

(e) The Canadian Commercial Corporation will continue administering contracts that the U.S. contracting officer terminates.

(f) The Canadian Commercial Corporation will settle all Canadian subcontracts in accordance with the policies, practices, and procedures of the Canadian Government.

(g) The U.S. agency administering the contract with the Canadian Commercial Corporation shall provide any services required by the Canadian Commercial Corporation, including disposal of inventory, for settlement of any subcontracts placed in the United States. Settlement of such U.S. subcontracts will be in accordance with this regulation.

7. Section 249.7001 is revised to read as follows:

**249.7001 Congressional notification on significant contract terminations.**

Congressional notification is required for any termination involving a reduction in employment of 100 or more contractor employees. Proposed terminations must be cleared through department/agency liaison offices before release of the termination notice, or any information on the proposed termination, to the contractor. Follow the procedures at PGI 249.7001 for congressional notification and release of information.

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**DEPARTMENT OF THE INTERIOR**

**Fish and Wildlife Service**

**50 CFR Part 17**

**Endangered and Threatened Wildlife and Plants; 90-Day Finding on a Petition To List a Distinct Population Segment of the Roundtail Chub in the Lower Colorado River Basin and To List the Headwater Chub as Endangered or Threatened With Critical Habitat**

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Notice of 90-day petition finding and initiation of status review.

**SUMMARY:** We, the U.S. Fish and Wildlife Service (Service), announce a 90-day finding on a petition to list a distinct population segment of the roundtail chub (*Gila robusta*) in the Lower Colorado River basin, and to list the headwater chub (*G. nigra*) as endangered or threatened under the Endangered Species Act of 1973, as

amended (Act). We find that the petition presented substantial scientific and commercial data indicating that these listings may be warranted. Therefore, we are initiating a status review to determine if listing these species is warranted. To ensure that the status review is comprehensive, we are soliciting scientific and commercial information regarding these species. The petition also asked the Service to designate critical habitat for these species. The Act does not allow petitions for designation of critical habitat. However, any determinations on critical habitat will be made if and when a listing action is initiated for these species.

**DATES:** The finding announced in this document was made on June 30, 2005. To be considered in the 12-month finding for this petition, comments and information should be submitted to us by September 12, 2005.

**ADDRESSES:** Data, information, comments, or questions concerning this petition and our finding should be submitted to the Field Supervisor, Arizona Ecological Services Office, 2321 West Royal Palm Drive, Suite 103, Phoenix, Arizona. The petition, supporting data, and comments will be available for public inspection, by appointment, during normal business hours at the above address.

**FOR FURTHER INFORMATION CONTACT:**

Steve Spangle, Field Supervisor, Arizona Ecological Services Office at the above address (telephone 602-242-0210; facsimile 602-242-2513).

**SUPPLEMENTARY INFORMATION:**

**Public Information Solicited**

When we make a finding that substantial information is presented to indicate that listing a species may be warranted, we are required to promptly commence a review of the status of the species. To ensure that the status review is complete and based on the best available scientific and commercial information, we are soliciting information on the roundtail and headwater chubs. We request any additional information, comments, and suggestions from the public, other concerned governmental agencies, Tribes, the scientific community, industry, or any other interested parties concerning the status of the roundtail and headwater chubs. We are seeking information regarding the two species' historical and current status and distribution, their biology and ecology, ongoing conservation measures for the species and their habitat, and threats to the species and their habitat.

If you wish to comment or provide information, you may submit your comments and materials concerning this finding to the Field Supervisor (*see ADDRESSES*).

Our practice is to make comments and materials provided, including names and home addresses of respondents, available for public review during regular business hours. Respondents may request that we withhold a respondent's identity, to the extent allowable by law. If you wish us to withhold your name or address, you must state this request prominently at the beginning of your submission. However, we will not consider anonymous comments. To the extent consistent with applicable law, we will make all submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, available for public inspection in their entirety. Comments and materials received will be available for public inspection, by appointment, during normal business hours at the address provided under **ADDRESSES**.

**Background**

Section 4(b)(3)(A) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act), requires that we make a finding on whether a petition to list, delist, or reclassify a species presents substantial scientific or commercial information indicating that the petitioned action may be warranted. We are to base this finding on all information available to us at the time we make the finding. To the maximum extent practicable, we are to make this finding within 90 days of our receipt of the petition, and publish our notice of this finding promptly in the **Federal Register**.

