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Revision of the Fish Fauna of the Seyhan and Ceyhan River Basins in Turkey

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Abstract: This study conducted between April 2008 to March 2009, aimed revision of ihtiyofauna of the Seyhan and Ceyhan river Basins, determined that 35 species and one sub-species belonging to *Anguillidae*, *Salmonidae*, *Cyprinidae*, *Nemacheilidae*, *Cobitidae*, *Clariidae*, *Siluridae*, *Cyprinodontidae*, *Poecilidae*, *Blenniidae* and *Percidae*. In this study, *Alburnus baliki* and *Cobitis levantina* was recorded for the 1st time in the Ceyhan river and *Nemacheilus namiri* in the Seyhan river Basins. Samples of *Capoeta turani* described in the Seyhan river Basin and *Capoeta erhani* described in the Ceyhan river Basin have been caught in large quantities and examined in different locations in these Basins and these species have been accepted as a synonym of *Capoeta barroisi*.

Key words: Lchthyofauna, *Alburnus baliki*, *Cobitis levantina*, *Nemacheilus namiri*, *Capoeta barroisi*, Seyhan-Ceyhan river Basins

INTRODUCTION

Turkey is geologically active from the Miosen to the present and many fish genera speciated in this area. In recent years, taxonomic and systematic studies on Turkish Freshwater fishes have been investigated by many researchers and some descriptions have been revised (Erk'akan, 1983a, b; Erk'akan and Kuru, 1983; Erk'akan, 1984; Krupp, 1985; Balik, 1985; Erk'akan and Kuru, 1986a, b; Coad and Sarieyyupoglu, 1988; Krupp and Schneider, 1991; Bogustkaya, 1992, 1997; Ahnelt, 1995; Ahnelt *et al*., 1995; Ahnelt and Holcik, 1996; Elvira, 1997; Wildekamp *et al*., 1997, 1999; Erk'akan *et al*., 1998, 2007, 2008a, b; Bogustkaya *et al*., 2000, 2006; Freyhof and Ozulug, 2006; Turan *et al*., 2006, 2008, 2009; Kucuk *et al*., 2007; Ozulug and Freyhof, 2007; 2008).

Seyhan and Ceyhan river Basins have interesting fish fauna because these basins are junction for some fish species which are also living in the geographically close basins such as Firat from the East, Asi from the South and Manavgat and Tarsus from the West.

Balik (1985) in his study entitled; a taxonomical revision of freshwater fish in South Anatolia, investigated the distribution of some fish species in the Seyhan and Ceyhan rivers.

Kara *et al*. (2010) were established *Anguilla anguilla*, *Salmo trutta macrostigma*, *Cyprinus carpio*, *Achanthobrama* sp., *Alburnus orontis*, *Pseudophoxinus zekayi*, *Squalius kottelati*, *Garra rufa*, *Chondrostoma regium*, *Luciobarbus pectoralis*, *Capoeta angorae*, *Capoeta erhani*, *Cobitis evreni*, *Schistura ceyhanensis*, *Oxynemacheilus* sp., *Silurus glanis*, *Clarias gariepinus*, *Aphanius mento*, *Gambusia affinis*, *Salaria fluviatilis* (*Blennius fluviatilis* ASSO, 1801) in the Seyhan and Ceyhan river Basins.

According to Alagoz, *Acanthalburnus microlepis*, *Capoeta capoeta capoeta*, *Capoeta capoeta umbla*, *Barbus esocinus*, *Rutilus rutilus*, *Rutilus rubilio*, *Rutilus frisii*, *Aphanius chanteri*, *Abramis brama* and *Cobitis bilseli* were found in the Seyhan dam reservoir.

Bostanci in his study entitled; a systematic investigation on the fish fauna of the Seyhan, Ceyhan and Asi rivers determined 37 species and one sub-species belonging to fourteen genus. *C. erhani* by Turan *et al*. (2008) and *C. turani* by Ozulug and Freyhof (2008) were recently described from in the Ceyhan and Seyhan Basins, respectively. However, the small number of samples and without examination of serial material studied by some researchers has prevented observation of the variations of some species and this situation has caused confusion in the freshwater fish fauna in Turkey.

The aim of this study is to eliminate any confusion in the literature by determining species in the Seyhan and Ceyhan Basins involving a number of researchers and revealing deficiencies and mistakes in species descriptions.

