

## FINDINGS OF FISH LICE, *ARGULUS FOLIACEUS* (CRUSTACEA; BRANCHIURA) IN TURKEY

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**Abstract:** The findings of *Argulus foliaceus* in Turkey and its host fish species are reviewed. *Argulus foliaceus* was found on 21 fish species belonging to six families, mostly on cyprinids. The results reflect mostly the spacial activity of fish parasitologists in Turkey.

**Key Words:** *Argulus*, Turkey.

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### Introduction

Fish lice of the genus *Argulus* are ectoparasites known from Europe, Central Asia and the USA (Yamaguti 1963). Hosts of *Argulus* are fishes and amphibians (Kennedy 1974; Fryer 1982). About 150 *Argulus* species are known from marine, brackish and freshwater habitats (Kabata 1985). From Turkey, the species *Argulus foliaceus* and an additional unidentified *Argulus* sp. are known. Recently, *Argulus japonicus* was also found in a parasitological study on ornamental fish in Turkey (Koyuncu 2009). The aim of this study is to review the distribution *A. foliaceus* and its host fishes reported from Turkey.

### Materials and Methods

The records of *A. foliaceus* for Turkey are reviewed in 24 publications and 14 unpublished reports.

### Results

In Turkey, *A. foliaceus* was found almost all over Turkey (Figure 1) on 16 fish species caught in the wild and two fish species examined from aquaria (Table 1).

### Discussion

*Argulus foliaceus* is widespread in Turkey and it is likely that it occurs all over the country.

It can be speculated, that the species really occurs all over this area as the findings clearly reflect the activity of fish parasitologists in Turkey. This is a surprising result, as Turkey is a biogeographically highly structured country with many areas, where mostly endemic fish species occur (Küçük 2006). However, we cannot exclude the possibility, that *A. foliaceus* is not native to some parts of the country and might have been introduced together with stocked fish as *Cyprinus carpio* or other species.

**Table 1. Findings of *Argulus foliaceus* in Turkey. Numbers with paranthesis in the columns of locality are numbers of localities in Figure 1.**

Host / Ecology of host	*Locality	References
<i>Cyprinus carpio</i>	Marmara [1], Balık Lakes [2], İst. Univ. Sapanca Fish Production Station [3], Kocadere [4], Uluabat [5], Çavdarhisar Dam Lake [6], Kayaboğazı Dam Lake [7], Porsuk Dam Lake [5], Seyhan River [9], İznik Lake [10], Manyas Lake [11], Karacaören I Dam Lake [12], Kovada Lake [13], İst. Univ. Sapanca Fish Production Station [14], Eber Lake [15], Selevir Dam Lake [16], Çavuşçu Lake [17], Bekteşaga Pond [18].	Geldiay & Balık (1974); Soylu (1985); Altın (1989); Oğuz (1991); Koyun et al. (1997); Aydoğdu (1997); Aydoğdu et al. (1997); Kır et al. (2004); Becer & Kara (1998); Öztürk & Altunel (2003); Şahan & Cengizler (2003); Öztürk (2005); Tepecik (2006); Öztürk & Bulut (2006); Öktener et al. (2007); Özer (1995).
<i>Squalius sp.</i>	Nif [19], Kocacay Brooks [20].	Geldiay & Balık (1974).
<i>Carassius sp.</i>	Pond of Ankara Museum [21]; Çavdarhisar Dam Lake [6], Kayaboğazı Dam Lake [7], Porsuk Dam Lake [8], Karacaören I Dam Lake [22], Kovada Lake [23], Mersin-aquarium fish producer [24], Ankara-aquarium fish producer [25], Kırıkkale- aquarium fish producer [26], Aquarium fish producers in Eskişehir [27].	Burgu & Oğuz (1984); Koyun et al. (1997); Kır et al. (2004); Özcan & Kır (2005); Koyuncu (2002); Murat (2000); Yıldız & Kumantaş (2002); Emeksiz (1996); Şahin (2004).
<i>Tinca tinca</i>	Çavdarhisar Dam Lake [6], Kayaboğazı Dam Lake [7], Porsuk Dam Lake [8], Eymir Lake [28], Gölbaşı Lake in Ankara [29], Sapanca Lake [30].	Koyun et al. (1997); Burgu et al. (1988); Soylu (1990).
<i>Alburnus sp.</i>	Eymir Lake [28], Gölbaşı Lake in Ankara [29], Tödürge Lake [37].	Burgu et al. (1988).
<i>A. chalcoides</i>		Yıldırım (2006).
<i>A. escherischii</i>	Porsuk Dam Lake [8].	Koyun et al. (1997).
<i>Silurus glanis</i>	Gölbaşı Lake in Adıyaman [31], Eymir Lake [28], Gölbaşı Lake in Ankara [29], Sapanca Lake [30], Durusu Lake [32].	Ekingen (1976); Burgu et al. (1988); Soylu (1990, 2005).
<i>Silurus triostegus</i>	Atatürk Dam Lake [33].	Öktener et al. (2006).
<i>Capoeta trutta</i>	Keban Dam Lake [34].	Sarıyüboğlu & Sağlam (1991).
<i>Esox lucius</i>	Uluabat Lake [5].	Öztürk (1995);

