

## Review Article

# Cyprinodontid fishes of the world: an updated list of taxonomy, distribution and conservation status (Teleostei: Cyprinodontoidea)

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**Abstract:** This checklist aims to list all the reported cyprinodontid fishes (superfamily Cyprinodontoidea/pupfishes) of the world. It lists 141 species in 8 genera and 4 families. The most diverse family is Cyprinodontidae (54 species, 38%), followed by Orestiidae (45 species, 32%), Aphanidiidae (39 species, 28%), and Cubanichthyidae (3 species, 2%). Among 141 listed species, 73 (51.8%) species are Not Evaluated (NE), 15 (10.6%) Least Concern (LC), 9 (6.4%) Vulnerable (VU), 3 (2.1%) Data Deficient (DD), 11 (7.8%) Critically Endangered (CR), 4 (2.8%) Near Threatened (NT), 18 (12.8%) Endangered (EN), 3 (2.1%) Extinct in the Wild (EW) and 5 (3.5%) Extinct of the Red List of IUCN. They inhabit in the fresh, brackish and marine waters of the United States, Middle America, the West Indies, parts of northern South America, North Africa, the Mediterranean Anatolian region, coastal areas of the Persian Gulf and Makran Sea (Oman Sea), the northern Arabian Sea east to Gujarat in India, and some endorheic basins of Iran, Pakistan and the Arabian Peninsula.

**Keywords:** Biodiversity, Conservation, Checklist, Cyprinodontiformes.

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## Introduction

Cyprinodontoid fishes (superfamily Cyprinodontoidae/pupfishes) are a diverse superfamily of Cyprinodontiformes inhabiting fresh, brackish and coastal marine waters of the United States, Middle America, the West Indies, parts of northern South America, North Africa, the Mediterranean Anatolian region, coastal areas of the Persian Gulf and Makran (Oman) Sea, the northern Arabian Sea east to Gujarat in India, and some endorheic basins of Iran, Pakistan and the Arabian Peninsula (see Nelson et al. 2016; Esmaili et al. 2017a; Freyhof et al. 2017a). Based on morphological characters, all members of this superfamily were placed in a single family,

Cyprinodontidae (Parenti 1981; Nelson et al. 2016). However, there have been controversial debates about the family group names of fishes placed in Cyprinodontidae. According to Nelson et al. (2016) Cyprinodontidae family comprises two subfamilies Cubanichthyinae (one genus, *Cubanichthys*, with two species) and Cyprinodontinae [with two tribes, Orestiini (with two genera of *Aphanius* and *Orestias*) and Cyprinodontini (with 6 genera, *Cualac*, *Cyprinodon*, *Floridichthys*, *Garmanella*, *Jordanella*, and *Megupsilon*)]. Eschmayer et al. (2018) included members of the family Cyprinodontidae in 4 subfamilies, Cubanichthyinae (3 species), Cyprinodontinae (54 species), Orestiinae (46 species), and

Aphaniinae (38 species). Freyhof et al. (2017b), based on concepts proposed by Parenti (1981), Costa (2015), Pohl et al. (2015), Helmstetter et al. (2016) and Reznick et al. (2017) considered all the cyprinodontid fishes in 4 families: Aphaniidae (with 1 genus, *Aphanius*), Cubanichthyidae (with 1 genus, *Cubanichthys*), Cyprinodontidae (with 5 genera, *Cualac*, *Cyprinodon*, *Floridichthys*, *Jordanella* and *Megupsilon*) and Orestiidae (with 1 genus, *Orestias*). Here, we follow Freyhof et al. (2017b) and also Bragança et al. (2018).

### Materials and Methods

This checklist has been compiled from the works listed in the references (see selected bibliography, e.g., Miller 1943, 1948, 1956, 1968, 1976; Tchernavin 1944; Humphries & Miller 1981; Lauzanne 1981; Parenti 1981, 1984; Coad 1988, 2009; Lozano-Vilano & Contreras-Balderas 1993; Cruz-Jofré et al. 2013; Costa 2015; Esmaeili et al. 2012, 2014, 2017; Gholami et al. 2014; Teimori et al. 2011, 2012, 2014; Freyhof et al. 2017a, b; Eschmeyer et al. 2018) and material deposited in the ZM-CBSU, Zoological Museum of Shiraz University, Collection of Biology Department, Shiraz. Genera and species were arranged alphabetically; scientific names and authorities were corroborated following Eschmeyer et al. (2018). English/common names are given. The IUCN Red List of Threatened Species was followed to show conservation status of each species.

### Results

The cyprinodontid fishes (superfamily Cyprinodontoidea/pupfishes) of the world comprise 141 species in 8 genera and 4 families (Fig. 1). The most diverse family is Cyprinodontidae (54 species, 38%), followed by Orestiidae (45 species, 32%), Aphaniidae (39 species, 28%), and Cubanichthyidae (3 species, 2%). Among 141 listed species, 73 (51.8%) species are Not Evaluated (NE), 15 (10.6%) Least Concern (LC), 9 (6.4%) Vulnerable (VU), 3 (2.1%) Data Deficient (DD), 11 (7.8%) Critically Endangered (CR), 4 (2.8%) Near Threatened (NT),

18 (12.8%) Endangered (EN), 3 (2.1%) Extinct in the Wild (EW) and 5 (3.5%) Extinct of the Red List of IUCN (Fig. 2).

### Superfamily Cyprinodontoidea

**Family Aphaniidae Hoedeman, 1949** (1 genus and 39 species)

**Genus *Aphanius* Nardo, 1827**

*Aphanius* Nardo [G. D.] 1827:34, 39-40. Masc. *Aphanius nanus* Nardo, 1827. Type by subsequent designation. Also in Isis, v. 20:482 (seen). Type designated by Jordan 1917:121. Proposal submitted to the ICZN to conserve this name (Kottelat & Wheeler 2001:110); conserved in Opinion 2057. Name was placed on the Official List of Specific Names in Zoology (Opinion 2057).

**Comment:** *Lebias* Goldfuss [G. A.] 1820. Masc. *Lebias fasciata* Valenciennes 1821. Type by subsequent designation. Formerly placed in the genera *Lebias* Goldfuss, 1820 or *Cyprinodon* Lacepède, 1809.

1. ***Aphanius almiriensis* Kottelat, Barbieri & Stoumboudi, 2007**

*Aphanius almiriensis*, Kottelat [M.], Barbieri [R.] & Stoumboudi [M. T.] 2007:15, figs. 1-2 (left) [Revue Suisse de Zoologie v. 114 (no. 1)].

**EN:** Almiri tooth-carp.

**Type locality:** Brackish water spring Kokosi at southern end of Almiri beach, at Kato Almiri, about 4 kilometers south of Loutra Elenis, 37°50'32"N, 23°00'58"E, Korinthia District, Peloponnese, Greece. Holotype: MHNG 2654.087.

**Distribution:** Greece.

**IUCN:** Critically Endangered.

2. ***Aphanius anatoliae* (Leidenfrost, 1912)**

*Cyprinodon anatoliae*, Leidenfrost [G.] 1912:159, fig. 1, p. 130 of Hungarian text [Allatani Közlemények, Budapest. v. 11].

**EN:** Lake Tuz tooth-carp.

**Type locality:** Near the village Jazla Jayla, near the Kradzsa Da mountain, Asia Minor.

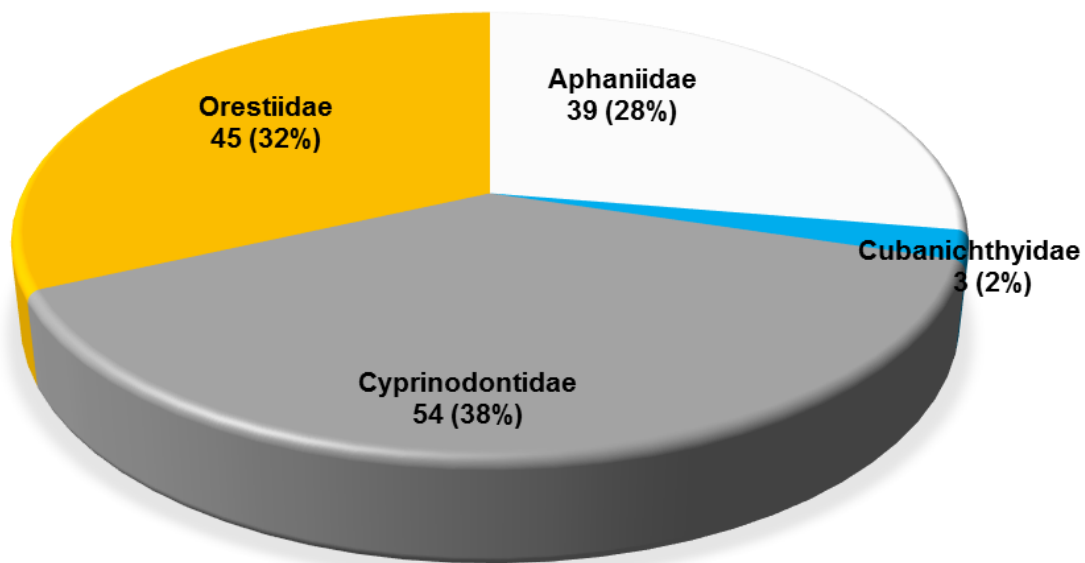


Fig.1. Number of fish species in different families.

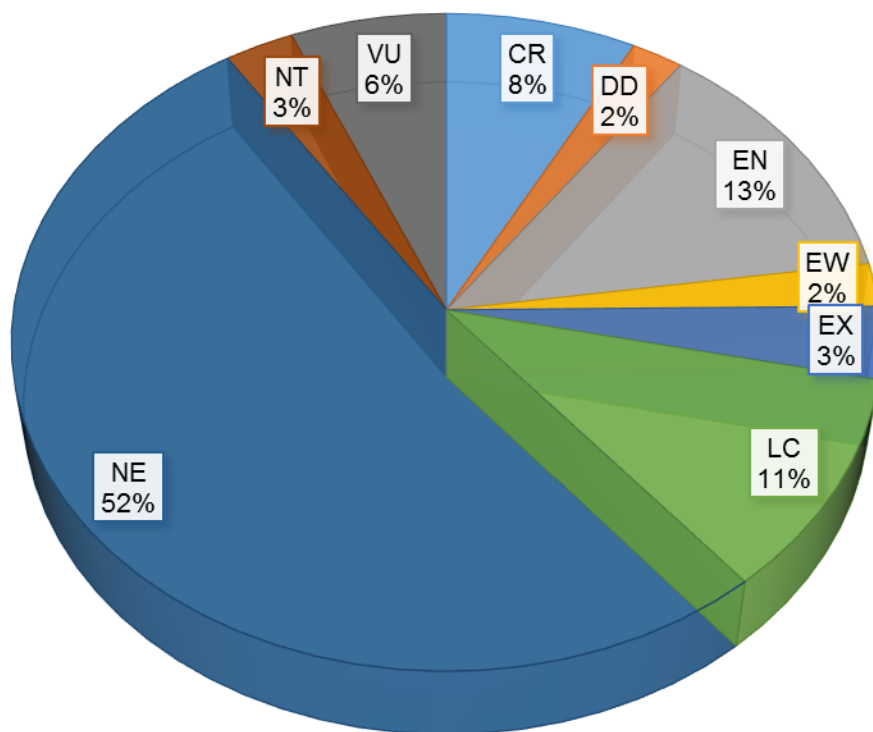


Fig.2. Percentage of fish species in different IUCN categories.

**Distribution:** Turkey.  
**IUCN:** Near Threatened.

**3. *Aphanius apodus*** (Gervais, 1853)  
*Telliaapoda*, Gervais [F. L. P.] 1853:15 [Annales des Sciences Naturelles, Paris (Zoologie) (Sér. 3) v. 19].

Syntypes: MNHN 0000-4307 (12), ZMB 3497 (2).  
**EN:** Algerian tooth-carp, Atlaskaerpfling  
**Type locality:** Springs of Tell, south of Constantine, Algeria.  
**Distribution:** Algeria.  
**IUCN:** Data Deficient.