MATERIALS AND METHODS

Employing electroshocker, fish samples were collected between April 2008 to March 2009 from the determined stations on the water body of the Seyhan and

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Table 1: Sampling stations in the Seyhan river Basin

Location	Coordinates	Elevation (m)
Seyhan dam reservoir	37°02.031′N; 35°20.029′EO	67
Cakit stream I; Pozanti-Adana	37°30.898′N; 34°44.675′EO	977
Cakit stream II-Eminlik-Ciftehan	37°30.090′N; 34°49.069′EO	881
Camardi stream, Kamisli	37°33.140′N; 34°57.282′EO	1112
Pozanti	37°27.828′N; 34°52.228′EO	955
Delicay-Adana	37°02.355′N; 34°30.304′EO	26,5
Eglence stream-Adana	37°17.499′N; 35°13.412′EO	142
Cerkes-Karabogaz-Zamanti stream	38°46.526′N; 36°27.248′EO	1500
Gumusgun stream-Pinarbasi-Kahramanmaras road	38°43.242′N; 36°24.846′EO	1453
Buyukgumusgun-Sariz road	38°41.070′N; 36°27.406′EO	1650
20 km to Sariz village	38°34.942′N; 36°25.831′EO	1740
Goksun-Elbistan road	38°27.507′N; 36°28.307′EO	1710
Sariz stream	38°26.924′N; 36°28.532′EO	1770
Yamanli village-Tufanbeyli road	38°12.967′N; 36°14.016′EO	1620
Tufanbeyli-Adana road	38°12.802′N; 36°14.174′EO	1632
Cataloluk stream-Bakirdag	38°12.154′N; 35°50.879′EO	1740
Korkun stream-Karaisali-Adana	37°13.095′N; 35°09.100′EO	145
Feke-Saimbeyli road	37°51.941′N; 36°03.502′EO	560
Degirmendere, Feke-Mansurlu road	37°50.573′N; 35°45.403′EO	928
Feke	37°51.537′N; 35°51.490′EO	970
Feke Exit-Kozan road	37°46.952′N; 35°54.343′EO	515

Table 2: Sampling stations in the Ceyhan river Basin

Location	Coordinates	Elevation (m)
Camizagili (Avcilar bridge) Kadirli road	37°14.918′N; 35°50.313′EO	36.2
Hacilar-Ceyhan Kadirli road	37°18.900′N; 35°53.324′EO	35.8
Davutlar village	37°21.318′N; 35°56.396′EO	32.7
Kadirli village	37°21.952′N; 36°06.355′EO	86.4
Andirin, Celik stream	37°30.730′N; 36°21.507′EO	1047.0
Hemite Creek Tecirli-Osmaniye	37°11.154′N; 36°05.138′EO	53.4
Sabun stream-Osmaniye-DuziCi	37°16.898′N; 36°28.030′EO	289.0
Terbuzek-I stream, Goksun	38°04.155′N; 36°27.912′EO	1350.0
Terbuzek-II stream, Goksun	38°01.917′N; 36°28.336′EO	1344.0
Komur stream-Goksun exit	38°00.524′N; 36°30.704′EO	1319.0
Kizilcik stream-Koture village-Afsin road	38°11.701′N; 36°50.620′EO	1320.0
Sogutlu Creek-Elbistan	38°13.411′N; 37°13.386′EO	1280.0
Yalak stream-Sevdilli village-Elbistan	38°15.271′N; 37°31.984′EO	1600.0
Korsulu stream-Andirin road	37°38.218′N; 36°37.548′EO	757.0
Gecit stream-Andirin road	37°38.320′N; 36°39.969′EO	687.0
Firniz stream-Tekir road	37°45.552′N; 36°41.823′EO	960.0
Tekir Creek-Dongel cave	37°51.590′N; 36°38.508′EO	1248.0

Ceyhan Basin which reflected varied ecological characteristics. Requisite measurements for the taxonomic studies of fish were made with a millimetric ruler and digital calipers with 0.01 mm precision based on the method of Banarescu (1991). Comparison of similarities and differences in the metric and meristic characteristics between fish belonging to the same species caught in the study and fish samples belonging to the same species caught in others parts of Turkey was made by Prof. Dr. Fusun Erk'akan. Coordinates and elevation of the sampling stations were given for the Seyhan river Basin in Table 1 and for the Ceyhan river Basin in Table 2.