Our standard for substantial information within the Code of Federal Regulations (CFR) with regard to a 90-day petition finding is "that amount of information that would lead a reasonable person to believe that the measure proposed in the petition may be warranted" (50 CFR 424.14(b)). If we find that substantial information was presented, we are required to promptly commence a review of the status of the species.

In making this finding, we relied on information provided by the petitioners and evaluated that information in accordance with 50 CFR 424.14(b). Our process of coming to a 90-day finding under section 4(b)(3)(A) of the Act and section 424.14(b) of our regulations is limited to a determination of whether

the information in the petition meets the "substantial information" threshold.

We do not conduct additional research at this point, nor do we subject the petition to rigorous critical review. Rather, as the Act and regulations contemplate, in coming to a 90-day finding, we accept the petitioner's sources and characterizations of the information unless we have specific information to the contrary.

Our finding considers whether the petition states a reasonable case for listing on its face. Thus, our finding expresses no view as to the ultimate issue of whether the species should be listed. We reach a conclusion on that issue only after a more thorough review of the species' status. In that review, which will take approximately 9 months, we will perform a rigorous, critical analysis of the best available scientific and commercial information, not just the information in the petition. We will ensure that the data used to make our determination as to the status of the species is consistent with the Act and the Information Quality Act (44 U.S.C. 3504(d)(1) and 3516 note).

#### Petition

On April 14, 2003, we received a petition dated April 2, 2003, requesting that we list a distinct population segment (DPS) of the roundtail chub in the Lower Colorado River basin as endangered or threatened, that we list the headwater chub as endangered or threatened, and that critical habitat be designated concurrently with the listing for both species. The petition, submitted by the Center for Biological Diversity (Center), was clearly identified as a petition for a listing rule, and it contained the names, signatures, and addresses of the requesting parties. Included in the petition was supporting information regarding the species' taxonomy and ecology, historical and current distribution, present status, and potential causes of decline. We acknowledged the receipt of the petition in a letter to Mr. Noah Greenwald, dated June 4, 2003. In that letter, we also advised the petitioners that, due to funding constraints in fiscal year 2003, we would not be able to begin processing the petition in a timely manner.

On May 18, 2004, the Center sent a Notice of Intent to sue, contending that the Service had violated the Act by failing to make a timely 90-day finding on the petition to list a distinct population segment of the roundtail chub in the Lower Colorado River basin, and the headwater chub. On September 20, 2004, the Center filed a complaint against the Secretary of the Interior and

the Service for failure to make a 90-day petition finding under section 4 of the Act. In a stipulated settlement agreement we agreed to submit a 90-day finding to the **Federal Register** by June 30, 2005 [*Center for Biological Diversity v. Norton*, CV-04-496-TUC-CKJ (D. AZ)]. The settlement agreement was signed and adopted by the District Court for the District of Arizona on May 5, 2005. This notice constitutes our 90-day finding for the petition to list a DPS of the roundtail chub in the Lower Colorado River basin, and to list the headwater chub, as endangered or threatened, pursuant to the Court's order.

#### Biology and Distribution

The general background information provided in this section below is based on information in the petition and in our files.

The roundtail and headwater chubs are both cyprinid fish (members of Cyprinidae, the minnow family) with streamlined body shapes. Color in roundtail chub is usually olive-gray to silvery, with the belly lighter, and sometimes with dark blotches on the sides; headwater chub color is usually dark gray to brown overall, with silvery sides that often have faded lateral stripes. Roundtail chub are generally 25 to 35 centimeters (cm) [9 to 14 inches (in)] in length, but can reach 50 cm (20 in). Headwater chub are quite similar in appearance to roundtail chub, although they are generally smaller, likely due to the smaller streams in which they occur (Minckley 1973; Sublette *et al.* 1990; Propst 1999; Minckley and Demaris 2000; Voeltz 2002).

Baird and Girard first described roundtail chub from specimens collected from the Zuni River in northeastern Arizona and northwestern New Mexico (Baird and Girard 1853). Headwater chub was first described from Ash Creek and the San Carlos River in east-central Arizona in 1874 (Cope and Yarrow 1875). The taxonomy of these two species has undergone numerous revisions (see Miller 1945; Holden 1968; Rinne 1969; Holden and Stalnaker 1970; Rinne 1976; Smith *et al.* 1977; DeMarais 1986; Rosenfeld and Wilkinson 1989; DeMarais 1992; Dowling and DeMarais 1993; Douglas *et al.* 1998; Minckley and DeMarais 2000; Gerber *et al.* 2001); however, both are now recognized as distinct species (Minckley and DeMarais 2000; Nelson *et al.* 2004). A summary of the taxonomic history can be found in Voeltz (2002).