**4. *Aphanius arakensis*** Teimori, Esmaeili, Gholami, Zarei & Reichenbacher, 2012

*Aphanius arakensis*, Teimori [A.], Esmaeili [H. R.], Gholami [Z.], Zarei [N.] & Reichenbacher [B.] 2012:62, figs. 2A, B, 5 [ZooKeys No. 215].

**EN:** Arak tooth-carp.

**Type locality:** Small pond, Namak Lake basin, 34°00'N, 49°50'E, 5 km southeast of the city of Arak, Iran, elevation 1786 meters. Holotype: ZM-CBSU 10999.

**Distribution:** Namak Lake basin, Iran.

**IUCN:** Not Evaluated.

**5. *Aphanius asquamatus*** (Sözer, 1942)

*Kosswigichthys asquamatus*, Sözer [F.] 1942:308, fig. 2 [Revue de la Faculté des Sciences de l'Université d'Istanbul, Série B: Sciences Naturelles v. 7 (f. 4)].

**EN:** Hazer tooth-carp.

**Type locality:** Lake Hazer, Elazig District (38°30'N, 39°25'E), Anatolia, Turkey. Syntypes: (20) MSNG 36472 (3).

**Distribution:** Turkey.

**IUCN:** Least Concern.

**6. *Aphanius baeticus*** Doadrio, Carmona & Fernández-Delgado, 2002

*Aphanius baeticus*, Doadrio [I.], Carmona [J. A.] & Fernández-Delgado [C.] 2002:74, figs. 3, 4a [Folia Zoologica: International Journal of Vertebrate Zoology. v. 51 (no. 1)].

**EN:** Iberian tooth-carp.

**Type locality:** Salgado River (Guadalquivir basin), Lebrija, Sevilla, Spain; elevation 20 meters. Holotype: MNCN 170691.

**Distribution:** Spain.

**IUCN:** Endangered.

**7. *Aphanius chantrei*** (Gaillard, 1895)

*Cyprinodon chantrei*, Gaillard [C.] 1895:10, figs. 8-9 [Archives du Muséum d'Histoire Naturelle de Lyon v. 6 (no. 2)].

**EN:** Dislisazancik Baligi.

**Type locality:** Spring in Sandarémek village, Evérek, Asia Minor. Syntypes: BMNH 1896.1.29.1-5 (5).

**Distribution:** Central Turkey [if valid].

**IUCN:** Least Concern.

**Remarks:** The validity of this species is under question. It might be considered as synonym of *Aphanius danfordii* (Boulenger 1890) (see Huber 2015; Freyhof et al. 2017b).

**8. *Aphanius danfordii*** (Boulenger, 1890)

*Cyprinodon danfordii*, Boulenger [G. A.] 1890:169 [Annals and Magazine of Natural History (Series 6) v. 6 (no. 32) (art. 19)].

**EN:** Sultan Sazlığı tooth-carp.

**Type locality:** Albistan [= Elbistan-Kahramanmaraş], Asia. Lectotype: BMNH 1879.6.7.5.

**Distribution:** Turkey.

**IUCN:** Critically Endangered.

**9. *Aphanius darabensis*** Esmaeili, Teimori, Gholami & Reichenbacher, 2014

*Aphanius darabensis*, Esmaeili [H. R.], Teimori [A.], Gholami [Z.] & Reichenbacher [B.] 2014:254, figs. 2-3, 4A-E [Zootaxa 3786 (no. 3)].

**EN:** Darab tooth-carp, Kol tooth-carp.

**Type locality:** Fars, Darab, Korsiah Banaki spring-stream system, Kol River, 28°46'24.96"N, 54°23'35.48"E, Iran, altitude 1027 meters. Holotype: ZM-CBSU 9713.

**Distribution:** Hormuz (Kol River drainages) basin, Iran.

**IUCN:** Not Evaluated.

**10. *Aphanius dispar*** (Rüppell, 1829)

*Lebias dispar*, Rüppell [W. P. E. S.] 1829:66, Pl. 18 (figs. 1-2) [Atlas zu der Reise im nördlichen Africa. Fische des Rothen Meeres].

**EN:** Common tooth-carp.

**Type locality:** Red Sea. Lectotype: SMF 821. Paralectotypes: BMNH 1860.11.9.152 (3) Abyssinia, Rüppell coll., SMF 1988 (10). Lectotype designated by Villwock et al. 1983:246.

**Distribution:** Red and Mediterranean Sea basins.

**IUCN:** Least Concern.

**Comment:** Freyhof et al. (2017a) recognised eight species in the *Aphanius dispar* group: *Aphanius dispar* from the Red and Mediterranean Sea basins, *A. furcatus* from few streams and springs in Iran, *A. ginaonis* from one spring in Iran, *Aphanius kruppi*, from the Wadi al Batha drainage, in northern Oman, *A. richardsoni* from springs in the Dead Sea basin in Jordan, *A. sirhani* from the Azraq Oasis in Jordan, *A. stiassnyae* from one lake in Ethiopia and *A. stoliczkanus* from coastal areas of the Persian Gulf, the northern Arabian Sea east to Gujarat in India, the Makran Sea and some endorheic basins in Iran and Pakistan. According to them, it likely that two additional unidentified species occur in the Red Sea basin based on the molecular genetic data available to them.

**11. *Aphanius farsicus*** Teimori, Esmaeili & Reichenbacher, 2011

*Aphanius farsicus*, Teimori [A.], Esmaeili [H. R.] & Reichenbacher [B.] 2011:55, figs. 2-3 [Zootaxa No. 3096].

**EN:** Fars tooth-carp.

**Type locality:** Spring on the edge of Shiraz [Maharlu] Lake, southern Iran. Syntypes: ZSI F9403-04 (2).

**Distribution:** Lake Maharlu basin, Iran.

**IUCN:** Not Evaluated. But should be considered as Critically Endangered.

**Comment:** Replacement name for *Aphanius persicus* (Jenkins 1910), preoccupied by *Aphanius persicus* (Priem, 1908) in fossil fishes.

**12. *Aphanius fasciatus*** (Valenciennes, 1821)

*Lebias fasciata*, Valenciennes [A.] in Humboldt & Valenciennes 1821:160, Pl. 51 (fig. 4) [Voyage de Humboldt et Bonpland v. 2 (title page 1833)].

**EN:** South European tooth-carp.

**Type locality:** Salt works of Cagliari, Sardinia. Neotype: MNHN 2005-1975.

**Distribution:** Estuaries and coastal watersheds of the Mediterranean Sea, endemic; introduced elsewhere.

**IUCN:** Least Concern.

**Comment:** *Aphanius desioi* (Gianferrari, 1933) is a synonym (see Wildekamp et al. 1999; Kottelat et al. 2007).

**13. *Aphanius fontinalis*** Akşiray, 1948

*Aphanius chantrei fontinalis*, Akşiray [F.] 1948:128, Pl. 3 (figs. 28-32) [Revue de la Faculté des Sciences de l'Université d'Istanbul, Série B: Sciences Naturelles v. 13 (no. 2)].

**EN:** Burdur tooth-carp.

**Type locality:** Spring near Lake Yarisli (37°34'N, 29°53'E), southwest of Lake Burdur, Turkey. No types known.

**Distribution:** Burdur, Turkey.

**IUCN:** Not Evaluated.

**14. *Aphanius furcatus*** Teimori, Esmaeili, Erpenbeck & Reichenbacher, 2014

*Aphanius furcatus*, Teimori [A.], Esmaeili [H. R.], Erpenbeck [D.] & Reichenbacher [B.] 2014:329, figs. 2a-b, 3, 4a-d, 5a-e, 6a [Zoologischer Anzeiger v. 253].

**EN:** Scaleless tooth-carp.

**Type locality:** Shur River, along the Bandar Abbas–Minab road, 20 km East of Bandar Abbas (27°19'37.6"N, 56°28'10.2"E, altitude 2 m), Hormuzgan Province, Iran. Holotype: ZM-CBSU 225.

**Distribution:** Hormuz (Kol and Mehran River drainages) and Makran basins, southern Iran.

**IUCN:** Not Evaluated. But should be considered as Least Concern.

**15. *Aphanius ginaonis*** (Holly, 1929)

*Cyprinodon ginaonis*, Holly [M.] 1929:63 [2] [Anzeiger der Akademie der Wissenschaften in Wien, Mathematisch-Naturwissenschaftliche Klasse v. 66 (no. 7)].

**EN:** Geno (Genow) tooth-carp.

**Type locality:** Hot spring at Geno (Genow), north of Bandar Abbas, southern Iran. Syntypes: (3 in original) NMW 13800-03 (1, 1, 1, 1). On p. 2 of separate.

**Distribution:** Hormuz basin, Iran.

**IUCN:** Not Evaluated.

**16. *Aphanius iberus*** (Valenciennes, 1846)

*Cyprinodon iberus*, Valenciennes [A.] in Cuvier & Valenciennes 1846:160, Pl. 528 [Histoire naturelle des poissons v. 18].

**EN:** Spanish tooth-carp.

**Type locality:** Spain. Syntypes: MNHN 0185 (8).

**Distribution:** France [formerly], Spain, Algeria.

**IUCN:** Endangered.

**17. *Aphanius iconii*** Akşiray, 1948

*Aphanius burduricus iconii*, Akşiray [F.] 1948:134, Pl. 4 (figs. 43-46) [Revue de la Faculté des Sciences de l'Université d'Istanbul, Série B: Sciences Naturelles v. 13 (no. 2)].

**EN:** Konya tooth-carp.

**Type locality:** Spring Karaot at shore of Lake Eğirdir, about 4 km north of Yenice, Isparta Province, Turkey, 38°08.094'N, 30°54.443'E. Neotype: IUSHM 2017-1272.

**Distribution:** Lake Eğirdir and Lake Kovada basin, Isparta, Turkey.

**IUCN:** Not Evaluated.

**Comment:** See Freyhof et al. (2017a) for neotype designation for *A. iconii*.

**18. *Aphanius isfahanensis*** Hrbek, Keivany & Coad, 2006

*Aphanius isfahanensis*, Hrbek [T.], Keivany [Y.] & Coad [B. W.] 2006:245, figs. 2A, B [Copeia 2006 (no. 2)].

**EN:** Esfahan tooth-carp.

**Type locality:** Zayandeh Rud (Zayandeh River) at Varzaneh Bridge, 32°25'32"N, 52°39'14"E, Esfahan Province, Iran. Holotype: CMNFi 2004-0001.

**Distribution:** Esfahan basin, Iran.

**IUCN:** Not Evaluated.

**19. *Aphanius kavirensis*** Esmaeili, Teimori, Gholami & Reichenbacher, 2014

*Aphanius kavirensis*, Esmaeili [H. R.], Teimori [A.],

Gholami [Z.] & Reichenbacher [B.] 2014:259, figs. 4F-J, 6-7 [Zootaxa 3786 (no. 3)].

**EN:** Kavir tooth-carp.

**Type locality:** Semnan, Damghan, Cheshmeh Ali Spring, Kavir Basin, 36°16'45.6"N, 54°05'01.6"E, Iran, altitude 1569 meters. Holotype: ZM-CBSU 9587a.

**Distribution:** Cheshmeh Ali Spring in the Kavir basin, Iran.

**IUCN:** Not Evaluated. However, it is found only in the type locality with low number of individuals.

**20. *Aphanius kruppi*** Freyhof, Weissenbacher & Geiger, 2017

*Aphanius kruppi*, Freyhof [J.], Weissenbacher [A.] & Geiger [M.] 2017:561, figs. 2-5 [Zootaxa 4338 (no. 3)].

**EN:** Oman tooth-carp, Krupp's tooth-carp.

**Type locality:** Spring in Al Mudayrib, Oman, 22°36'46"N, 58°40'31"E. Holotype: ZFMK-ICH 103668.

**Distribution:** Wadi al Batha drainage, northern Oman.

**IUCN:** Not Evaluated.

**21. *Aphanius maeandricus*** Akşiray, 1948

*Aphanius chantrei maeandricus*, Akşiray [F.] 1948:125, Pl. 3 (figs. 35-37); figs. 20-21 [Revue de la Faculté des Sciences de l'Université d'Istanbul, Série B: Sciences Naturelles v. 13 (no. 2)].