RESULTS

This study aimed to revise the ihtiyofauna of the Seyhan and Ceyhan river Basins. About 29 species and one sub-species belonging to nine families were determined in the Seyhan river Basin. Of these, 8 species are endemic and 5 species are exotic (Table 3). Total 28 species and 1 sub-species belonging to ten families were determined in the Ceyhan Basin. Of these, 6 species are endemic and 2 species are exotic (Table 4).

List of fish species found in the Seyhan and Ceyhan river Basins:

Kingdom: Animalia
Phylum: Chordata
Subphylum: Vertebrata (Craniata)
Infraphylum: Gnathostomata
Class: Actinopterygii
Subclass: Neopterygii
Infraclass: Teleostei
Superorder: Elopomorpha
Order: Anguilliformes
Subclass: Anguilloidei
Family: Anguillidae
Genus: Anguilla (Linnaeus, 1758)
Species: *Anguilla anguilla* (Linnaeus, 1758)
Superorder: Protacanthopterygii

Table 3: The fish fauna of the Seyhan river Basin

Family	Species	Localities	Endemism
Salmonidae	*Salmo trutta macrostigma* (Dumeril, 1858)	Pinarbasi stream	
	Salmo platycephalus	Soguksu; Pinarbasi-Zamanti,Karagoz; Buyukgumusgun; Sariz	Endemic
	Oncorhyncus mykiss (Walbaum, 1792)	Seyhan dam reservoir	Exotic
Percidae	*Sander lucioperca* (Linnaeus, 1758)	Seyhan dam reservoir	Exotic
Blennidae	*Salaria fluviatilis* (Asso, 1801)	Eglence stream; Korkun stream	
Cyprinidae	*Acanthobrama marmid* (Heckel, 1843)	Seyhan dam reservoir	
	Alburnus orontis (Sauvage, 1882)	Seyhan dam reservoir; Feke; Korkun stream; Saimbeyli-Goksu	
	Alburnus adanensis (Battalgazi, 1944)	Seyhan dam reservoir; Korkun stream; Feke; Eglence stream	Endemic
	Barbus pectoralis (Heckel, 1843)	Seyhan dam reservoir; Zamanti stream; Korkun stream	
	Barbus rajanorum (Heckel, 1843)	Seyhan dam reservoir; Eglence stream; Saimbeyli-Goksu	
	Capoeta damascina (Valenciennes, 1842)	Cakit stream-Pozanti; Eglence stream; Cerkes-Karabogaz; Gumusgun River; Sariz; Tufanbeyli-Yamanli village; Cataloluk stream-bakirdag; Saimbeyli-Goksu	
	Capoeta barroisi (Lortet, 1894)	Feke Stream; Korkun stream; Goksu	
	Chondrostoma regium (Heckel, 1843)	Korkun Cayi; Seyhan dam reservoir; Eglence stream	
	Cyprinus carpio (Linnaeus, 1758)	Seyhan dam reservoir	
	Carasius carassius (Linnaeus, 1758)	Seyhan dam reservoir; Eglence stream; Delicay	Exotic
	Garra rufa (Heckel, 1843)	Eglence stream, Seyhan dam reservoir, Korkun stream; Feke; Saimbeyli-Goksu	
	Hemigrammacapoeta caudomaculata (Battalgil, 1942)	Korkun stream	Endemic
	Pseudophoxinus zekayi (Bogustkaya *et al*., 2006)	Eglence stream	Endemic
	Squalius cephalus (Linnaeus, 1758)	Seyhan dam reservoir; Eglence stream; Cerkes-Karabogaz; Gumusgun river; Sariz; Tufanbeyli-Yamanli Village; Cataloluk Stream-Bakirdag; Saimbeyli-Goksu	
	Squalius lepidus (Heckel, 1843)	Zamanti stream; Pinarbasi; Seyhan dam reservoir; Saimbeyli-Goksu	
	Tinca tinca (Linnaeus, 1758)	Seyhan dam reservoir	Exotic
Siluridae	*Silurus glanis* (Linnaeus, 1758	Seyhan dam reservoir; Delicay	
Clariidae	*Clarias gariepinus* (Burchell, 1822)	Seyhan dam reservoir	
Cyprinodontidae	Aphanius mento (Heckel, 1843)	Seyhan dam reservoir	
	Aphanius danfordii (Boulenger, 1890)	Seyhan dam reservoir	
Poecilidae	*Gambusia holbrooki* (Girard, 1859)	Seyhan dam reservoir; Korkun stream	Exotic
Nemacheilidae	*Oxynemacheilus samanticus*	Pinarbasi; Bakirdag-Zamanti; Karabogaz-Cerkes;	Endemic
	Paracobitis seyhanensis	Pinarbasi; Sariz; Bakirdag-Zamanti stream; Karabogaz-Cerkes;	Endemic
	Paracobitis tigris (Heckel, 1843)	Eglence stream; Karabogaz-Cerkes; Korkun stream	
	Schistura seyhanicola (Erk'akan *et al*., 2007)	Eglence stream; Korkun stream	Endemic
	Schistura evreni (Erk'akan *et al*., 2007)	Bakirdag-Zamanti; Karabogaz-Cerkes	Endemic

