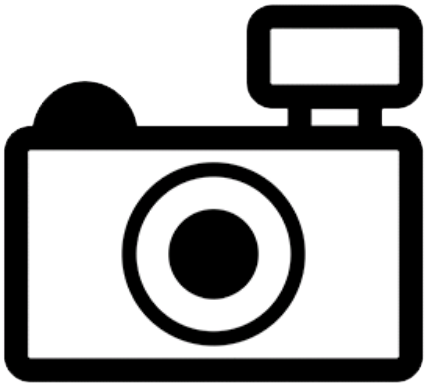
Heteropneustes longipectoralis (a catfish, no common name)

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, January 2017
Web Version, 1/14/2018



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1 Native Range and Status in the United States

Native Range

From Dahanukar (2011):

"This species is endemic to the Western Ghats, India (Devi et al. 2005). It is known only from its type locality at Thirumurthi Dam, Anamalai Hills, Western Ghats, Tamil Nadu (Rema Devi and Raghunathan 1999)."

Status in the United States

This species has not been reported as introduced or established in the U.S.

From FFWCC (2017):

"Prohibited nonnative species are considered to be dangerous to the ecology and/or the health and welfare of the people of Florida. These species are not allowed to be personally possessed or used for commercial activities. Very limited exceptions may be made by permit from the Executive Director for research or for public exhibition by facilities that meet biosecurity criteria […]

Freshwater Aquatic Species […]
Airsac catfishes- Family Heteropneustidae […]
Heteropneustes longipectoralis"

Means of Introductions in the United States

This species has not been reported as introduced or established in the U.S.

Remarks

From Dahanukar (2011):

"Ferraris (2007) considers this species as 'species inquirenda' (species of doubtful identity requiring further investigation)."

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From ITIS (2017):

"Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Deuterostomia
Phylum Chordata
Subphylum Vertebrata
Infraphylum Gnathostomata
Superclass Osteichthyes
Class Actinopterygii
Subclass Neopterygii
Infraclass Teleostei
Superorder Ostariophysi
Order Siluriformes
Family Heteropneustidae
Genus Heteropneustes
Species *Heteropneustes longipectoralis* Rema Devi and Raghunathan, 1999"

"Taxonomic Status: valid"

Size, Weight, and Age Range

From Hossain et al. (2013):

"Standard length (SL, mm) […] 150.00"

Environment
From Froese and Pauly (2016):

"Freshwater; demersal."

From Dahanukar (2011):

"The species was described from a [*sic*] irrigation reservoir. No additional details are available on the habitat or ecology."

Climate/Range
From Froese and Pauly (2016):

"Tropical, preferred ?"

Distribution Outside the United States
Native
From Dahanukar (2011):

"This species is endemic to the Western Ghats, India (Devi et al. 2005). It is known only from its type locality at Thirumurthi Dam, Anamalai Hills, Western Ghats, Tamil Nadu (Rema Devi and Raghunathan 1999)."

Introduced
This species has not been reported as introduced or established outside its native range.

Means of Introduction Outside the United States
This species has not been reported as introduced or established outside its native range.

Short Description
From Rema Devi and Raghunathan (1999):

"A siluroid with slender, elongated body having short spineless rayed dorsal, a long anal non confluent with caudal, long pectoral with a strong spine, almost reaching pelvic base, pelvic with 6 rays, long and pointed caudal, four pairs of barbels, wide gill openings with gill membranes free from isthmus and a short air-bladder."

"Skin smooth, uniformly dark brown on preservation with no yellowish lateral bands."

Biology
From Froese and Pauly (2016):

"Oviparous, distinct pairing possibly like other members of the same family."

From Hossain et al. (2013):

"The air-breathing apparatus enables the fish to survive in low water depth, even in turbid and oxygen deficit conditions."

Human Uses

From Dahanukar (2011):

"There is no information available on the use or trade of this species."

From Hossain et al. (2013):

"The [genus *Heteropneustes*] fishes are commercially important due to high market price and nutritional value, i.e. low fat content, and source of high amount of iron and calcium."

Diseases

No information available. No OIE-reportable diseases have been documented for this species.

Threat to Humans

From Froese and Pauly (2016):

"Harmless."

From Hossain et al. (2013):

"Incidentally, this type of fish is able to deliver a stinging protein (known as poison) emanated from the venom glands around the pectoral spine (Satora et al., 2005). In humans, catfish venoms, which are reported to be neurotoxic and hemolytic (i.e. destruction of red blood cells), can produce local numbness, inflammation and severe painful physical conditions of the limb under attack (Wright, 2009). Warm water bath, application of luke warm turmeric paste, ejection of blood, and traditional herbal medicine are commonly used for healing. Local fishers remain extremely cautious to avoid its sting."