The historical distribution of headwater and roundtail chub in the lower Colorado River basin is poorly documented, due to the paucity of early

collections and the widespread anthropogenic (manmade) changes to aquatic ecosystems beginning in the mid 19th century [*i.e.*, habitat alteration and nonnative species introductions (Girmendonk and Young 1997)]. Both of these species were historically considered common throughout their respective ranges (Minckley 1973; Holden and Stalnaker 1975; Propst 1999). Voeltz (2002) estimated historical distribution based on museum collection records, agency database searches, literature searches, and discussion with biologists.

Roundtail chub in the lower Colorado River basin was historically found in (1) the Gila and Zuni Rivers in New Mexico and (2) the Black, Colorado, Little Colorado, Bill Williams, Gila, San Francisco, San Carlos, San Pedro, Salt, Verde, White, and Zuni Rivers in Arizona, as well as in numerous tributaries within those basins. Voeltz (2002) estimated the lower Colorado River basin roundtail chub historically occupied approximately 4,500 kilometers (km) [2,796 miles (mi)] of rivers and streams in Arizona and New Mexico. A form that until recently was considered to be the roundtail chub outside the Colorado River basin in Mexico is now considered a different species, *Gila minacae* (S. Norris, California State University Channel Islands, pers. comm. 2004).

Roundtail chub in the lower Colorado River basin in Arizona currently occurs in two tributaries of the Little Colorado River (Chevelon and East Clear Creeks); several tributaries of the Bill Williams River basin (Boulder, Burro, Conger, Francis, Kirkland, Sycamore, and Trout Creeks); the Salt River and two of its tributaries (Cherry Creek and Salome Creek); the Verde River and four of its tributaries (Fossil, Oak, West Clear, and Wet Beaver Creeks); Aravaipa Creek; and in New Mexico, in the upper Gila River (Voeltz 2002).

Roundtail chub in the Lower Colorado River basin are found in cool to warm waters of mid-elevation rivers and streams, and often occupy the deepest pools and eddies of large streams (Minckley 1973; Brouder *et al.* 2000; Minckley and DeMarais 2000; Bezzerides and Bestgen 2002). Although roundtail chub are often associated with various cover features, such as boulders, vegetation, and undercut banks, they are less apt to use cover than congeneric species (of the same genus) such as the headwater chub and Gila chub (*Gila intermedia*) (Minckley and DeMarais 2000). Water temperatures for the species vary between 14° and 24° Celsius (C) (57° and 75° Fahrenheit (F)); spawning has been documented at 18°

and 22° C (64° and 72° F) (Bestgen 1985; Kaeding *et al.* 1990; Brouder *et al.* 2000). Spawning occurs from February through June in pool, run, and riffle habitats, with slow to moderate water velocities (Neve 1976; Bestgen 1985; Propst 1999; Brouder *et al.* 2000). Roundtail chub are omnivores, consuming aquatic and terrestrial invertebrates, aquatic vegetation, detritus, and occasionally vertebrates (Propst 1999; Schreiber and Micnkley 1981).

Historically, headwater chub likely occurred in a number of tributaries of the Verde River, most of the Tonto Creek drainage, much of the San Carlos River drainage, and parts of the upper Gila River in New Mexico (Voeltz 2002). Voeltz (2002) estimated that headwater chub historically occupied approximately 500 km (312 mi) in Arizona and New Mexico. The species currently occurs in the same areas, but has a smaller distribution. In Arizona, headwater chub currently occur in four tributaries of the Verde River (Fossil Creek, the East Verde River, Wet Bottom Creek, and Deadman Creek); Tonto Creek and eight of its tributaries (Buzzard Roost, Gordon, Gun, Haigler, Horton, Marsh, Rock and Spring Creeks); and in New Mexico, in the upper East Fork, lower Middle Fork, and lower West Forks of the Gila River (Voeltz 2002). Headwater chub also appear to have been documented recently in the San Carlos River drainage, though their status in that system is unknown (Minckley and DeMarais 2000; Voeltz 2002).