Table 4: The fish fauna of the Ceyhan river Basin

Family	Species	Localities	Endemism
Anguillidae	*Anguilla anguilla* (Linnaeus, 1758)	Tecirli village	
Salmonidae	*Salmo trutta macrostigma* (Dumeril, 1858)	Göksun stream; Sogutlu; hurman stream; Terbuzek I-II;	
Blennidae	*Salaria fluviatilis* (Asso, 1801)	Davutlar village; Sabun stream; Tecirli; Gecit stream; Aksu stream	Exotic
Cyprindae	*Alburnus baliki* (Bogustkaya *et al*., 2000)	Davutlar village	Endemic
	Alburnus orontis (Sauvage, 1882)	Davutlar village; Sabun stream; Tecirli; Goksun stream	
	Alburnus adanensis (Battalgazi, 1944)	Goksun stream; Aksu stream	
	Barbus pectoralis (Heckel, 1843)	Gecit Stream; Tecirli	
	Barbus rajanorum (Heckel, 1843)	Camizagili stream; Aksu stream	
	Capoeta damascina (Valenciennes, 1842)	Gecit stream; Aksu stream; Celik stream	
	Capoeta barroisi (Lortet, 1894)	Göksun stream; Sevdilli; Andirin; Firniz stream;	
	Chondrostoma regium (Heckel, 1843)	Sabun stream Aksu stream	
	Garra rufa (Heckel, 1843)	Gecit stream; Aksu stream; Celik stream; Camizagili stream; Davutlar stream; Sabun stream; Tecirli; Goksun stream	
	Hemigrammacapoeta caudomaculata (Battalgil, 1942)	Davutlar village; Tecirli stream	Endemic
	Pseudophoxinus zekayi (Bogutskaya *et al*., 2006)	Davutlar village; Tecirli stream	Endemic

Table 4: Continued

Family	Species	Localities	Endemism
	Squalius cephalus (Linnaeus, 1758)	Celik stream; Andirin	
	Squalius lepidus (Heckel, 1843)	Aksu stream	
Clariida	*Clarias gariepinus* (Burchell, 1822)	Aksu stream, Davutlar village	
Cyprinodontidae	*Aphanius danfordii* (Boulenger, 1890)	Camizagili stream; Davutlar; Kadirli	
	Aphanius mento (Heckel, 1843)	Camizagili stream; Davutlar; Kadirli	
Poecilidae	*Gambusia holbrooki* (Girard, 1859)	Camizagili stream; Davutlar; Kadirli	Exotic
Nemacheilidae	*Paracobitis tigris* (Heckel, 1843)	Aksu stream; Celik stream	
	Schistura evreni (Erk'akan *et al*., 2007)	Gecit stream; Aksu stream; Celik stream; Firniz stream; Andirin; Tekir Creek	Endemic
	Schitura ceyhanensis (Erk'akan *et al*., 2007)	Sevdilli village, Elbistan, Komur stream	Endemic
	Schistura seyhanicola (Erk'akan *et al*., 2007)	Kesis stream	Endemic
Cobitidae	*Cobitis levantina* (Krupp and Moubayed, 1992)	Hemite Creek; Davutlar	