3 Impacts of Introductions

No introductions of this species have been reported.

From FFWCC (2017):

"Prohibited nonnative species are considered to be dangerous to the ecology and/or the health and welfare of the people of Florida. These species are not allowed to be personally possessed or used for commercial activities. Very limited exceptions may be made by permit from the Executive Director for research or for public exhibition by facilities that meet biosecurity criteria […]
Freshwater Aquatic Species […]

Airsac catfishes- Family Heteropneustidae […]
Heteropneustes longipectoralis"

4 Global Distribution

Figure 1. Location of Indira Gandhi Wildlife Sanctuary and National Park, which is adjacent to the type locality for *Heteropneustes longipectoralis* at Thirumurthi Dam (see Native Range, above). Map by Maximilian Dörrbecker (Chumwa), licensed under CC BY-SA 3.0. Available: https://commons.wikimedia.org/w/index.php?curid=9946168. (January 2017).

5 Distribution Within the United States

This species has not been reported as introduced or established in the U.S.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match (Sanders et al. 2014; 16 climate variables; Euclidean Distance) was low throughout the U.S. with the exception of extreme southern Texas, which had a medium match. Climate 6 proportion indicated that the contiguous U.S. has a low climate match overall. The range of proportions indicating a low climate match is 0.000 to 0.005; the Climate 6 proportion for *Heteropneustes longipectoralis* was 0.0.