**EN:** Menderes River tooth-carp.

**Type locality:** Springs of the Büyük Menderes River, near Isikli (38°19'N, 29°50'E) and Karakuyu (38°11'N, 29°55'E), Dinar, Turkey. No types known.

**Distribution:** Dinar, Turkey.

**IUCN:** Not Evaluated.

**22. *Aphanius marassantensis*** Pfliegerer, Geiger & Herder, 2014

*Aphanius marassantensis*, Pfliegerer [S. J.], Geiger [M. F.] & Herder [F.] 2014:571, figs. 2-4, 5F, 6G [Zootaxa 3887 (no. 5)].

**EN:** Kizilirmak tooth-carp.

**Type locality:** Ankara Province, Hirfanı Reservoir, 39°11'19"N, 33°34'45"E, Turkey. Holotype: ZFMK 66342 [ex FSJF 3455].

**Distribution:** Ankara, Kayseri, Kırşehir and Samsun Provinces, Turkey.

**IUCN:** Not Evaluated.

**23. *Aphanius mento*** (Heckel, 1843)

*Lebias mento* Heckel [J. J.] 1843:1089 [99] [Ichthyologie [von Syrien]. In Russegger v. 1 (pt 2)].

**EN:** Iridescent tooth-carp.

**Type locality:** Mossul, northern Iraq (36°18'N, 43°18'E). Possible syntypes: NMW 21699-704 (6), 59832 (21).

**Distribution:** Tigris River basin, southern Turkey, Iraq and Iran.

**IUCN:** Least Concern.

**Comment:** *Lebias cypris* Heckel, 1843 is a synonym.

**24. *Aphanius meridionalis*** Akşiray, 1948

*Aphanius chantrei meridionalis*, Akşiray [F.] 1948:131, Pl. 4 (figs. 47-48) [Revue de la Faculté des Sciences de l'Université d'Istanbul, Série B: Sciences Naturelles v. 13 (no. 2)].

**EN:** Lake Sögüt toth-carp.

**Type locality:** Lake Sögüt (37°04'N, 29°53'E) at border between Burdur District and Antalya District, Turkey. No types known.

**Distribution:** Antalya and Burdur Provinces, Turkey.

**IUCN:** Not Evaluated.

**25. *Aphanius mesopotamicus*** Coad, 2009

*Aphanius mesopotamicus*, Coad [B.W.] 2009:150, fig. 1 [ZooKeys No. 31].

**EN:** Mesopotamian tooth-carp.

**Type locality:** Khuzestan Province, canal branch of Karkheh River, 31°40'N, 48°35'E, Iran. Holotype: CMNFI 1979-0360A.

**Distribution:** Tigris-Euphrates basin: Iran and Iraq.

**IUCN:** Not Evaluated.

**26. *Aphanius pluristriatus*** (Jenkins, 1910)

*Cyprinodon pluristriatus*, Jenkins [J. T.] 1910:125,

Pl. 6 (fig. 5) [Records of the Indian Museum (Calcutta) v. 5 (art. 12)].

**EN:** Mond tooth-carp.

**Type locality:** East of Shiraz, stream running to Fussa [Fasa], southern Iran, elevation 5000 feet. Syntypes: ZSI F9408-9411 (4), F9412 (?).

**Distribution:** Mond River drainage, Persis (Persian Gulf basin), southern Iran.

**IUCN:** Not Evaluated.

**27. *Aphanius richardsoni*** (Boulenger, 1907)

*Cyprinodon richardsoni*, Boulenger [G. A.] 1907:412 [Zoology of Egypt: The fishes of the Nile].

**EN:** Dead Sea tooth-carp.

**Type locality:** Brine spring near Usdum, Dead Sea. Lectotype: BMNH 1856.5.2.4.

**Distribution:** Springs in the Dead Sea basin, Jordan.

**IUCN:** Endangered.

**28. *Aphanius saldae*** (Akşiray, 1955)

*Anatolichthys splendens saldae*, Akşiray [F.] 1955:58, Pl. 1 (figs. 1-2); figs 1-2 [Publications of the Hydrobiological Research Institute, Series B, Istanbul =İstanbul Üniversitesi Fen Fakültesi Hidrobioloji Araştırma Enstitüsü Yayınlarından Seri B. v. 3 (nos. 2-3)].

**EN:** Salda tooth-carp.

**Type locality:** Lake Salda near Yesilova (37°31'N, 29°39'E), Burdur District, Turkey.

**Distribution:** Salda Lake, Turkey.

**IUCN:** Not Evaluated.

**29. *Aphanius saourensis*** Blanco, Hrbek & Doadrio, 2006

*Aphanius saourensis*, Blanco [J. L.], Hrbek [T.] & Doadrio [I.] 2006:43, figs. 1, 4-5 [Zootaxa No. 1158].

**EN:** Sahara aphanius, Sahara tooth-carp.

**Type locality:** La tombe de Moché, Wadi (= Oued) Saoura, Mazzere, Algeria, 30°19'N, 02°16'W. Holotype: MNCN 246655.

**Distribution:** Oued Saoura basin, Algeria.

**IUCN:** Critically Endangered.

**30. *Aphanius shirini*** Gholami, Esmaeili, Erpenbeck & Reichenbacher, 2014

*Aphanius shirini*, Gholami [Z.], Esmaeili [H. R.], Erpenbeck [D.] & Reichenbacher [B.] 2014:132, figs. 3a-b [Journal of Zoological Systematics and Evolutionary Research = Zeitschrift für zoologische Systematik und Evolutionsforschung v. 52 (no. 2)].

**EN:** Shirin tooth-carp.

**Type locality:** Paselari spring of the Khosroshirin spring-stream system, Khosroshirin Village, Abadeh City, Fars Province, uppermost reaches of Kor River Basin, 30°53'29.5"N, 52°00'36.8"E, Iran, altitude 2327 meters. Holotype: ZM-CBSU, ZG151.

**Distribution:** Endemic to the Kor River basin but has been translocated to the Helleh River drainage (Persis), Iran.

**IUCN:** Not Evaluated.

**31. *Aphanius sirhani*** Villwock, Scholl & Krupp, 1983

*Aphanius sirhani*, Villwock [W.], Scholl [A.] & Krupp [F.] 1983:260, figs. 3-4 [Mitteilungen aus dem Hamburgischen Zoologischen Museum und Institut v. 80].

**EN:** Azraq tooth-carp.

**Type locality:** Azraq Oasis, 32°51'N, 36°49'E, Jordan. Holotype: ZMH 6444.

**Distribution:** Jordan.

**IUCN:** Critically Endangered.

**32. *Aphanius sophiae*** (Heckel, 1847)

*Lebias sophiae* Heckel [J. J.] 1847:267, Pl. 22 [Reisen in Europa, Asien und Africa v. 2 (pt 3)].

**EN:** Kor tooth-carp.

**Type locality:** Accepted locality: endorheic Kor River basin, north of Shiraz, Fars Province, Iran. Syntypes: NMW 14496 (6), 33616-23 (8), 60327 (8), 68283 (8), 75067 (7); ZMB 31377 (9).

**Distribution:** Endemic to the Kor River basin of Iran but has been translocated to the Persis and Tigris River basins, Iran.

**IUCN:** Not Evaluated.

**Comment:** *Lebias punctatus* Heckel, 1847, *Lebias*

*crystallodon* Heckel, 1847 and possibly *Cyprinodon blanfordii* Jenkins, 1910 are synonyms.

**33. *Aphanius splendens*** (Kosswig & Sözer, 1945)

*Anatolichthys splendens*, Kosswig [C.] & Sözer [F.] 1945:77, fig. 2 [Revue de la Faculté des Sciences de l'Université d'Istanbul, Série B: Sciences Naturelles v. 10 (no. 2)].

**EN:** Gölçük tooth-carp.

**Type locality:** Lake Gölçük, west of Isparta (37°44'N, 30°30'E), central Anatolia, Turkey. Lectotype: ZMH 3505.

**Distribution:** Lake Gölçük, Turkey.

**IUCN:** Extinct.

**Comment:** Extinct

**34. *Aphanius stiassnyae*** (Getahun & Lazara, 2001)

*Lebias stiassnyae*, Getahun [A.] & Lazara [K. J.] 2001:150, fig. 1 (lower) [Copeia 2001 (no. 1)].

**EN:** Lake Afdera killifish.

**Type locality:** Lake Afdera, 80 meters below sea level, southwestern part of lake where one of the hot springs joins the lake, about 13°10'N, 40°50'E, Afar Region, Ethiopia. Holotype: AMNH 223755.

**Distribution:** Lake Afdera, Ethiopia.

**IUCN:** Endangered.

**35. *Aphanius stoliczkanus*** (Day, 1872)

*Cyprinodon stoliczkanus*, Day [F.] 1872:258 [Journal of the Asiatic Society of Bengal v. 41 (pt 2, nos 1-4)].

**EN:** Stoliczka tooth-carp, Indian tooth-carp.

**Type locality:** Stream at the village Joorun and along edge of the Rann, Lodai, India. Syntypes: (28) AMS B.7730-31 (2), BMNH 1889.2.1.2065-2074 (orig. 21), ZSI 1477-78 (1, 1).

**Distribution:** Coastal areas of the Persian Gulf, northern Arabian Sea east to Gujarat, India.

**IUCN:** Least Concern.

**36. *Aphanius sureyanus*** (Neu, 1937)

*Cyprinodon sureyanus*, Neu [W.] 1937:109 [1] [Revue de la Faculté des Sciences de l'Université d'Istanbul, Série B: Sciences Naturelles v. 2 (no. 2)].



**EN:** Burdur tooth-carp.

**Type locality:** Lake Burdur (37°45'N, 30°15'E), southwestern Turkey. No types known.

**Distribution:** Lake Burdur, Burdur, Turkey.

**IUCN:** Endangered.

**Remark:** *Aphanius burduricus* Akşiray, 1948, is a synonym.

**37. *Aphanius transgrediens*** (Ermin, 1946)

*Turkichthys transgrediens*, Ermin [R.] 1946:244, figs. 38-45 [Revue de la Faculté des Sciences de l'Université d'Istanbul, Série B: Sciences Naturelles v. 11 (no. 4)].

**EN:** Aci Göl tooth-carp.

**Type locality:** Stream, fed by the Acipinar spring at the west end of Lake Aci, Denizli District (37°49'N, 29°43'E), Turkey.

**Distribution:** Afyonkarahisar Province, Turkey.

**IUCN:** Critically Endangered.

**38. *Aphanius villwocki*** Hrbek & Wildekamp, 2003

*Aphanius villwocki*, Hrbek [T.] & Wildekamp [R. H.] 2003:138, figs. 1-2 [Ichthyological Exploration of Freshwaters v. 14 (no. 2)].

**EN:** Sakarya tooth-carp.

**Type locality:** Pinarbasi, about 10.5 kilometers east of Emirdag, drainage canal of small spring pond, 39°02'53"N, 31°19'38"E, Turkey. Holotype: MRAC A1-30-P-1.

**Distribution:** Sakarya River basin, Afyonkarahisar and Konya Provinces, Turkey.

**IUCN:** Least Concern.

**39. *Aphanius vladkovi*** Coad, 1988

*Aphanius vladkovi*, Coad [B. W.] 1988:115, fig. 1 [Environmental Biology of Fishes v. 23 (no. 1-2)].

**EN:** Zagros tooth-carp.

**Type locality:** Large pool in Shahrestan-e Bakhtiari va Chahar Mahall, 3 kilometers west of Boldaji, Iran, 31°57'N, 51°01'E, elevation about 2380 meters. Holotype: NMC 79-0247.

**Distribution:** Tigris River basin, Iran.

**IUCN:** Not Evaluated.

Comment: More species to be described.