Order: Salmoniformes
Family: Salmonidae
Genus: Salmo (Linnaeus, 1758)
Species:
- *Salmo platycephalus* (Behnke, 1969)
- *Salmo trutta magrostigma* (Dumeril, 1858)
- *Oncorhynchus mykiss* (Walbaum, 1792)

Superorder: Euteleostei
Superclass: Ostariophysi
Order: Cypriniformes
Family: Cyprinidae
Genus: *Acanthobrama* (Heckel, 1843)
Species: *Acanthobrama marmid* (Heckel,1843)
Genus: Alburnus (Heckel, 1843)
Species:
- *Alburnus adanensis* (Battalgil, 1944)
- *Alburnus baliki* (Bogustkaya *et al*., 2000)
- *Alburnus orontis* (Sauvage, 1882)

Genus: Barbus (Cuvier, 1817)
Species:
- *Luciobarbus pectoralis* (Heckel, 1843)
- *Barbus rajanorum* (Heckel, 1843)

Genus: Capoeta (Cuiver-Valenciennes, 1842)
Species:
- *Capoeta barroisi* (Lortet, 1894)
- *Capoeta damascina* (Valenciennes, 1842)

Genus: Chondrostoma (Agassiz, 1835)
Species: *Chondrostoma regium* (Heckel, 1843)
Genus: *Cyprinus* (Linnaeus, 1758)
Species: *Cyprinus carpio* (Linnaeus, 1758)
Genus: Garra (Heckel, 1843)
Species: *Garra rufa* (Heckel, 1843)
Genus: Hemigrammocapoeta (Pellegrin, 1927)
Species: *Hemigrammocapoeta culiciphaga* (Pellegrin, 1927)
Genus: Pseudophoxinus (Heckel, 1843)
Species: *Pseudophoxinus zekayi* (Bogustkaya *et al*., 2000)
Genus: Squalius (Cuvier, 1817)
Species:
- *Squalius cephalus* (Linnaeus, 1758)
- *Squalius lepidus* (Heckel, 1843)

Genus: Tinca (Cuvier, 1817)
Species: *Tinca tinca* (Linnaeus, 1758)
Family: Nemacheilidae
Genus: Oxynemacheilus (Licnk, 1790)
Species: *Oxynemacheilus samanticus*
Genus: Paracobitis (Noemacheilus) (Bleeker, 1963)
Species:
- *Paracobitis seyhanensis*
- *Paracobitis* (*Barbatula*) *tigris* (Heckel, 1849)

Genus: Schistura (Clelland, 1838)
Species:
- *Schistura ceyhanensis* (Erk'akan *et al*., 2007)
- *Schistura evreni* (Erk'akan *et al*., 2007)
- *Schistura seyhanicola* (Erk'akan *et al*., 2007)
- *Schistura namiri* (Krupp and Schneider, 1991)

Family: Cobitidae
Genus: Cobitis (Linnaeus, 1758)
Species:
- *Cobitis levantina* (Krupp and Moubayed, 1992)
- *Cobitis evreni* (Erk'akan *et al*., 2008)

Class: Siluriformes
Family: Clariidae
Genus: Clarias (Grovonius, 1781)
Species: *Clarias gariepinus* (Burchell, 1822)
Family: Siluridae
Genus: Silurus (Linnaeus, 1758)
Species: *Silurus glanis* (Linnaeus, 1758)
Superclass: Protacanthopterygii
Order: Cyprinodontiformes
Sub-order: Cyprinodontoidei
Family: Cyprinodontidae
Genus: Aphanius (Nardo, 1827)
Species:
- *Aphanius mento* (Heckel, 1843)
- *Aphanius danfordii* (Boulenger, 1890)

Family: Poecilidae
Genus: Gambusia (Poey, 1854)
Species: *Gambusia holbrooki* (Girard, 1859)
Class: Perciformes
Sub-class: Blennioidei
Family: Blennidae
Genus: Salaria (Blennius) (Linnaeus, 1758)
Species: *Salaria fluviatilis* (Asso, 1801)
Family: Percidae
Genus: Mugil (Linnaeus, 1758)
Species: *Mugil cephalus* (Linnaeus, 1758)
Genus: Sander (Stizostedion) (Linnaeus, 1758)
Species: *Sander lucioperca* (Linnaeus, 1758)