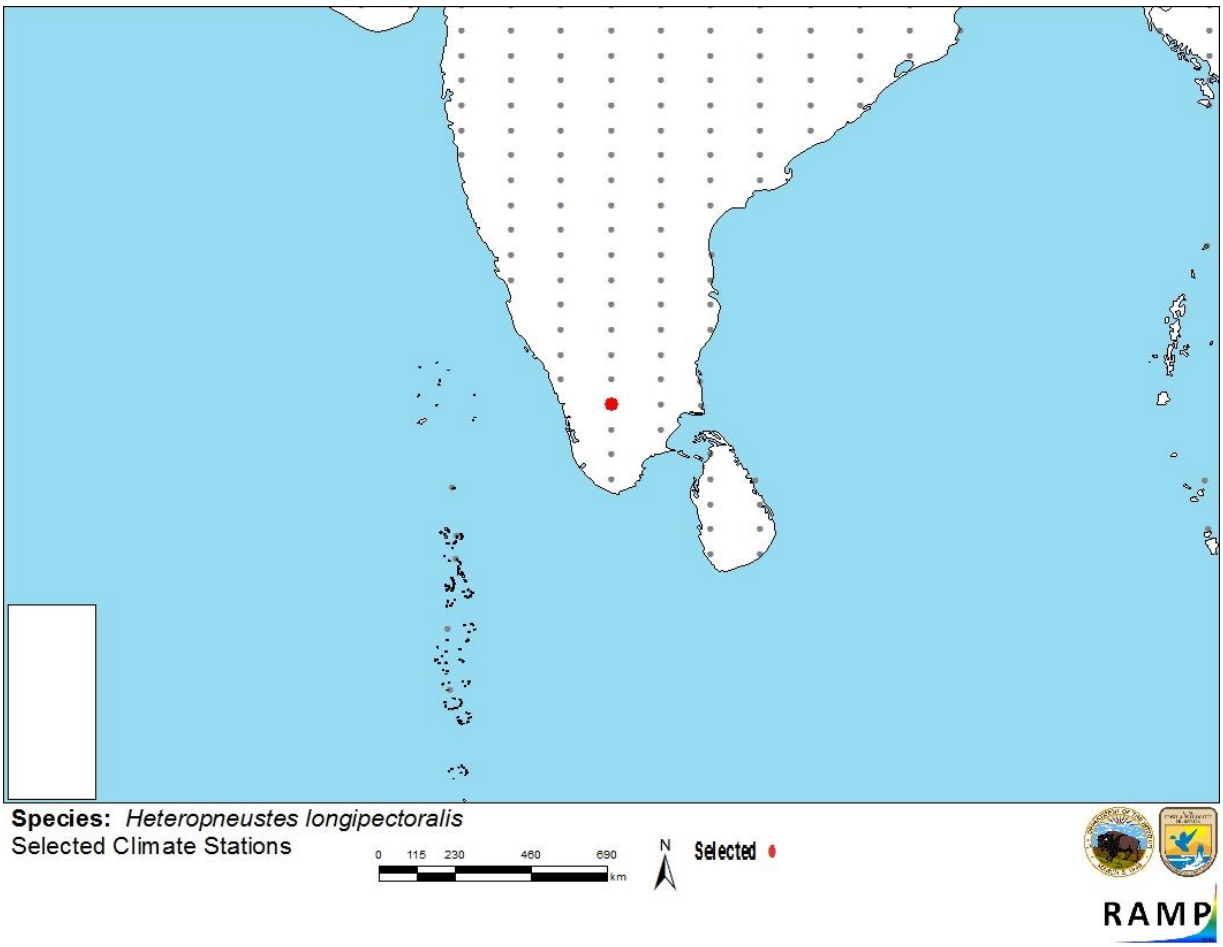

Figure 2. RAMP (Sanders et al. 2014) source map of southern India showing weather stations selected as source location (red) and non-source locations (gray) for *Heteropneustes longipectoralis* climate matching. Source location from Rema Devi and Raghunathan (1999).

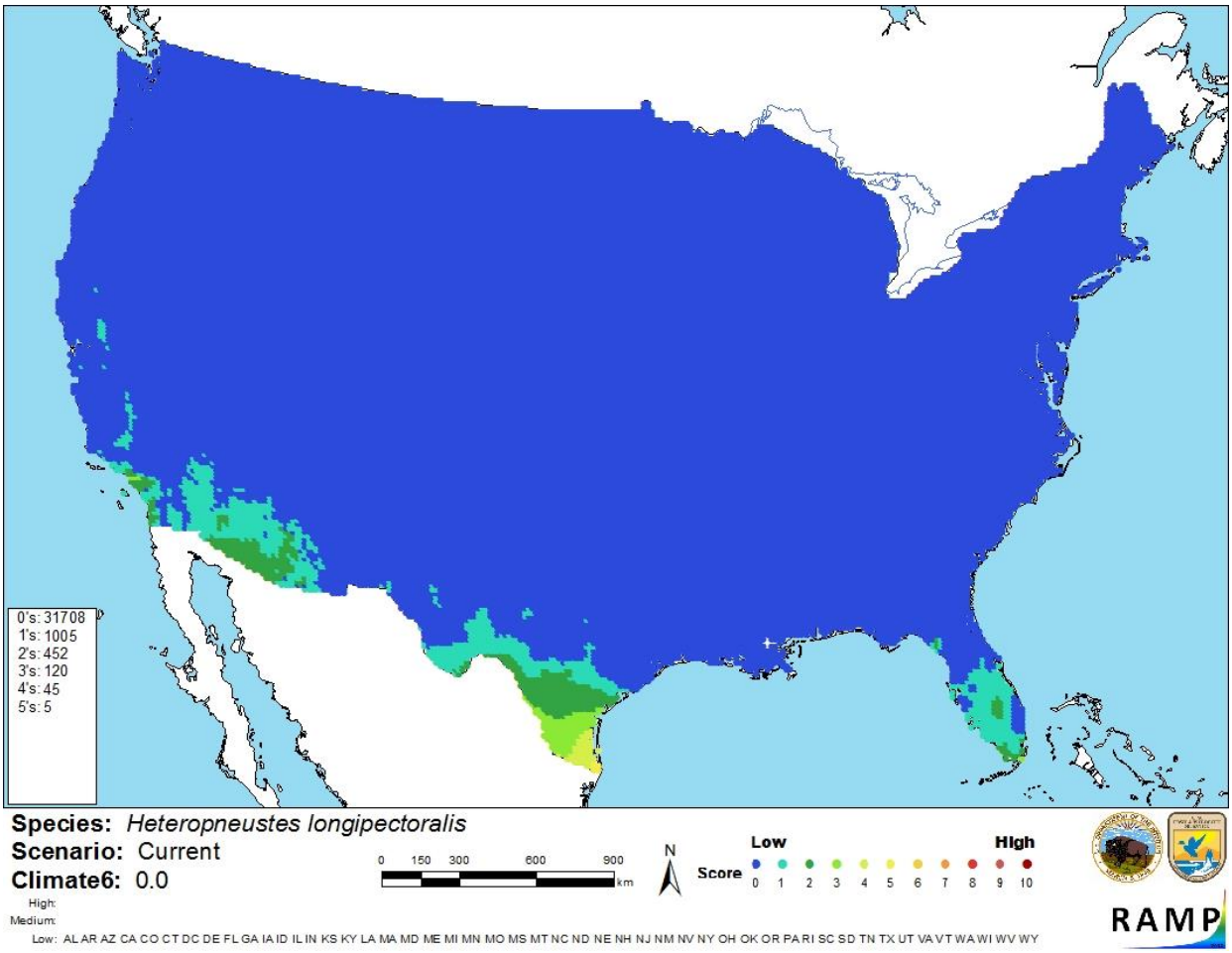

Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Heteropneustes longipectoralis* in the contiguous United States based on source location reported by Rema Devi and Raghunathan (1999). 0= Lowest match, 10=Highest match. Counts of climate match scores are tabulated on the left.

