Nagaland like Kahanei (Zeliang), Khothevi (Angami), Nguchi (Khiemungans), Khangu (Chakhesang), Mesha (Pochury), Kaepun (Yimchunger), Akhanu (Sema) and Nyetao (Konyak) is mostly found in the torrential upland rivers in Nagaland. The distribution trend of this important fish species in Nagaland rivers is presented.

**Keywords**: *Schizothorax richardsonii* (Gray, 1832), distribution, declining, temperature, conservation strategy.

1. **Introduction**

The rivers and their tributaries of Nagaland belong to three distinct drainage systems. The rivers which flow in the northern-western direction discharge their content into the river Brahmaputra, those flowing in the south-western direction discharge their content into the Barak river of India and those flowing in the eastern direction discharge their content into the Irrawaddy river of Myanmar. In Nagaland *Schizothorax richardsonii* (Gray) is found in the water bodies at upper reaches only. The population of *Schizothorax richardsonii* (Gray) is under steady decline in Nagaland due to various factors like, alteration of habitats, over exploitation and destructive fishing by dynamite, bleaching powder and other toxicants which is why, the species has been listed among the threatened fishes of the country. Consequently, *Schizothorax richardsonii* (Gray) has become a higher risk threatened species in Nagaland. The present trend, if allowed unabated, *Schizothorax richardsonii* (Gray) may be completely wiped out from the water bodies of the state in the days to come.

The present study has been undertaken to explicate the distribution pattern of *Schizothorax richardsonii* (Gray) from Nagaland water bodies hitherto remained to be investigated. This in return will help accentuate the conservation strategies of this natural marvel from imminent peril caused by natural as well as anthropogenic stress.

2. **Methodology**

For the present study, four stations were selected for every river for fish sampling. At each station fishes were caught by net, traps and other environment friendly fishing methods. Survey was conducted during spring, summer, autumn and winter. The fish samples are preserved in 10% formaldehyde in the field and detailed taxonomic studies are made in the Laboratory of Zoology, Kohima Science College, Jotsoma, Nagaland. Prior to preservation the colourations of the fish specimens are recorded in fresh condition. The fish abundance was determined base on the catch. Specimens are taxonomically identified and confirmed after various authoritative sources.

3. **Systematic position**

*Schizothorax richardsonii* (Gray) belongs to Super-Class: *Pisces*, Class: *Teleostei*; Sub-Class: *Actinopterygii*; Order: *Cypriniformes*; Family: *Cyprinidae*;

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Sub-Family: Schizothoracinae; Genus: Schizothorax Heckel, 1838 and Species: Schizothorax richardsonii (Gray, 1832).

Fig. 1: Schizothorax richardsonii (Gray)

4. Distribution trend of Schizothorax richardsonii (Gray)

Schizothorax richardsonii (Gray) is primarily distributed in twelve rivers under five districts of Nagaland. Their distribution pattern along with associated data is purported in the table appended.

5. Results and discussion

From the table appended it is revealed that the highest number of the present test fish is recorded from the rivers Tizu, Laang, Dzuleke and Takngu yong followed by the rivers Lanyi, Tesuru, Tepuiki and Deyie, having a moderate population and the rivers Zungki, Dzuna and Kehorü in which the fish population is declining very fast.

The major rivers which is supposed to be having a large population is showing a steady decline in the population of Schizothorax richardsonii (Gray). Temperature is one of the leading factors, which influence the distribution of Schizothorax richardsonii (Gray) in rivers and streams of Nagaland. The study also revealed that Schizothorax richardsonii (Gray) in the study area is being threatened by various human activities. In addition, increased sedimentation due to removal of riparian vegetation and entry of agricultural runoff causes severe threats to the fish. Moreover, various human activities are destroying the microbial and other invertebrate communities in the stream bottom which are important feed for the test fish.