DISCUSSION

In this study, *A. baliki* is recorded for the 1st time from the Camizagili Creek which belongs to Ceyhan river Basin. This species described by Bogustkaya *et al.* (2000) from the Manavgat Basin, Oymapinar. According to their description, number of scales in lateral line series (unpored and pored) variying considerably, 50-65 due to irregular character of scales. Researchers examined nine specimens and treat morphological characters that distinguished *A. baliki* from other *Alburnus* species are the same with this study. *Cobitis levantina* described by Krupp and Moubayed (1992) caught from the Ceyhan river Basin (Hemite Creek and Davutlar village) for the 1st

time in this study. Total 25 specimens agree with in the description of Krupp and Moubayed (1992). Eleven *Nemacheilus namiri* individuals caught from Eglence stream-Seyhan Basin has the same morphometric characteristics and colour pattern given in Krupp and Schneider (1989).

The lateral line scales ranged from 66-76 in the *Capoeta barroisi* samples we examined in the Seyhan and Ceyhan river Basins. Some of the meristic charecteristics of *C. barroisi* demonstrated similarities to findings made by Dagli and Erdemli (2008). Samples determined as *C. barroisi* by Sahan and Cengizler (2002) were described as *C. turani* by Ozulug and Freyhof (2008) in the Seyhan river Basin and were described as *C. erhani* by Turan *et al*. (2008) in the Ceyhan river Basin. The lateral line scales in both species, the density of spots on the body, the ossification and length of the last simple dorsal fin ray and the head length being shorter when compared to each other all indicated a distinction. The number of lateral line scales was given between 64-70 in *C. turani* from the Seyhan river Basin by Ozulug and Freyhof (2008), 69-78 in *C. erhani* from the Ceyhan Basin by Turan *et al*. (2008).

However in the study, 25 individuals collected from the Seyhan river Basin had 66-75 lateral line scales and from the Ceyhan river Basin was found to be 64-79 for 40 individuals. Sungur noted that the number of lateral line scales of this species were between 67-89 for the Asi river Basin (type locality of *C. barroisi*) in a study carried out for freshwater fish fauna in the province of Gaziantep. At the same time in this study conducted for the ihtiyofauna of the Seyhan and Ceyhan Basin, the number of spots on the body was observed to be more extensive or less dense in individuals seen in both the Seyhan and Ceyhan basins. Moreover in young individuals in both basins, the length of the last rigid ray of the dorsal fin and the length of the head were shorter than in adult individuals which were found to be longer. In evaluating these findings in terms of zoogeographics, researchers treat *C. erhani* and *C. turani* as a synonyms of *C. barroisi*.

Capoeta capoeta angorae described from the Pozanti-Seyhan river Basin by Hanko (1924) based on a single individual has the same variation divergence of the *C. capoeta damascina*. Problems with the level of species and sub-species obtained in systematic studies collected with few individuals are uncovered when evaluated in later studies encompassing larger numbers of individuals. No matter how controversial further argument is in the validity of similar species there is benefit to be drawn from re-evaluation in the literature. Watanabe (1998) stated that variations between geography and population in such meristic characteristics in freshwater fish as the number of fin rays, lateral line scales and gill rakers on the 1st arch are usually the result of the isolation of populations. Banarescu (1991) also stated that in his researches on the validity of sub-species of freshwater fish, it is necessary to adopt the notion that the circumstances of divergence or overlapping of some meristic characteristics such as the lateral line scale number are not caused by an individuals' subspecies or species but rather by geographical differences arising from clinal variations. The high ecological tolerance of species in the genus Capoeta can cause wide variation divergence and populations can display very close or overlapping variation between the metric and meristic characters of each other.

In approximately 2000 years, the Ceyhan river has incorporated with and seperated from the Seyhan river six times. Therefore, a species found in the Seyhan river can also be found in the Ceyhan river with local variations. However depending on the speed of evolution of species, it is possible to see some speciation or sub-speciation in populations of species. For instance, species of *Cobitidae* and *Nemacheilidae* living in Anatolia have shown a rapid local speciation.

Bohlen *at al*. (2006) and Erk'akan *et al*. (2008a, b). Differences seen in the Seyhan and Ceyhan river Basins in species belonging to the the Cobitidae and Nemacheilidae families may be due to the high rate of evolution. In addition, validity of these species by mt-DNA studies has been approved.