**Family Cubanichthyidae Parenti, 1981** (1 genus and 3 species)

**Genus *Cubanichthys*** Hubbs, 1926

*Cubanichthys* Hubbs [C. L.] 1926:4. Masc. *Fundulus cubensis* Eigenmann, 1903. Type by original designation (also monotypic).

**40. *Cubanichthys cubensis*** (Eigenmann, 1903)

*Fundulus cubensis*, Eigenmann [C. H.] 1903:222, fig. 1 [Bulletin of the U. S. Fish Commission v. 22 (1902)].

**EN:** Cuban killifish.

**Type locality:** Pinar del Rio, Cuba. Holotype: CAS [ex IU 9667], missing.

**Distribution:** River basins in Cuba and Isle of Pines.

**IUCN:** Not Evaluated.

**41. *Cubanichthys martae*** (Steindachner, 1875)

*Cyprinodon martae*, Steindachner [F.] 1876:610 [60] [Sitzungsberichte der Kaiserlichen Akademie der Wissenschaften. Mathematisch-Naturwissenschaftliche Classe v. 72 (1. Abth.)].

**EN:** Santa marta killifish.

**Type locality:** Santa Marta near the mouth of the Río Magdalena, Colombia. Holotype (unique): NMW 76519. On p. 60 of separate.

**Distribution:** Colombia.

**IUCN:** Not Evaluated.

**Comment:** Reis et al. (2003), Costa (2015), Freyhof et al. (2017b) considered *Yssolebias martae* as species of *Cubanichthys*.

**42. *Cubanichthys pengelleyi*** (Fowler, 1939)

*Chriopeoides pengelleyi*, Fowler [H. W.] 1939:5, figs. 3-4 [Notulae Naturae (Philadelphia) No. 35].

**EN:** Jamaican killifish.

**Type locality:** Jamaica. Holotype: ANSP 68632.

**Distribution:** River basins in western Jamaica.

**IUCN:** Not Evaluated.

**Family Cyprinodontidae Wagner, 1828** (5 genera and

54 species)

**Genus *Cualac*** Miller, 1956

*Cualac*, Miller [R. R.] 1956:1. Masc. *Cualac tessellatus* Miller, 1956. Type by original designation (also monotypic).

**43. *Cualac tessellatus*** Miller, 1956

*Cualac tessellatus*, Miller [R. R.] 1956:9, Pl. 1 [Occasional Papers of the Museum of Zoology University of Michigan No. 581].

**EN:** Checkered pupfish.

**Type locality:** Outlet ditch of La Media Luna, San Luis Potosí, Mexico, about 21°52'N, 100°02'W. Holotype: UMMZ 171135.

**Distribution:** Pánuco River basin, Atlantic Slope of Mexico.

**IUCN:** Endangered.

**Genus *Cyprinodon*** Lacepède, 1803

*Cyprinodon* Lacepède [B. G. E.] (ex Bosc) 1803:486. Masc. *Cyprinodon variegatus* Lacepède, 1803. Type by monotypy.

**44. *Cyprinodon albivelis*** Minckley & Miller, 2002

*Cyprinodon albivelis*, Minckley [W. L.] & Miller [R. R.] in Minckley, Miller & Norris 2002:697, fig. 4 [Copeia 2002 (no. 3)].

**EN:** Whitefin pupfish.

**Type locality:** Río Papigóchic at Yepomera, 28°32'W, 107°29'N, Chihuahua, Mexico, elevation 2048 meters. Holotype: UMMZ 235040.

**Distribution:** Río Papigóchic, Mexico.

**IUCN:** Not Evaluated.

**45. *Cyprinodon alvarezii*** Miller, 1976

*Cyprinodon alvarezii*, Miller [R. R.] 1976:72, fig. 1D [Bulletin of the Southern California Academy of Sciences v. 75 (no. 2)].

**EN:** Potosi pupfish.

**Type locality:** Spring-fed pond at El Potosí, Nuevo León, Mexico, 24°51'N, 100°19'W, elevation 1900 meters. Holotype: UMMZ 179638.

**Distribution:** El Potosí, Mexico [extinct in the wild].

**IUCN:** Extinct in the Wild.

**46. *Cyprinodon arcuatus*** Minckley & Miller, 2002  
*Cyprinodon arcuatus*, Minckley [W. L.] & Miller [R. R.] in Minckley, Miller & Norris 2002:699, fig. 5 [Copeia 2002 (no. 3)].

**EN:** Santa Cruz pupfish.

**Type locality:** Pond fed by Monkey Spring, tributary to Santa Cruz River, (Gila River basin), 12 kilometers north-northeast of Patagonia, Santa Cruz County, Arizona, U.S.A. Holotype: UMMZ 162700.

**Distribution:** Arizona (U.S.A.) and possibly northern Mexico [extinct in the wild].

**IUCN:** Extinct.

**47. *Cyprinodon artifrons*** Hubbs, 1936

*Cyprinodon variegatus artifrons*, Hubbs [C. L.] 1936:223, Pl. 6 (figs. 1-5) [Carnegie Institution of Washington Publications No. 457 (art. 17)].

**EN:** Yucatan pupfish.

**Type locality:** Small streams surrounding Progreso, Yucatán, Mexico. Holotype: UMMZ 102082.

**Distribution:** Coastal areas of Yucatán Peninsula: Belize and Mexico.

**IUCN:** Least Concern.

**48. *Cyprinodon atrorus*** Miller, 1968

*Cyprinodon atrorus*, Miller [R. R.] 1968:7, fig. 2 [Occasional Papers of the Museum of Zoology University of Michigan No. 659].

**EN:** Bolson pupfish.

**Type locality:** South of Cuatro Ciénegas, Coahuila, Mexico (specific locality unknown). Holotype: UMMZ 130380.

**Distribution:** Coahuila, Mexico.

**IUCN:** Least Concern.

**49. *Cyprinodon beltrani*** Álvarez, 1949

*Cyprinodon beltrani*, Álvarez [J.] 1949:236, fig. 1 [Revista de la Sociedad Mexicana de Historia Natural v. 10 (nos 1-4)].

**EN:** Blackfin pupfish.

**Type locality:** Lake Chichancanab, Quintana Roo,

Mexico. Holotype: whereabouts unknown.

**Distribution:** Atlantic slope, Lake Chichancanab, Mexico.

**IUCN:** Endangered.

**50. *Cyprinodon bifasciatus*** Miller, 1968

*Cyprinodon bifasciatus*, Miller [R. R.] 1968:1, fig. 1 [Occasional Papers of the Museum of Zoology University of Michigan No. 659].

**EN:** Cuatro Ciénegas pupfish.

**Type locality:** Río Puente Colorado, about 11 kilometers south of Cuatro Ciénegas, Río Mesquites system, Coahuila, Mexico. Holotype: UMMZ 179835.

**Distribution:** Thermal springs in Bolsón de Cuatro Ciénegas, Mexico.

**IUCN:** Least Concern.

**51. *Cyprinodon bobmilleri*** Lozano-Vilano & Contreras-Balderas, 1999

*Cyprinodon bobmilleri*, Lozano-Vilano [M. de L.] & Contreras-Balderas [S.] 1999:383, figs. 1 A-B, 2 [Copeia 1999 (no. 2)].

**EN:** San Ignacio pupfish.

**Type locality:** Manantial Baño de San Ignacio, near Linares, San Fernando basin, Nuevo León, Mexico. Holotype: UANL 11143.

**Distribution:** Manantial Baño de San Ignacio, Atlantic Slope of Mexico.

**IUCN:** Not Evaluated.

**52. *Cyprinodon bondi*** Myers, 1935

*Cyprinodon bondi*, Myers [G. S.] 1935:303 [Zoologica, Scientific Contributions of the New York Zoological Society v. 10 (no. 3)].

**EN:** Hispaniola pupfish.

**Type locality:** Étang Saumâtre, Haiti, West Indies. Holotype: USNM 100960 [ex NYZS].

**Distribution:** River basins of Hispanola: Dominican Republic and Haiti.

**IUCN:** Not Evaluated.

**53. *Cyprinodon bovinus*** Baird & Girard, 1853

*Cyprinodon bovinus*, Baird [S. F.] & Girard [C. F.] 1853:389 [Proceedings of the Academy of Natural Sciences of Philadelphia v. 6].

**EN:** Leon Springs pupfish.

**Type locality:** Leon Springs, about 7 kilometers north of Fort Stockton, Rio Grande del Norte, Texas, U.S.A. Syntypes: MCZ 1297 [ex USNM] (3), MNHN 0000-0448 [ex USNM] (1), USNM 154785 (1).

**Distribution:** Texas, U.S.A.

**IUCN:** Vulnerable.

**54. *Cyprinodon brontotheroides*** Martin & Wainwright, 2013

*Cyprinodon brontotheroides*, Martin [C. H.] & Wainwright [P. C.] 2013:237, figs. 2B, 3B, 4B [Bulletin of the Peabody Museum of Natural History v. 54 (no. 2)].

**EN:** Durophage pupfish.

**Type locality:** San Salvador Island, Crescent Pond, 1 km SE of the Greece Research Center, 24°06'45"N, 74°27'28"W, Bahamas. Holotype: YBM ICH 025878.

**Distribution:** San Salvador Island, Bahamas.

**IUCN:** Not Evaluated.

**55. *Cyprinodon ceciliae*** Lozano-Vilano & Contreras-Balderas, 1993

*Cyprinodon ceciliae*, Lozano-Vilano [M. de L.] & Contreras-Balderas [S.] 1993:305, figs. 3d, 4c [Ichthyological Exploration of Freshwaters v. 4 (no. 4)].

**EN:** Villa Lopez pupfish.

**Type locality:** Ojo de Agua la Presa, at San Juan de Avilés, 24°11'87"N, 100°04'34"W, Aramberri, Nuevo León, Mexico. Holotype: UANL 8287.

**Distribution:** Ojo de Agua La Presa spring, Mexico [Extinct].

**IUCN:** Extinct.

**56. *Cyprinodon dearborni*** Meek, 1909

*Cyprinodon dearborni*, Meek [S. E.] 1909:208 [Field Columbian Museum, Zoological Series v. 7 (no. 7)].

**EN:** Willemstad pupfish.

**Type locality:** Willemstad, Curaçao, Dutch West Indies. Holotype: FMNH 6484.

**Distribution:** Coastal habitats of northern South America: Colombia, Netherland Antilles and Venezuela.

**IUCN:** Not Evaluated.

**57. *Cyprinodon desquamator*** Martin & Wainwright, 2013

*Cyprinodon desquamator*, Martin [H. C.] & Wainwright [P. C.] 2013:233, figs. 3A, 4A, 5A. [Bulletin of the Peabody Museum of Natural History v. 54 (no. 2)].

**EN:** Scale-eating pupfish.

**Type locality:** San Salvador Island, Crescent Pond, 1 km SE of the Gerace Research Center, 24°06'45"N, 74°27'28"W, Bahamas. Holotype: YPM ICH 025880.

**Distribution:** San Salvador Island, Bahamas.

**IUCN:** Not Evaluated.

**58. *Cyprinodon diabolis*** Wales, 1930

*Cyprinodon diabolis*, Wales [J. H.] 1930:68 [Copeia 1930 (no. 3)].

**EN:** Devils Hole pupfish.

**Type locality:** Devils Hole, Ash Meadows, Nevada, U.S.A. Holotype: CAS-SU 23928.

**Distribution:** Devils Hole, Ash Meadows, Nye County, Nevada, U.S.A.

**IUCN:** Critically Endangered.

**59. *Cyprinodon elegans*** Baird & Girard, 1853

*Cyprinodon elegans*, Baird [S. F.] & Girard [C. F.] 1853:389 [Proceedings of the Academy of Natural Sciences of Philadelphia v. 6].