The "High", "Medium", and "Low" climate match categories are based on the following table:

Climate 6: Proportion of (Sum of Climate Scores 6-10) / (Sum of total Climate Scores)	Climate Match Category
0.000≤X≤0.005	Low
0.005<X<0.103	Medium
≥0.103	High

7 Certainty of Assessment

There is limited information available on *Heteropneustes longipectoralis*. The species is known only from its type locality and one author has questioned whether it is actually a unique species. No introductions have been reported so nothing is known about potential impacts of introduction. Certainty of this assessment is low due to this lack of information.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Heteropneustes longipectoralis was first identified in the Thirumurthi Dam of Tamil Nadu, India and is endemic to the Western Ghats. There has been no documentation of introduction of this species outside of its native range, so impacts of introduction are unknown. *H. longipectoralis* is currently listed on the state of Florida's Prohibited Species List, along with other members of its genus. *H. longipectoralis* has a low climate match with the contiguous U.S. More information is needed to assess the risk this species poses. Overall risk assessment category for this species is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3): Uncertain**
- **Climate Match (Sec.6): Low**
- **Certainty of Assessment (Sec. 7): Low**
- **Overall Risk Assessment Category: Uncertain**

9 References

Note: The following references were accessed for this ERSS. References cited within quoted text but not accessed are included below in Section 10.

Dahanukar, N. 2011. *Heteropneustes longipectoralis*. The IUCN Red List of Threatened Species 2011: e.T172335A6870783. Available: http://dx.doi.org/10.2305/IUCN.UK.2011-1.RLTS.T172335A6870783.en. (January 2017).

FFWCC (Florida Fish and Wildlife Conservation Commission). 2017. Prohibited species list. Florida Fish and Wildlife Conservation Commission, Tallahassee, Florida. Available: http://myfwc.com/wildlifehabitats/nonnatives/regulations/prohibited/#nogo. (January 2017).

Froese, R., and D. Pauly, editors. 2016. *Heteropneustes longipectoralis* Rema Devi and Raghunathan, 1999. FishBase. Available: http://www.fishbase.org/summary/Heteropneustes-longipectoralis.html. (January 2017).

Hossain, M. S., S. Sarker, S.M. Sharifuzzaman, and S. R. Chowdhury. 2013. New species of stinging catfish *Heteropneustes nani* (Siluriformes: Heteropneustidae) from Noakhali, Bangladesh. Vertebrate Zoology 63(3) :259-267.

ITIS (Integrated Taxonomic Information System). 2017. *Heteropneustes longipectoralis* Rema Devi and Raghunathan, 1999. Integrated Taxonomic Information System, Reston, Virginia. Available: https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=640212#null. (January 2017).

Rema Devi, K., and M. B. Raghunathan. 1999. *Heteropneustes longipectoralis* (Siluriformes: Heteropneustidae) a new species from the Anamalai Hills, in the Western Ghats. Records of the Zoological Survey of India 97(3):109-115.

Sanders, S., C. Castiglione, and M. Hoff. 2014. Risk Assessment Mapping Program: RAMP. U.S. Fish and Wildlife Service.

10 References Quoted But Not Accessed

Note: The following references are cited within quoted text within this ERSS, but were not accessed for its preparation. They are included here to provide the reader with more information.

Devi, K. R., T. J. Indra, M. B. Raghunathan, and M. S. Ravichandran. 2005. Fish fauna of the Anamalai Hill Ranges, Western Ghats, India. Zoos Print Journal 20(3):1809-1811.

Ferraris, C. J., Jr. 2007. Checklist of catfishes, recent and fossil (Osteichthyes: Siluriformes), and catalogue of siluriform primary types. Zootaxa 1418:1-628.

Satora, L., D. Pach, D. Targosz, and B. Szkolnicka. 2005. Stinging catfish poisoning. Clinical Toxicology 43:893-894.

Wright, J. J. 2009. Diversity, phylogenetic distribution, and origins of venomous catfishes. Evolutionary Biology 9:282.