In a study conducted by Kara *et al*. (2010) to establish the ihtiyofauna of the middle and upper Ceyhan Basin, samples of *Oxynoemacheilus* sp. from the Nemacheilidae family were determined as *Shistura evreni* by us after upon examination of the morphological and diagnostic features of this species.

In the assessment of fish fauna in the Seyhan Dam lake, Alagoz determined some species such as *Acanthalburnus microlepis* and *Capoeta capoeta capoeta* distributed in the Kura-Aras river Basins, *Capoeta capoeta umbla* and *Barbus esocinus* distributed in the Tigris Basin, *Rutilus rutilus*, *Rutilus rubilio* and *Rutilus frisii* distributed in the Eastern black sea and Marmara Basins, *Aphanius chanteri* distributed in the Kizilirmak river and Central black sea Basins, *Abramis brama* distributed in the Black sea Basin, the Marmara and Thrace regions and locally endemic species *Cobitis bilseli* in the Beysehir lake Basin. However from

the perspective of zoogeographical aspects, these species are not found in the fish fauna of the Seyhan river Basin. According to this and other study, it can be concluded that species which had been previously established wrongly have been the cause of significant scientific errors. Bostanci determined 37 species and one sub-species belonging to fourteen families in the Seyhan, Ceyhan and Asi river Basins. From these species, *Barbus barbulus*, *Alburnoides oblongus* and *Hemigrammocapoeta culiciphaga* were new recordings in the fish fauna of Turkey and *Alburnoides bipunctatus* was a new recording for the Mediterranean Basin. Krupp and Schneider (1989) stated that one of the distinguishing features of *H. culiciphaga* is the barbels around the mouth.

However, Bostanci did not recognized barbels around the mouth of *Hemigrammocapoeta culiciphaga* while Krupp and Schneider (1989) and researchers recorded a double set of very short barbells. In addition, Bostanci reported that the lateral line comlete and scales were between 30-33 but in other studies (Krupp and Schneider, 1989), it has been recorded that the lateral line is incomplete.

In this study, the lateral line of *H. culiciphaga* living in the Seyhan and Ceyhan Basins was interrupted and the number of scales was found to vary between 5-20. Moreover, researchers did not catch any *Alburnoides oblongus* and *Barbus barbulus* samples from the Ceyhan river Basin. Researchers doubt that these species occurred in this basin may determined wrongly.

Living in clean, slow-flowing, deep structured stony, gravelly and sandy areas, *Shistura ceyhanensis* is living in the Ceyhan river Basin (Erk'akan *et al*., 2007). In this study, it was also found in the Seyhan river Basin. In a study by Bostanci, some Nemacheilid specimens determined as *Barbatula panthera*. Based on the meristic, morphometric characteristics and color pattern of these samples, it was established that they are in fact *S. ceyhanensis*.

The type locality of *B. panthera* is the Barada river, in the Damascus Basin and it is endemic for this basin and does not exist in Turkey (Krupp and Schneider, 1989). *S. evreni*, generally prefers clean, cold, oxygen-enriched mountain water. Bostanci determined some Nemacheilid specimens as *N. argyrogramma* but according to morphometric and meristic properties there was identified this species as *S. evreni*.

The type locality of *Noemacheilus tschaiyssuensis* described by Banarescu and Nalbant is Caysu-Gaziantep-Ceyhan river Basin. However, the coordinates given in the study are all encompassed within the Euphrates Basin and the Ceyhan river does not have any tributary within the province of Gaziantep. The description of this new species is a synonym of *N. argyrogramma* distributed in the Euphrates Basin. In an oral interview with Teodor Nalbant, this species was verified to be a synonym of *N. argyrogramma*. The metric and meristic charecteristics of the *P. seyhanensis* caught by us in the Seyhan river Basin were similar in general to those given by Banarescu. According to Bostanci from the meristic properties of *P. seyhanensis*, the unbranched dorsal fin rays count was II. In the findings, this count was III. In addition, the ratio of standard length for the caudal peduncle length was 14.1% in the findings, Banarescu gave an average of 14.5% and Bostanci gave an average of 18%, respectively. All the other species identified in the study are agree with the literature data.

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