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A Review and New Locality of Threatened Fish, *Pseudophoxinus anatolicus* (Hanko, 1924) (Cyprinidae) From Anatolia

Huseyin Sasi

Abstract: *Pseudophoxinus anatolicus* (Hanko, 1924) is an endemic and endengared fish in Anatolia. The species has been restricted to Beysehir Lake and Akgol Lake in central Anatolia. Now this species disappeared in Beysehir Lake because of to be prey of an alien fish, predator species as pikeperch, *Sander lucioperca*. However, it has recently been discovered as occurring in Eregli marshes and associated tributaries (Konya). We have found this species from a new locality in Godet Dam Lake province of Karaman. The population of minnow is restricted range and decline in habitat quality and habitat loss. Conservation status, identification, distribution, abundance, habitat and ecology, reproduction, threats and conservation recommendation is given.

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A Review and New Locality of Threatened Fish, *Pseudophoxinus anatolicus* (Hanko, 1924) (Cyprinidae) From Anatolia

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ABSTRACT

Pseudophoxinus anatolicus (Hanko, 1924) is an endemic and endengared fish in Anatolia. The species has been restricted to Beysehir Lake and Akgöl Lake in central Anatolia. Now this species disappeared in Beysehir Lake because of to be prey of an alien fish, predator species as pikeperch, *Sander lucioperca*. However, it has recently been discovered as occurring in Eregli marshes and associated tributaries (Konya). We have found this species from a new locality in Gödet Dam Lake province of Karaman. The population of minnow is restricted range and decline in habitat quality and habitat loss. Conservation status, identification, distribution, abundance, habitat and ecology, reproduction, threats and conservation recommendation is given.

Key words: *Pseudophoxinus anatolicus*, Threatened fish, conservation, Anatolia, endengared

INTRODUCTION

The middle of Anatolia have many freshwater resources in the form of rivers, lakes and dam lakes. In the past, these aquatic habitats were no problems and had very rich fish populations, but some water basin have started to become polluted because of developing very fast, both industrially and agricultural terms and less precipitation in the last 20 years.

The study of *P. anatolicus* population structure, ecology and life history is rare. The fishes mainly occur Beysehir Lake, Akgöl (Ereğli marsh) in Konya Province. Beysehir District has been maintained National Park in 1993 and Akgöl Area and Ereğli Marshes determined Natural Preservation Area in 1995 by the Ministry of Forest and Environment. (Yarar and Magnin, 1997). *Pseudophoxinus anatolicus* (Hanko, 1924) is an endemic and endengared fish in Anatolia. In this study, a new distribution area and some biological traits of *P. anatolicus* is given from Turkey. The fish is small and no commercial, but important for ecologically (Fig. 1).

The main purpose of the study is given review of distribution of threatened fish of *Pseudophoxinus anatolicus* and a new locality. Also, The species is maintained conservation status, identification, distribution, abundance, habitat and ecology, threats and conservation recommendation.

MATERIALS AND METHODS

The species were collected from Gödet Lake. Godet Dam lake located 15 km from the city of Karaman (Fig. 2). The Dam lake is nearly 20 km length and covering water area approximately 7 km^2. Godet Dam lake, which is fed Gödet and Basharman Stream and precipitation, was constructed between 1983-1988. The reservoir is based on Konya Closed Basin in the middle of



Fig. 1: *Pseudophoxinus anatolicus* from Anatolia



Fig. 2: Godet Dam Lake (Karaman) and study area from Turkey

Turkey. The water of dam lake is used for irrigation purpose. The water level of reservoir declines in summer because of irrigational use. In dam lake has aquaculture activities in cages, which use to grow rainbow trout, *Oncorhyncus mykiss*. The deepest point of Godet Dam lake is 94 m. The region has a terrestrial climate (winter cold and summer hot climate).