		Öztürk et al. (2000).
<i>Luciobarbus pectoralis</i>	Seyhan River [9].	Şahan & Cengizler (2003).
<i>Scardinius erythrophthalmus</i>	Durusu Lake [32], Manyas Lake [11].	Kahveci (2004); Öztürk & Altunel (2003).
<i>Ctenophoringodon idella</i>	DSI [35].	Tabakoğlu (2006).
<i>Abramis brama</i>	Durusu Lake [32].	Karatoy (2004); Karatoy & Soylu (2006).
<i>Vimba vimba</i>	Sapanca Lake [30].	Uzunay & Soylu (2006).
<i>Liza abu</i>	Atatürk Dam Lake [33].	Öktener et al. (2006).
<i>Mastacembelus mastacembelus</i>	Atatürk Dam Lake [33].	Öktener et al. (2006).
<i>Astronotus ocellatus</i>	İzmir- aquarium fish producer [36].	Tokşen (2006).

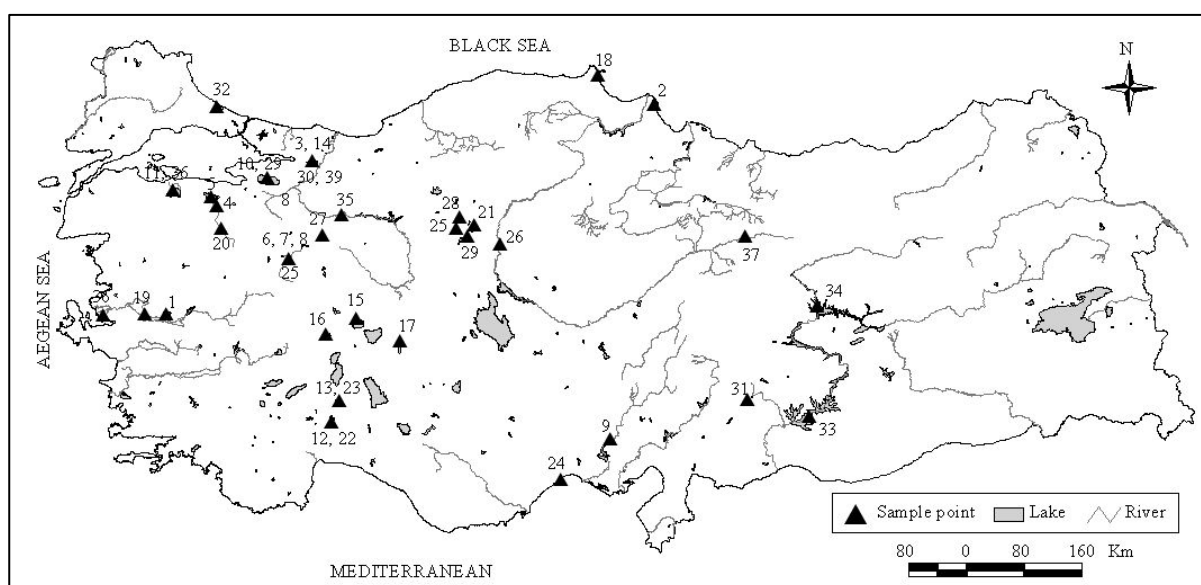


Figure 1. Distribution of *Argulus foliaceus* in Turkey.

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