**EN:** Comanche Springs pupfish.

**Type locality:** Camanche Springs, Rio Grande del Norte, Texas, U.S.A. Syntypes: ANSP 7222 (1); BMNH 1883.12.14.198 [ex USNM] (1); MCZ 1299 (3), 1473 (2), 36009 [ex USNM 21321] (1); MNHN 0000-0450 [ex USNM 686] (1); UMMZ 56903 [ex USNM 686, old UMMZ 4047] (1); USNM 21320

[orig. 686] (1), 21321 [orig. 687] (18).

**Distribution:** Texas, U.S.A.

**IUCN:** Endangered.

**60. *Cyprinodon eremus*** Miller & Fuiman, 1987

*Cyprinodon macularius eremus*, Miller [R. R.] & Fuiman [L. A.] 1987:596, figs. 3-4 [Copeia 1987 (no. 3)].

**EN:** Quitobaquito pupfish.

**Type locality:** Spring-fed pond, Quitobaquito, Organ Pipe Cactus Natl. Monument, Pima County, Arizona, U.S.A., elevation 332 meters. Holotype: UMMZ 162661.

**Distribution:** Border area between Arizona, U.S.A. and northern Mexico.

**IUCN:** Endangered.

**61. *Cyprinodon esconditus*** Strecker, 2002

*Cyprinodon esconditus*, Strecker [U.] 2002:302, figs. 3-4 [Cybium v. 26 (no. 4)].

**EN:** Hidden pupfish.

**Type locality:** Southern end of Laguna Chichancanab at its broadest part, 19°51'10"N, 88°45'58"W, Yucatan Peninsula, Quintana Roo, Mexico. Holotype: IBUNAM-9488.

**Distribution:** Lake Chichancanab, Mexico.

**IUCN:** Not Evaluated.

**62. *Cyprinodon eximius*** Girard, 1859

*Cyprinodon eximius*, Girard [C. F.] 1859:158 [Proceedings of the Academy of Natural Sciences of Philadelphia v. 11 (nos. 60-77)].

**EN:** Conchos pupfish.

**Type locality:** Río Chihuahua [= Río Chuviscar at Chihuahua City], Mexico.

**Distribution:** Texas (U.S.A.) and northern Mexico. Syntypes: ANSP 7223 (1), MCZ 1308 [ex USNM] (1), MNHN 0000-0452 [ex USNM] (1).

**IUCN:** Near Threatened.

**63. *Cyprinodon fontinalis*** Smith & Miller, 1980

*Cyprinodon fontinalis*, Smith [M. L.] & Miller [R. R.] 1980:405, fig. 1 [Proceedings of the Biological

Society of Washington v. 93 (no. 2)].

**EN:** Carbonera pupfish.

**Type locality:** About 36 kilometers west of Villa Ahumada (30°35'N, 106°51'W), Mexico. Holotype: UMMZ 204189.

**Distribution:** Bolsón de los Muertos, Mexico.

**IUCN:** Endangered.

**64. *Cyprinodon higuey*** Rodriguez & Smith, 1990

*Cyprinodon higuey*, Rodriguez [C. M.] & Smith [M. L.] in Smith, Rodriguez & Lydeard 1990:3, figs. 2-4 [American Museum Novitates No. 2990].

**EN:** Black-and-blue pupfish.

**Type locality:** Laguna de Bávaro at village of Cabeza de Toro, Altagracia Province, Dominican Republic. Holotype: AMNH 58623.

**Distribution:** Coastal habitats in eastern Hispanola: Dominican Republic.

**IUCN:** Not Evaluated.

**65. *Cyprinodon inmemoriam*** Lozano-Vilano & Contreras-Balderas, 1993

*Cyprinodon inmemoriam*, Lozano-Vilano [M. de L.] & Contreras-Balderas [S.] 1993:299, fig. 3b [Ichthyological Exploration of Freshwaters v. 4 (no. 4)].

**EN:** Charco Azul pupfish.

**Type locality:** Ojo la Trinidad, 24°06.3'N, 100°03.3'W, interior basin of Llanos de Salas, Aramberri, Nuevo León, Mexico. Holotype (unique): UANL 8279.

**Distribution:** Ojo de Agua La Trinidad, Mexico [extinct].

**IUCN:** Extinct

**66. *Cyprinodon julimes*** De la Maza-Benignos & Vela-Valladares, 2009

*Cyprinodon julimes*, De la Maza-Benignos [M.] & Vela-Valladares [L.] in De la Maza-Benignos 2009:185[Apéndice D] [Los Peces del Río Conchos].

**EN:** Julimes pupfish.

**Type locality:** Thermal Spring, "El Pandeño de los Pando", Rio Conchos Basin, Municipality of Julimes,

Chihuahua, Mexico. Holotype: UANL 18721.

**Distribution:** Thermal spring, Rio Conchos Basin, Chihuahua, Mexico.

**IUCN:** Not Evaluated.

**67. *Cyprinodon labiosus*** Humphries & Miller, 1981  
*Cyprinodon labiosus*, Humphries [J. M.] & Miller [R. R.] 1981:55, figs. 3C, 4A, 5C [Copeia 1981 (no. 1)].

**EN:** Thicklip pupfish.

**Type locality:** Laguna Chichancanab, in lagoon at southern end on northern side of highway 184, Yucatán, Mexico. Holotype: UMMZ 203907.

**Distribution:** Lake Chichancanab, Mexico.

**IUCN:** Critically Endangered.

**68. *Cyprinodon laciniatus*** Hubbs & Miller, 1942

*Cyprinodon laciniatus*, Hubbs [C. L.] & Miller [R. R.] 1942:5, figs. 1A, C, E; Pl. 1 [Occasional Papers of the Museum of Zoology University of Michigan No. 458].

**EN:** Bahama pupfish.

**Type locality:** Lake Cunningham, New Providence Island, Bahamas. Holotype: UMMZ 134565.

**Distribution:** Bahamas.

**IUCN:** Not Evaluated.

**69. *Cyprinodon latifasciatus*** Garman, 1881

*Cyprinodon latifasciatus*, Garman [S.] 1881:92 [Bulletin of the Museum of Comparative Zoology v. 8 (no. 3)].

**EN:** Parras pupfish.

**Type locality:** Spring near Parras, Coahuila, Mexico.

**Distribution:** Parras, Coahuila, Mexico [extinct].

**IUCN:** Extinct.

**70. *Cyprinodon longidorsalis*** Lozano-Vilano & Contreras-Balderas, 1993

*Cyprinodon longidorsalis*, Lozano-Vilano [M. de L.] & Contreras-Balderas [S.] 1993:297, figs. 3a, 4a [Ichthyological Exploration of Freshwaters v. 4 (no. 4)].

**EN:** La Palma pupfish.

**Type locality:** Charco la Palma, 24°04'N,

100°05.3'W, interior basin of Llanos de Salas, Aramberri, Nuevo León, Mexico. Holotype: UANL 8281.

**Distribution:** Charco la Palma, Mexico [extinct in the wild].

**IUCN:** Extinct in the Wild.

**71. *Cyprinodon macrolepis* Miller, 1976**

*Cyprinodon macrolepis*, Miller [R. R.] 1976:74, fig. 1F [Bulletin of the Southern California Academy of Sciences v. 75 (no. 2)].

**EN:** Large scale pupfish.

**Type locality:** El Ojo de la Hacienda Dolores, a hot spring 12.5 kilometers south-southwest of Jiménez, Chihuahua, Mexico, elevation 1405 meters. Holotype: UMMZ 168982.

**Distribution:** El Ojo de la Hacienda Dolores and outlet, Atlantic Slope of Mexico.

**IUCN:** Endangered.

**72. *Cyprinodon macularius* Baird & Girard, 1853**

*Cyprinodon macularius*, Baird [S. F.] & Girard [C. F.] 1853:389 [Proceedings of the Academy of Natural Sciences of Philadelphia v. 6].

**EN:** Desert pupfish.

**Type locality:** Rio San Pedro, tributary to Gila River, Arizona, U.S.A. Syntypes: ANSP 7219 [ex USNM] (1);? MCZ 1313 (3), MCZ 1472 (2); USNM 992 (8, missing).

**Distribution:** Southwestern U.S.A. (Arizona and California) and northern Mexico.

**IUCN:** Vulnerable.

**73. *Cyprinodon maya* Humphries & Miller, 1981**

*Cyprinodon maya*, Humphries [J. M.] & Miller [R. R.] 1981:55, figs. 2B, 3B, 5B [Copeia 1981 (no. 1)].

**EN:** Maya pupfish.

**Type locality:** Laguna Chichancanab, in lagoon at southern end on northern side of highway 184, Yucatán, Mexico. Holotype: UMMZ 203903.

**Distribution:** Lake Chichancanab, Mexico.

**IUCN:** Endangered.

**74. *Cyprinodon meeki* Miller, 1976**

*Cyprinodon meeki*, Miller [R. R.] 1976:73, fig. 1E [Bulletin of the Southern California Academy of Sciences v. 75 (no. 2)].

**EN:** Mezquital pupfish.

**Type locality:** Pond fed by hot springs, tributary to Río del Tunal, about 9 kilometers east of Durango City, Durango, Mexico, elevation about 1880 meters.

**Holotype:** UMMZ 197420.

**Distribution:** Headwaters of Mezquital River, Mexico.

**IUCN:** Critically Endangered.

**75. *Cyprinodon nazas* Miller, 1976**

*Cyprinodon nazas*, Miller [R. R.] 1976:72, fig. 1C [Bulletin of the Southern California Academy of Sciences v. 75 (no. 2)].

**EN:** Nazas pupfish.

**Type locality:** Río Nazas near its mouth at San Miguel, near edge of Laguna Mayrán, Coahuila, Mexico, elevation 1092 meters. Holotype: UMMZ 197419.

**Distribution:** Mexico.

**IUCN:** Least Concern.

**76. *Cyprinodon nevadensis* Eigenmann & Eigenmann, 1889**

*Cyprinodon nevadensis*, Eigenmann [C. H.] & Eigenmann [R. S.] 1889:270 [Proceedings of the California Academy of Sciences (Series 2) v. 1].

**EN:** Amargosa pupfish.

**Type locality:** Saratoga Spring, south arm of Death Valley, Inyo County, California, U.S.A. Syntypes: CAS 580 (3, lost in 1906).

**Distribution:** Nevada and California, U.S.A.; Saratoga Spring and adjoining lakes, California [subspecies *nevadensis*].

**IUCN:** Vulnerable.

**77. *Cyprinodon nichollsi* Smith, 1989**

*Cyprinodon nichollsi*, Smith [M. L.] 1989:3, fig. 1 [American Museum Novitates No. 2953].

**EN:** Jaragua pupfish.

**Type locality:** Sandy beach at Laguna de Oviedo, 4 kilometers east of Oviedo on hyw 44, Jaragua Natl. Park, Dominican Republic. Holotype: AMNH 58278.

**Distribution:** Coastal habitats in southern Hispanola: Dominican Republic.

**IUCN:** Not Evaluated.

**78. *Cyprinodon pachycephalus*** Minckley & Minckley, 1986

*Cyprinodon pachycephalus*, Minckley [W. L.] & Minckley [C. O.] 1986:184, figs. 1-2 [Copeia 1986 (no. 1)].

**EN:** Bighead pupfish.

**Type locality:** Baños de San Diego, east of Chihuahua, Mexico, 28°35.5'N, 105°32.5'W, elevation about 1140 meters. Holotype: UMMZ 213401.

**Distribution:** San Diego de Alcalá, Atlantic Slope of Mexico.

**IUCN:** Critically Endangered.

**79. *Cyprinodon pecosensis*** Echelle & Echelle, 1978

*Cyprinodon pecosensis*, Echelle [A. A.] & Echelle [A. F.] 1978:573, figs. 2-3 [Copeia 1978 (no. 4)].

**EN:** Pecos pupfish.

**Type locality:** Oxbow of Pecos River at Bitter Lake National Wildlife Refuge, Chaves County, New Mexico, U.S.A. Holotype: TU 97127.

**Distribution:** Texas and New Mexico (reduced range), U.S.A.

**IUCN:** Vulnerable.

**80. *Cyprinodon pisteri*** Miller & Minckley, 2002

*Cyprinodon pisteri*, Miller [R. R.] & Minckley [W. L.] in Minckley, Miller & Norris 2002:687, figs. 1-2 [Copeia 2002 (no. 3)].