<table>
<thead>
<tr>
<th>District</th>
<th>River</th>
<th>Geographical location</th>
<th>Altitude</th>
<th>Confluence</th>
<th>Status</th>
<th>Distribution trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phek</td>
<td>Tizu</td>
<td>25°46’39.96”N 94°29’20.04”E</td>
<td>2496 ft</td>
<td>Chindwin</td>
<td>Major</td>
<td>Abundant</td>
</tr>
<tr>
<td>Phek</td>
<td>Lanyi</td>
<td>25°36’45.98”N 94°30’01.90”E</td>
<td>2365 ft</td>
<td>Tizu</td>
<td>Major</td>
<td>Moderate</td>
</tr>
<tr>
<td>Phek</td>
<td>Tesuru</td>
<td>25°45’50.71”N 94°29’02.86”E</td>
<td>2404 ft</td>
<td>Tizu</td>
<td>Minor</td>
<td>Moderate</td>
</tr>
<tr>
<td>Kiphire</td>
<td>Zungki</td>
<td>25°48’24.70” N 94°46’38.81” E</td>
<td>1712 ft</td>
<td>Tizu</td>
<td>Major</td>
<td>Rare</td>
</tr>
<tr>
<td>Noklak</td>
<td>Laang</td>
<td>26°12’01.21” N 95°00’50.49” E</td>
<td>4473 ft</td>
<td>Zungki</td>
<td>Major</td>
<td>Abundant</td>
</tr>
<tr>
<td>Kohima</td>
<td>Kehorü</td>
<td>25°34’16.90” N 94°06’47.94” E</td>
<td>5737 ft</td>
<td>Doyang</td>
<td>Minor</td>
<td>Rare</td>
</tr>
<tr>
<td>Kohima</td>
<td>Dzuna</td>
<td>25°39’10.45” N 94°03’05.17” E</td>
<td>4679 ft</td>
<td>Tsu</td>
<td>Minor</td>
<td>Rare</td>
</tr>
<tr>
<td>Kohima</td>
<td>Dzuleke</td>
<td>25°37’10.58” N 93°57’22.61” E</td>
<td>5763 ft</td>
<td>Tepuiki</td>
<td>Major</td>
<td>Abundant</td>
</tr>
<tr>
<td>Kohima</td>
<td>Tepuiki</td>
<td>25°33’34.71” N 95°52’47.11” E</td>
<td>3520 ft</td>
<td>Barak</td>
<td>Major</td>
<td>Moderate</td>
</tr>
<tr>
<td>Mon</td>
<td>Deyie</td>
<td>26°21’44.34” N 94°56’08.70” E</td>
<td>4322 ft</td>
<td>Dikhu</td>
<td>Major</td>
<td>Moderate</td>
</tr>
<tr>
<td>Mon</td>
<td>Takngu yong</td>
<td>26°17’04.73” N 94°59’08.16” E</td>
<td>7161 ft</td>
<td>Zungki</td>
<td>Major</td>
<td>Abundant</td>
</tr>
</tbody>
</table>

Table 1
6. Conclusion

All the rivers that have been considered for the present investigation purport a good population of indigenous fish species. However, the distribution of *Schizothorax richardsonii* (Gray) in the water bodies investigated does not show a very encouraging trend. Therefore, urgent conservation measure through captive breeding and ranching is warranted. Further studies are also required to determine the influence of ecological factors on its distribution trend and population status.

Acknowledgement

I am indebted to my PhD guide, Prof. S. C. Dey, *Retired* Professor & Head of Zoology and Former Dean of Science, Gauhati University, Assam for his creative inputs and comments. The researcher also likes to thank the Department of Zoology, Kohima Science College, Jotsoma, Nagaland 797002 for all facilities and to the fishermen for their help rendered during the field study period in various rivers.

References


Joshi, K.D. 2000 : Status of *Schizothorax richardsonii* (Gray) in some lotic systems of Kumaon Hills.