Specimens were caught using scoop nets and hand nets in March, June, September and December 2008 for seasonally. The fish were fixed by 4% formaldehyde solution in the field and then they carried to laboratory. We measured Fork Length (FL), Standard Length (SL) and Total Weight (TW).

RESULTS AND DISCUSSION

Common names of *Pseudophoxinus anatolicus* are known minnow and carp (Eng) and yag baligi (Tr). The synonyms of the fish are *Acanthorutilus anatolicus* and *Phoxinellus anatolicus* (Geldiay and Balik, 1999).

Conservation status is assessed Endangered (EN) (B2ab(iii,iv,v)) criteria in the IUCN International Red List (Smith and Darwall, 2006). Identification of our collection fish is small-bodied freshwater cyprinid and bentopelagic.

Our material is eight fish and collected from Godet Dam Lake from the middle of Anatolia in Karaman province. The locality is close to Akgol (Konya). We found that D III 7-8, A III 8-9, completed lat. line scales 96-99, gill rakers 8-9 and mouth terminal. Interorbiter length has two times in the eye diameter. Head lengths have changed approximately 3.8-4.2 times in the standard length. It has a dark hine to extend throught back of the head to caudal. The total length of the fish ranged 8.80-12.20 cm.

The fish length reached 15 cm (TL) and sometimes used for food locally (Geldiay and Balik, 1999).

The distribution of *P. anatolicus* is endemic for Palearctic in Anatolia (Bogutskaya, 1997). The minnow has a very restricted distribution. It is reported in Beysehir Lake (Konya) and Akgol (Eregli, Konya) from middle of Turkey. This species also is disappeared after *Sander lucioperca* (L. 1758) is introduced from Bey°ehir Lake which is the biggest freshwater lake in Turkey. In the current study, the species is given first time from a new locality. The fish of *P. anatolicus* is found a new locality in Godet Dam Lake, where it is close to Eregli marsh (Akgol) in the middle of Turkey.

The abundance of minnow is very restricted area in Anatolia, where there is the water quantities available in Konya province (Beysehir and Akgol). In the last two decades, this endemic fish populations have shown to dechne due to high mortalities occuring during the dry seasons and the introduction of other species (Balik, 1995; Crivelli, 1996). The population of Beysehir Lake is extinct due to the introduction of predatory pike-perch, *Sander lucioperca* (Hrbek *et al*., 2004). However, This species has been found near the Beysehir Lake in Kiyakdede marshes area (Ozulug and Ozturk, 2008).

Habitat and ecology of *P. anatolicus* is seen that this fish refers lentic or slow water. The species is present among vegetation and only under special conditions. *Pseudophoxinus anatolicus* is noncommercial, but is ecological importance. This fish spawning period was estimated in April and May from observation and fishermen communications. During the study, it is determined that the average of temperature 16.50°C (9-21,5; December-September), pH 7.35 and dissolved oxygen 8.50 mg L^{-1}.

In the dam lake, it is found that 10 species belonging to four families (Cyprinidae, Cyprinodontidae, Cobitidae, Salmonidae) as *Cyprinus carpio, Leuciscus cephalus, Capoeta tinca, Barbus plebejus, Tinca tinca, Oncorhyncus mykiss, Aphanius chantrei, Gobio gobio, Nemacheilus angorae* and *Cobitis taenia.*

In Godet Dam Lake, There are fisheries activities for economical fish as common carp (mirror and scaled), chub, barb, tench and intensive aquaculture activities for rainbow trout, *Oncorhyncus mykiss* (Sasi, 2007).

The population of *P. anatolicus* is restricted range and decline in habitat qualities and losses. Also, The population of *P. anatolicus* is also reduced and stressed with escaping fish of rainbow trout from cages.

The species have to make a detailed study with biological and ecological parameters. The fish and its habitats should be protected in national scales. For this perspective, *P. anatolicus* is endemic and endangered fish on the global scale. The fish and its habitats have to protect and order National Threatened List.

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