**EN:** Palomas pupfish.

**Type locality:** Ojo de Palomas Viejo (now dry), 5.2 kilometers south of Las Palomas, 31°45'N, 107°40'W, Chihuahua, Mexico. Holotype: UMMZ 162629.

**Distribution:** Northern Chihuahua, Mexico and

southwestern New Mexico (U.S.A.) [introduction].

**IUCN:** Not Evaluated.

**81. *Cyprinodon radiosus*** Miller, 1948

*Cyprinodon radiosus*, Miller [R. R.] 1948:87, Pl. 9 [Miscellaneous Publications, Museum of Zoology, University of Michigan No. 68].

**EN:** Owens pupfish.

**Type locality:** Northwestern spring-feeder of Fish Slough, about 10 miles north of Bishop, Mono County, California, U.S.A. Holotype: UMMZ 146653.

**Distribution:** Owens Valley, California, U.S.A.

**IUCN:** Endangered.

**82. *Cyprinodon riverendi*** (Poey, 1860)

*Trifarcus riverendi*, Poey [F.] 1860:306 [Memorias sobre la historia natural de la Isla de Cuba v. 2].

**EN:** Havana pupfish

**Type locality:** Havana, Cuba. No types known.

**Distribution:** Coastal habitats of Cuba and Hispanola and adjacent small islands, Grand Cayman Island and Florida Keys.

**IUCN:** Not Evaluated.

**83. *Cyprinodon rubrofluviatilis*** Fowler, 1916

*Cyprinodon bovinus rubrofluviatilis*, Fowler [H. W.] 1916:430, fig. 4 [Proceedings of the Academy of Natural Sciences of Philadelphia v. 68].

**EN:** Red River pupfish.

**Type locality:** Rio Brazos, between Seymour and Authon, Texas, U.S.A. Holotype: ANSP 20266 (missing).

**Distribution:** Oklahoma and Texas, U.S.A.

**IUCN:** Least Concern.

**84. *Cyprinodon salinus*** Miller, 1943

*Cyprinodon salinus*, Miller [R. R.] 1943:69, fig. 1; Pl. 1 [Copeia 1943 (no. 2)].

**EN:** Salt Creek pupfish.

**Type locality:** Salt Creek, Death Valley, Inyo County, California, U.S.A. Holotype: UMMZ 132940.

**Distribution:** Salt Creek, Death Valley, Inyo County, California, U.S.A.

**IUCN:** Endangered.

**85. *Cyprinodon salvadori*** Lozano-Vilano 2002

*Cyprinodon salvadori*, Lozano-Vilano [M. de L.] 2002:17, figs. 2 A-B [Libro jubilar en honor al Dr. Salvador Contreras Balderas 2002].

**EN:** Bocochoi pupfish.

**Type locality:** Rio Santa Rosa (Bocochoic), "a 15.3 kilometers antes de llegar a Carichic" (San Juanito) Chihuahua, Mexico, 27°55'35"N, 107°11'01"W. Holotype: UANL 6999.

**Distribution:** Río Santa Rosa, Mexico.

**IUCN:** Not Evaluated.

**86. *Cyprinodon simus*** Humphries & Miller, 1981

*Cyprinodon simus*, Humphries [J. M.] & Miller [R. R.] 1981:60, figs. 3D, 4B, 5D [Copeia 1981 (no. 1)].

**EN:** Boxer pupfish.

**Type locality:** Chichancanab Lagoon, in lagoon at southern end on northern side of highway 184, Yucatán, Mexico. Holotype: UMMZ 203905.

**Distribution:** Laguna Chichancanab, Mexico.

**IUCN:** Endangered.

**87. *Cyprinodon suaviium*** Strecker, 2005

*Cyprinodon suaviium*, Strecker [U.] 2005:109, figs. 2-3 [Hydrobiologia No. 541].

**EN:** Yucatan pupfish.

**Type locality:** Dead end of road from Rancho Santa Cruz, 19°56'46"N, 88°45'52"W, Laguna Chichancanab, Yucatan Peninsula, Quintana Roo, Mexico. Holotype: IBUNAM-P13985.

**Distribution:** Laguna Chichancanab, Yucatan Peninsula, Mexico.

**IUCN:** Not Evaluated.

**88. *Cyprinodon tularosa*** Miller & Echelle, 1975

*Cyprinodon tularosa*, Miller [R. R.] & Echelle [A. A.] 1975:366, fig. 1 [Southwestern Naturalist v. 19 (no. 4)].

**EN:** White Sands pupfish.

**Type locality:** Malpais Spring, about 26 kilometers west-southwest of Three Rivers, Otero County, Tularosa basin, New Mexico, elevation about 1275 meters. Holotype: UMMZ 162610.

**Distribution:** Tularosa Valley, New Mexico, U.S.A.

**IUCN:** Endangered.

**89. *Cyprinodon variegatus*** Lacepède, 1803

*Cyprinodon variegatus*, Lacepède [B. G. E.] 1803:486, 487, Pl. 15 (fig. 1) [Histoire naturelle des poissons (Lacepède) v. 5].

**EN:** Sheepshead minnow.

**Type locality:** Carolinas, U.S.A. No types known.

**Distribution:** Massachusetts to northeastern Mexico; also Antilles.

**IUCN:** Least Concern.

**90. *Cyprinodon verecundus*** Humphries, 1984

*Cyprinodon verecundus*, Humphries [J. M.] 1984:62, fig. 2 [Copeia 1984 (no. 1)].

**EN:** Largefin pupfish.

**Type locality:** Chichancanab Lagoon, main body of water, about 3.6 kilometers from northern end of basin, Yucatán, Mexico. Holotype: UMMZ 207694.

**Distribution:** Laguna Chichancanab, Mexico.

**IUCN:** Critically Endangered.

**91. *Cyprinodon veronicae*** Lozano-Vilano & Contreras-Balderas, 1993

*Cyprinodon veronicae*, Lozano-Vilano [M. de L.] & Contreras-Balderas [S.] 1993:303, figs. 3c, 4b [Ichthyological Exploration of Freshwaters v. 4 (no. 4)].

**EN:** Charco Palma pupfish.

**Type locality:** Ojo de Agua Charco Azul (= Barreno), 24°09.8'N, 100°03.7'W, Aramberri, Nuevo León, Mexico. Holotype: UANL 8291.

**Distribution:** Ojo de Agua Charco Azul, Mexico.

**IUCN:** Critically Endangered.

**Genus *Floridichthys*** Hubbs, 1926

*Floridichthys* Hubbs [C. L.] 1926:16. Masc. *Cyprinodon carpio* Günther 1866. Type by original



designation (also monotypic). Type designated as "*Cyprinodon mydrus* Goode & Bean = *Cyprinodon carpio* Günther" 1866.

**92. *Floridichthys carpio*** (Günther, 1866)

*Cyprinodon carpio*, Günther [A.] 1866:306 [Catalogue of the fishes in the British Museum v. 6].

**EN:** Goldspotted killifish.

**Type locality:** America [U.S.A.] (exact locality unknown). Syntypes: BMNH 1855.9.19.821-825 (5).

**Distribution:** Western Atlantic: Florida and Mexico.

**IUCN:** Least Concern.

**93. *Floridichthys polyommus*** Hubbs, 1936

*Floridichthys carpio polyommus*, Hubbs [C. L.] 1936:214, Pl. 3 (figs. 1-3) [Carnegie Institution of Washington Publications No. 457 (art. 17)].

**EN:** Ocellated killifish.

**Type locality:** Ocean beach near Champoton, Campeche, Yucatán, Mexico. Holotype: UMMZ 102186.

**Distribution:** Coastal habitats of Yucatán Peninsula: Belize, Honduras and Mexico.

**IUCN:** Least Concern.

**Genus *Jordanella*** Goode & Bean, 1879

*Jordanella* Goode [G. B.] & Bean [T. H.] in Goode 1879:117. Fem. *Jordanella floridae* Goode & Bean 1879. Type by monotypy.

**94. *Jordanella floridae*** Goode & Bean, 1879

*Jordanella floridae*, Goode [G. B.] & Bean [B. A.] in Goode 1879:117 [Proceedings of the United States National Museum v. 2 (no. 73)].

**EN:** Flagfish.

**Type locality:** Lake Monroe, Florida, U.S.A. Syntypes: USNM 18062 [= 22903] (3).

**Distribution:** Florida, U.S.A.; introduced elsewhere.

**IUCN:** Not Evaluated.

**95. *Jordanella pulchra*** (Hubbs, 1936)

*Garmanella pulchra* Hubbs [C. L.] 1936:219, Pl. 5 (figs. 1-10) [Carnegie Institution of Washington

Publications No. 457 (art. 17)] 5 kilometers east of Progreso, Yucatán, Mexico. Holotype: UMMZ 102148. Paratypes: MCZ 33179 (26); UMMZ 102149 (orig. 36, now 34); USNM 117542 (2); ZMA 102215 (10); plus additional material at UMMZ.

**EN:** Yucatán flagfish.

**Distribution:** Central America: coastal habitats of Yucatán Peninsula in Mexico and Belize.

**IUCN:** Not Evaluated.

**Genus *Megupsilon*** Miller & Walters, 1972

*Megupsilon* Miller [R. R.] & Walters [V.] 1972:2. Neut. *Megupsilon aporus* Miller & Walters 1972. Type by original designation (also monotypic).

**96. *Megupsilon aporus*** Miller & Walters, 1972

*Megupsilon aporus*, Miller [R. R.] & Walters [V.] 1972:5, fig. 3 [Contributions in Science (Los Angeles) No. 233].

**EN:** Catarina pupfish.

**Type locality:** El Potosí, Nuevo León, Mexico. Holotype: UMMZ 189018.

**Distribution:** Springs and outflows at El Potosí, Mexico.

**IUCN:** Extinct in the Wild.

**Family Orestiidae** (1 genus and 45 species)

**Genus *Orestias*** Valenciennes, 1839

*Orestias* Valenciennes [A.] 1839:118. Fem. *Orestias cuvieri* Valenciennes 1846. Type by subsequent designation. Appeared as above with sufficient characters to establish the genus but characters were not provided for the included species, and they date to 1846. Appeared in more detail in Valenciennes in Cuvier & Valenciennes 1846:221. Type designated by Bleeker 1864:140.

**97. *Orestias agassii*** Valenciennes, 1846

*Orestias agassii*, Valenciennes [A.] in Cuvier & Valenciennes 1846:238 [Histoire naturelle des poissons v. 18].

**EN:** Agassii pupfish.

**Type locality:** Río Corocoro, Peru; San Antonio,

Peru. Syntypes: BMNH uncat. (5) Tiripata; MNHN A-9601 (2) Rio Corocoro, A-9602 (6) San Antonio.

**Distribution:** Peruvian lakes, eastern Bolivia, northern Chile and upper Amazon River basin: Bolivia, Chile and Peru.

**IUCN:** Not Evaluated.

**98. *Orestias albus*** Valenciennes, 1846

*Orestias albus*, Valenciennes [A.] in Cuvier & Valenciennes 1846:242 [Histoire naturelle des poissons v. 18].

**EN:** Carache Amarillo.

**Type locality:** Tributaries of Lake Titicaca. Syntypes: MNHN A-9607 (2), ZMB 3491 (1).

**Distribution:** Lake Titicaca: Bolivia and Peru.

**IUCN:** Not Evaluated.

**99. *Orestias ascotanensis*** Parenti, 1984

*Orestias ascotanensis*, Parenti [L. R.] 1984:196, fig. 58 [Bulletin of the American Museum of Natural History v. 178 (art. 2)].

**EN:** Ascotán's pupfish.

**Type locality:** Lago Ascotán, Chile. Holotype: USNM 236790.

**Distribution:** Ascotán salt pan, Chilean Altiplano, Chile.

**IUCN:** Not Evaluated.

**100. *Orestias chungarensis*** Vila & Pinto, 1987

*Orestias chungarensis*, Vila [I.] & Pinto [M.] 1987:234, figs. 3-6 [Revue d'Hydrobiologie Tropicale v. 19 (nos 3-4) (for 1986)].

**EN:** Chungará pupfish.

**Type locality:** Western littoral region of Lake Chungará, Chile. Holotype: MNHNC 11210.

**Distribution:** Lake Chungará, Chilean Altiplano, Chile.

**IUCN:** Vulnerable.

**101. *Orestias crawfordi*** Tchernavin, 1944

*Orestias crawfordi*, Tchernavin [V. V.] 1944:226, fig. 25 [Proceedings of the Zoological Society of London v. 114 (pts 1-2)].

**EN:** Titicaca pupfish.

**Type locality:** Taman Bay, northeastern side of Capachica Peninsula, Lake Titicaca, depth 36-38 meters. Syntypes: (3) BMNH 1944.6.6.154-158 (? now 2).

**Distribution:** Lake Titicaca, Peru and Bolivia.

**IUCN:** Not Evaluated.

**102. *Orestias ctenolepis*** Parenti, 1984

*Orestias ctenolepis*, Parenti [L. R.] 1984:194, fig. 57 A-B [Bulletin of the American Museum of Natural History v. 178 (art. 2)].

**EN:** Zapatilla pupfish.

**Type locality:** Headwaters of the Río Zapatilla, Río Camellaque, Chucuito Province, Peru. Holotype: AMNH 52179.

**Distribution:** Lake Titicaca basin, Peru.

**IUCN:** Vulnerable.

**103. *Orestias cuvieri*** Valenciennes, 1846

*Orestias cuvieri*, Valenciennes [A.] in Cuvier & Valenciennes 1846:225, Pl. 532 [Histoire naturelle des poissons v. 18].

**EN:** Cuvier pupfish.

**Type locality:** Lake Titicaca, Peru. Syntypes: MNHN A-9593 (1), ZMB 3487 (1).

**Distribution:** Lake Titicaca: Bolivia and Peru.

**IUCN:** Data Deficient.

**104. *Orestias elegans*** Garman, 1895

*Orestias elegans*, Garman [S.] 1895:149 [Memoirs of the Museum of Comparative Zoology v. 19 (pt 1)].

**EN:** Elegant pupfish.

**Type locality:** Small lakes among headwaters of Río Rimac, Peru. Syntypes: BMNH 1939.7.17.3 [ex MCZ 27694] (1), MCZ 27694 (10).

**Distribution:** Santa Eulalia River, Pacific slope of Peru.

**IUCN:** Not Evaluated.

**105. *Orestias empyraeus*** Allen, 1942

*Orestias empyraeus*, Allen [W. R.] in Eigenmann & Allen 1942:367, Pl. 20 (fig. 2) [Fishes of western

South America].

**EN:** Andean killifish.

**Type locality:** Lago Junin, Peru. Holotype: CAS 44195 [ex IU 15238].

**Distribution:** Lake Junin and upper Amazon River basin, Peru.

**IUCN:** Near Threatened.

**106. *Orestias forgeti*** Lauzanne, 1981

*Orestias forgeti*, Lauzanne [L.] 1981:79, fig. 5 [Cybium 3e série. Bulletin de la Société Française d'Ichtyologie v. 5 (no. 3)].

**EN:** Tiquina pupfish.

**Type locality:** Tiquina, Lake Titicaca, Bolivia. Holotype: MNHN 1981-0603.

**Distribution:** Lake Titicaca: Bolivia and Peru.

**IUCN:** Not Evaluated.

**107. *Orestias frontosus*** Cope, 1876

*Orestias frontosus*, Cope [E. D.] 1876:187 [Journal of the Academy of Natural Sciences, Philadelphia. Second series. v. 8 (pt 2, art. 7)].

**EN:** Big forehead pupfish.

**Type locality:** Lake Titicaca, Bolivia. Syntypes: ANSP 21555-56 (2).

**Distribution:** Lake Titicaca: Bolivia and Peru.

**IUCN:** Not Evaluated.

**108. *Orestias gilsoni*** Tchernavin, 1944

*Orestias gilsoni*, Tchernavin [V. V.] 1944:217, figs. 20 [Proceedings of the Zoological Society of London v. 114 (pts 1-2)].

**EN:** Gilson pupfish.

**Type locality:** Taquiri Island, Lago Pequeño, southeastern Lake Titicaca, Bolivia, depth 2.7-2.8 meters. Lectotype: BMNH 1944.6.6.524.

**Distribution:** Lake Titicaca basin, Bolivia.

**IUCN:** Not Evaluated.

**109. *Orestias gloriae*** Vila, Scott, Méndez, Valenzuela, Iturra & Poulin, 2012

*Orestias gloriae*, Vila [I.], Scott [S.], Mendez [M. A.], Valenzuela [F.], Iturra [P.] & Poulin [E.] 2012:347,

figs. 2-4 [Ichthyological Exploration of Freshwaters v. 22 (no. 4)].

**EN:** Gloria pupfish.

**Type locality:** Springs of Carcote saltpan, 21°16'58.6"S, 68°19'28.4"W, Loa Province, Chile, elevation 3706 meters. Holotype: MNHNC 7424.

**Distribution:** Carcote saltpan springs, Loa Province, Chilean Altiplano, Chile.

**IUCN:** Not Evaluated.

**110. *Orestias gracilis*** Parenti, 1984

*Orestias gracilis*, Parenti [L. R.] 1984:172, fig. 37 [Bulletin of the American Museum of Natural History v. 178 (art. 2)].

**EN:** Slender pupfish.

**Type locality:** Northeastern side of Lago Pequeño, village of Huatajata, Lake Titicaca, Bolivia. Holotype: AMNH 52120.

**Distribution:** Lake Titicaca: Bolivia and Peru.

**IUCN:** Not Evaluated.

**111. *Orestias gymnota*** Parenti, 1984

*Orestias gymnotus*, Parenti [L. R.] 1984:192, fig. 55 [Bulletin of the American Museum of Natural History v. 178 (art. 2)].

**EN:** Andean killifish, naked pupfish.

**Type locality:** Near Quishuarcancha, northwest of Cerro de Pasco, Pasco Province, northern Peru, elevation about 4062 meters. Holotype: CAS 40700 [ex IU 16102].

**Distribution:** Upper Amazon River basin, Peru.

**IUCN:** Endangered.

**112. *Orestias hardini*** Parenti, 1984

*Orestias hardini*, Parenti [L. R.] 1984:193, fig. 56 [Bulletin of the American Museum of Natural History v. 178 (art. 2)].

**EN:** Hardin pupfish.

**Type locality:** Lago Yanacocha, about 10°S, 77°15'W, Peru. Holotype: AMNH 52178 [ex AMNH 38415].

**Distribution:** Yancococha and Llacsha lakes, Peru.

**IUCN:** Not Evaluated.

**113. *Orestias imarpe*** Parenti, 1984

*Orestias imarpe*, Parenti [L. R.] 1984:205, fig. 70 [Bulletin of the American Museum of Natural History v. 178 (art. 2)].

**EN:** Imarpe pupfish.

**Type locality:** Near village of Ojjerani, between Puno and Chucuito, Bahía de Puno, Lake Titicaca, Peru. Holotype: AMNH 52184.

**Distribution:** Lake Titicaca: Bolivia and Peru.

**IUCN:** Not Evaluated.

**114. *Orestias incae*** Garman, 1895

*Orestias incae*, Garman [S.] 1895:155, Pl. 3 (fig. 9) [Memoirs of the Museum of Comparative Zoology v. 19 (pt 1)].

**EN:** Deepwater pupfish, compressed pupfish.

**Type locality:** Bahía de Moho, Lake Titicaca, Peru. Syntypes: BMNH 1939.7.17.2 [ex MCZ 3948] (1), MCZ 3948 (17), USNM 120281 [ex MCZ 3948] (4).

**Distribution:** Lake Titicaca: Bolivia and Peru.

**IUCN:** Not Evaluated.

**115. *Orestias ispi*** Lauzanne, 1981

*Orestias ispi*, Lauzanne [L.] 1981:73, fig. 3 [Cybium 3e série. Bulletin de la Société Française d'Ichtyologie v. 5 (no. 3)].

**EN:** Taquile pupfish.

**Type locality:** Tiquina, Lake Titicaca, Bolivia. Holotype: MNHN 1981-0605.

**Distribution:** Lake Titicaca: Bolivia and Peru.

**IUCN:** Not Evaluated.

**116. *Orestias jussiei*** Valenciennes, 1846

*Orestias jussiei*, Valenciennes [A.] in Cuvier & Valenciennes 1846:235, Pl. 535 [Histoire naturelle des poissons v. 18].

**EN:** Bighead pupfish.

**Type locality:** Lake Titicaca; Río Guaracona; Lake Chinchoro, near Cuzco, Peru. Syntypes: MNHN A-9599 (3), A-9600 (3).

**Distribution:** Upper Amazon River basin, Peru.

**IUCN:** Not Evaluated.

**117. *Orestias lastarriae*** Philippi, 1876

*Oriastes lastarriae*, Philippi [R. A.] 1876:261 [Anales de la Universidad de Chile 48 (sec. 1)]. Original genus should have been *Orestias*; named for a man so specific name should be changed to *lastarriae*.

**EN:** Lastarria pupfish, Lima pupfish.

**Type locality:** Lakes east of Lima, Peru. Syntypes: whereabouts unknown.

**Distribution:** Peru.

**IUCN:** Not Evaluated.

**118. *Orestias laucaensis*** Arratia, 1982

*Orestias laucaensis*, Arratia [G.] 1982:103, fig. 5B [Peces del Altiplano de Chile v. 1].

**EN:** Corvinilla.

**Type locality:** Río Lauca, Parinacota, Chile, elevation about 4300 meters. Holotype: DBCUCH 160879.

**Distribution:** Lauca River basin, Chilean Altiplano, Chile.

**IUCN:** Near Threatened.

**119. *Orestias lutea*** Valenciennes, 1846

*Orestias luteus*, Valenciennes [A.] in Cuvier & Valenciennes 1846:243 [Histoire naturelle des poissons v. 18].

**EN:** Carache Amarillo pupfish.

**Type locality:** Lake Titicaca. Holotype (unique): MNHN A-9608.

**Distribution:** Lake Titicaca basin: Bolivia and Peru.

**IUCN:** Not Evaluated.

**Comment:** See Cruz-Jofré et al. (2013) for correct scientific name.

**120. *Orestias minima*** Tchernavin, 1944

*Orestias minimus*, Tchernavin [V. V.] 1944:216, fig. 19 [Proceedings of the Zoological Society of London v. 114 (pts 1-2)].

**EN:** Dwarf pupfish.

**Type locality:** Molinopampa, east of Juli, southeastern coast of Lake Titicaca, Bolivia. Holotype: BMNH 1944.6.6.532.

**Distribution:** Lake Titicaca basin: Bolivia and Peru.

**IUCN:** Not Evaluated.

**Comment:** See Cruz-Jofré et al. (2013) for correct scientific name.

**121. *Orestias minuta*** Tchernavin, 1944

*Orestias minutus*, Tchernavin [V. V.] 1944:215, fig. 18 [Proceedings of the Zoological Society of London v. 114 (pts 1-2)].

**EN:** Small pupfish.

**Type locality:** Uruni Bay, north side of Capachica Peninsula, Lake Titicaca. Syntypes: BMNH 1944.6.6.159-160 (2).

**Distribution:** Lake Titicaca, Peru.

**IUCN:** Not Evaluated.

**Comment:** See Cruz-Jofré et al. (2013) for correct scientific name.

**122. *Orestias mooni*** Tchernavin, 1944

*Orestias mooni*, Tchernavin [V. V.] 1944:228, fig. 26 [Proceedings of the Zoological Society of London v. 114 (pts 1-2)].

**EN:** Moon pupfish.

**Type locality:** Cota Bay in Puno Bay, Lake Titicaca, Peru, depth 23 meters. Holotype: BMNH 1944.6.6.503.

**Distribution:** Lake Titicaca, Peru.

**IUCN:** Not Evaluated.

**123. *Orestias mulleri*** Valenciennes, 1846

*Orestias mulleri*, Valenciennes [A.] in Cuvier & Valenciennes 1846:240 [Histoire naturelle des poissons v. 18].

**EN:** Muller pupfish.

**Type locality:** Lake Titicaca near Guaichu, Peru, 15°32'S, 71°37'W. Syntypes: MNHN A-9605 (2).

**Distribution:** Lake Titicaca, Peru and Bolivia.

**IUCN:** Not Evaluated.

**124. *Orestias multiporis*** Parenti, 1984

*Orestias multiporis*, Parenti [L. R.] 1984:198, fig. 60 [Bulletin of the American Museum of Natural History v. 178 (art. 2)].

**EN:** Maravillas pupfish.

**Type locality:** Maravillas, near Río de Lampa, tributary to Lake Titicaca, Peru. Holotype: CAS 46166 [ex IU 16121].

**Distribution:** Lake Titicaca basin, Peru.

**IUCN:** Not Evaluated.

**125. *Orestias munda*** Parenti, 1984

*Orestias mundus*, Parenti [L. R.] 1984:199, fig. 61 [Bulletin of the American Museum of Natural History v. 178 (art. 2)].

**EN:** Cuzco pupfish.

**Type locality:** Cuzco, Peru. Holotype: FMNH 41135.

**Distribution:** Upper Amazon River basin, Peru.

**IUCN:** Not Evaluated.

**Comment:** See Cruz-Jofré et al. (2013) for correct scientific name.

**126. *Orestias olivaca*** Garman, 1895

*Orestias olivaceus*, Garman [S.] 1895:152 [Memoirs of the Museum of Comparative Zoology v. 19 (pt 1)].

**EN:** Olivaceus pupfish, Umayo pupfish.

**Type locality:** Lake Umayo, 9 miles northwest of and 400 feet higher than Lake Titicaca, Peru. Syntypes: BMNH 1939.7.17.1 [ex MCZ 3946] (1), MCZ 3946 (now 5).

**Distribution:** Lake Titicaca basin: Bolivia and Peru.

**IUCN:** Vulnerable.

**127. *Orestias parinacotensis*** Arratia, 1982

*Orestias parinacotensis*, Arratia [G.] 1982:100, fig. 5A [Peces del Altiplano de Chile v. 1].

**EN:** Parinacota pupfish.

**Type locality:** Bofedales de Parinacota, Chile, about elevation 4300 meters. Holotype: DBCUCH 190579.

**Distribution:** Parinacota River and Andean basin of Pacific slope of Chilean Altiplano, Chile.

**IUCN:** Data Deficient.

**128. *Orestias pentlandii*** Valenciennes, 1846

*Orestias pentlandii*, Valenciennes [A.] in Cuvier & Valenciennes 1846:230, Pl. 533 [Histoire naturelle des poissons v. 18].

**EN:** Pentlandi pupfish.

**Type locality:** Lake Titicaca. Syntypes: MNHN 0000-4415 (1), A-9594 (2); ZMB 3488 (1).

**Distribution:** Lake Titicaca and upper Amazon River basin: Bolivia and Peru.

**IUCN:** Vulnerable.

**129. *Orestias piacotensis*** Vila, 2006

*Orestias piacotensis*, Vila [I.] 2006:473, figs. 1-2 [Copeia 2006 (no. 3)].

**EN:** Piacota pupfish.

**Type locality:** Eastern littoral zone of Laguna Piacota, 18°11'49.8"S, 69°15'56.9"W, Arica County, Chile. elevation 4400 meters. Holotype: MNHNC P7222.

**Distribution:** Lake Piacota at the Altiplano, Parinacota Province, Chilean Altiplano, Chile.

**IUCN:** Not Evaluated.

**130. *Orestias polonorum*** Tchernavin, 1944

*Orestias polonorum*, Tchernavin [V. V.] 1944:195, fig. 12 [Proceedings of the Zoological Society of London v. 114 (pts 1-2)].

**EN:** Junin pupfish.

**Type locality:** Lake Junin, Peru. Holotype: BMNH 1944.6.6.223.

**Distribution:** Lake Junin, Peru and Bolivia.

**IUCN:** Endangered.

**131. *Orestias puni*** Tchernavin, 1944

*Orestias jussiei puni*, Tchernavin [V. V.] 1944:194, figs. 11a-b [Proceedings of the Zoological Society of London v. 114 (pts 1-2)].

**EN:** Capachica pupfish.

**Type locality:** Bahia de Puno, Lake Titicaca, Peru.

**Distribution:** Lake Titicaca basin, Peru and Bolivia.

**IUCN:** Not Evaluated.

**132. *Orestias richersoni*** Parenti, 1984

*Orestias richersoni*, Parenti [L. R.] 1984:197, fig. 59 [Bulletin of the American Museum of Natural History v. 178 (art. 2)].

**EN:** Richardson pupfish.

**Type locality:** Río Coata upstream from Coata, Lake

Titicaca drainage, Peru. Holotype: AMNH 52181.

**Distribution:** Lake Titicaca basin, Peru.

**IUCN:** Not Evaluated.

**133. *Orestias robusta*** Parenti, 1984

*Orestias robustus*, Parenti [L. R.] 1984:207, fig. 72 [Bulletin of the American Museum of Natural History v. 178 (art. 2)].

**EN:** Robust pupfish.

**Type locality:** Near village of Ojjerani, between Puno and Chucuito, Bahia de Puno, Lake Titicaca, Peru. Holotype: AMNH 52191.

**Distribution:** Lake Titicaca basin, Peru and Bolivia.

**IUCN:** Not Evaluated.

**Comment:** See Cruz-Jofré et al. (2013) for correct scientific name.

**134. *Orestias silustani*** Allen, 1942

*Orestias silustani*, Allen [W. R.] in Eigenmann & Allen 1942:366, Pl. 19 (fig. 1) [Fishes of western South America].

**EN:** Silustan pupfish.

**Type locality:** Lago Umayo, Peru. Holotype (?): CAS 44205 [ex IU 16097] (5).

**Distribution:** Lake Titicaca basin, Peru.

**IUCN:** Vulnerable.

**135. *Orestias taquiri*** Tchernavin, 1944

*Orestias taquiri*, Tchernavin [V. V.] 1944:221, fig. 22 [Proceedings of the Zoological Society of London v. 114 (pts 1-2)].

**EN:** Isla Taquiri pupfish.

**Type locality:** Taquiri Island, Lago Pequeño, south-eastern Lake Titicaca, Bolivia, depth 2.7-2.8 meters. Holotype: BMNH 1944.6.6.534.

**Distribution:** Lake Titicaca, Bolivia.

**IUCN:** Not Evaluated.

**136. *Orestias tchernavini*** Lauzanne, 1981

*Orestias tchernavini*, Lauzanne [L.] 1981:84, fig. 6 [Cybium 3e série. Bulletin de la Société Française d'Ichtyologie v. 5 (no. 3)].

**EN:** Tchernavin pupfish.

**Type locality:** Tiquina, Lake Titicaca, Bolivia.  
**Holotype:** MNHN 1981-0770.  
**Distribution:** Lake Titicaca, Bolivia.  
**IUCN:** Not Evaluated.

**137. *Orestias tomcooni*** Parenti, 1984  
*Orestias tomcooni*, Parenti [L. R.] 1984:206, figs. 4B, 18A, 71 [Bulletin of the American Museum of Natural History v. 178 (art. 2)].  
**EN:** Tom Coon pupfish.  
**Type locality:** Near the village of Huatayata, northern side of Lago Pequeño of Lake Titicaca, Bolivia.  
**Holotype:** AMNH 52188.  
**Distribution:** Lake Titicaca: Bolivia and Peru.  
**IUCN:** Not Evaluated.

**138. *Orestias tschudii*** Castelnau, 1855  
*Orestias tschudii*, Castelnau [F. L.] 1855:51, Pl. 27 (fig. 1) [Animaux nouveaux or rares v. 2].  
**EN:** Tschudi pupfish.  
**Type locality:** Lake Titicaca. Syntypes: MNHN A-9604 (3).  
**Distribution:** Lake Titicaca: Bolivia and Peru.  
**IUCN:** Not Evaluated.

**139. *Orestias tutini*** Tchernavin, 1944  
*Orestias tutini*, Tchernavin [V. V.] 1944:219, fig. 21 [Proceedings of the Zoological Society of London v. 114 (pts 1-2)].  
**EN:-**  
**Type locality:** Taquiri Island, Lago Pequeño, southeastern Lake Titicaca, Bolivia, depth 2.7-2.8 meters. **Holotype:** BMNH 1944.6.6.544.  
**Distribution:** Lake Titicaca, Bolivia.  
**IUCN:** Not Evaluated.

**140. *Orestias uruni*** Tchernavin, 1944  
*Orestias uruni*, Tchernavin [V. V.] 1944:213, fig. 17 [Proceedings of the Zoological Society of London v. 114 (pts 1-2)].  
**EN:** Urun pupfish.  
**Type locality:** Uruni Bay, north side of Capachica Peninsula, Lake Titicaca, Peru. **Lectotype:** BMNH

1944.6.6.173.  
**Distribution:** Lake Titicaca, Peru and Bolivia.  
**IUCN:** Not Evaluated.

**141. *Orestias ututo*** Parenti, 1984  
*Orestias ututo*, Parenti [L. R.] 1984:200, fig. 62 [Bulletin of the American Museum of Natural History v. 178 (art. 2)].  
**EN:** Ututo pupfish.  
**Type locality:** Lago Ututo, Peru, about 9°50'S, 77°30'W. **Holotype:** AMNH 52183.  
**Distribution:** Upper Amazon River basin, Peru.  
**IUCN:** Not Evaluated.

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## مقاله مروری

# کیپور ماهیان دندان دار جهان: فهرست به روز شده تاکسونومی، پراکنش و وضعیت حفاظتی (ماهیان استخوانی عالی: بالا خانواده کیپورماهیان دندان دار)

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**چکیده:** هدف از این چک لیست فهرست کردن تمام ماهیان بالاخانواده کیپورماهیان دندان دار گزارش شده از جهان است. این فهرست ۱۴۱ گونه در ۸ جنس و ۴ خانواده را لیست می نماید. متنوع ترین خانواده Cyprinodontidae (۵۴ گونه، ۳۸٪) است که خانواده های Orestiidae (۴۵ گونه، ۳۲٪)، Aphaniidae (۲۹ گونه، ۲۸٪) و Cubanichthyidae (۳ گونه، ۲٪) به ترتیب در رتبه های بعدی قرار می گیرند. در میان ۱۴۱ گونه فهرست شده، ۷۳ (۵۱/۸٪) از گونه ها ارزیابی نشده (NE)، ۱۵ (۱۰/۶٪) با کمترین نگرانی (LC)، ۹ (۶/۴٪) آسیب پذیر (VU)، ۳ (۲/۱٪) کمبود داده (DD)، ۱۱ (۷/۸٪) در معرض انقراض (CR)، ۴ (۲/۸٪) در نزدیکی تهدید (NT)، ۱۸ (۱۲/۸٪) در معرض خطر (EN)، ۳ (۲/۱٪) منقرض شده در حیات وحش (EW) و ۵ (۳/۵٪) منقرض شده، در فهرست قرمز IUCN هستند. آن ها در آب های شیرین، لب شور، و آب های شور ایالات متحده آمریکا، آمریکای مرکزی، هند غربی، بخش هایی از شمال آمریکای جنوبی، شمال آفریقا، ناحیه آناتولی مدیترانه، نواحی ساحلی خلیج فارس و دریای مکران (دریای عمان)، شمال دریای عربی به سمت شرق تا گوجارات در هند، و برخی حوضه های آبریز درونی ایران، پاکستان و شبه جزیره عربستان ساکن هستند.

**کلمات کلیدی:** تنوع زیستی، حفاظت، چک لیست، کیپورماهی شکلان دندان دار.