Headwater chub occur in the middle to upper reaches of moderately sized streams (Minckley and DeMarais 2000). Bestgen and Propst (1989) examined status and life history in the Gila River drainage in New Mexico and found that headwater chubs occupied tributary and mainstem habitats in the upper Gila River at elevations of 1,325 meters (m) (4,347 feet (ft)) to 2,000 m (6,562 ft). Maximum water temperatures of headwater chub habitat vary between 20° to 27° C (68° and 81° F), and minimum water temperatures were around 7° C (45° F) (Bestgen and Propst 1989; Barrett and Maughan 1994). Typical adult microhabitat consists of nearshore pools adjacent to swifter riffles and runs over sand and gravel substrate, with young of the year and juvenile headwater chub using smaller pools and areas with undercut banks and low current (Anderson and Turner 1978; Bestgen and Propst 1989). Spawning in Fossil Creek occurred in spring and was observed in March in pool-riffle areas with sandy-rocky substrates (Neve 1976). Neve (1976)

reported that the diet of headwater chub included aquatic insects, ostracods (minute aquatic crustaceans), and plant material.

#### Previous Federal Actions

We placed the headwater chub (as *G. r. grahami*) on the list of candidate species as a category 2 species on December 30, 1982 (47 FR 58454). Category 2 species were those for which existing information indicated that listing was possibly appropriate, but for which substantial supporting biological data to prepare a proposed rule were lacking. On January 6, 1989, the roundtail chub (as *G. robusta*, which at that time included headwater chub) was placed into category 2 (54 FR 554). Due to lack of funding to gather existing information on these fishes, both species remained as category 2 candidate species through the 1991 (56 FR 58804; November 21, 1991) and 1994 (59 FR 58982; November 15, 1994) Candidate Notices of Review. In the 1996 Candidate Notice of Review (61 FR 7596; February 28, 1996), the use of category 2 candidates was discontinued, and the roundtail and headwater chub were no longer recognized as candidates.

#### Distinct Vertebrate Population Segment

The petitioners have asked us to consider designating a DPS for the roundtail chub in the lower Colorado River basin. Under the Act, we consider for listing any species, subspecies, or, DPSs of vertebrate species/subspecies, if information is sufficient to indicate that such action may be warranted. To implement the measures prescribed by the Act and its Congressional guidance, we developed a joint policy with the National Oceanic and Atmospheric Administration entitled Policy Regarding the Recognition of Distinct Vertebrate Population (61 FR 4721; February 7, 1996) (DPS policy) to clarify our interpretation of the phrase “distinct population segment of any species of vertebrate fish or wildlife” for the purposes of listing, delisting, and reclassifying species under the Act. Under our DPS policy, we consider three elements in a decision regarding the status of a possible DPS as endangered or threatened under the Act. These are applied similarly for addition to the lists of endangered and threatened wildlife and plants, for reclassification, and for removal. The elements are: (1) The population segment’s discreteness from the remainder of the taxon to which it belongs; (2) the population segment’s significance to the taxon to which it belongs; and (3) the population

segment’s conservation status in relation to the Act’s standards for listing (*i.e.*, when treated as if it were a species, is the population segment endangered or threatened?). Our DPS policy further recognizes it may be appropriate to assign different classifications (*i.e.*, threatened or endangered) to different DPSs of the same vertebrate taxon (61 FR 4721; February 7, 1996).

#### Discreteness

The DPS policy’s standard for discreteness allows an entity given DPS status under the Act to be adequately defined and described in some way that distinguishes it from other representatives of its species. A population segment of a vertebrate species may be considered discrete if it satisfies either one of the following two conditions: (1) it is markedly separated from other populations of the same taxon as a consequence of physical, physiological, ecological, or behavioral factors. Quantitative measures of genetic or morphological discontinuity may provide evidence of this separation; or (2) it is delimited by international governmental boundaries within which significant differences in control of exploitation, management of habitat, conservation status, or regulatory mechanisms exist.

#### Information Provided in the Petition

The petitioners state that the roundtail chub meets the standard for discreteness because populations in the upper and lower Colorado River basins appear to have been separate in historical times, and this is supported by current information from molecular investigations.

The historical range of roundtail chub included both the upper and lower Colorado River basins in the States of Wyoming, Utah, Colorado, New Mexico, Arizona, and Nevada, and likely Baja California and Sonora, Mexico (Propst 1999; Beizerides and Bestgen 2002; Voeltz 2002). Currently this species occurs in the upper basin in Wyoming, Utah, and Colorado. In the lower basin it currently occurs in New Mexico and Arizona. The petitioners maintain that, although the populations in the upper and lower Colorado River basins were presumed to have intermixed with each other in the mainstem Colorado River, historical collections and genetic evidence show that there were and are, in fact two discrete populations, one in each basin.

Further, the petitioners cite Beizerides and Bestgen (2002), who concluded that, historically, the distribution of roundtail chub was continuous in the Colorado River basin

via the mainstem Colorado River, although they found that two discrete population centers were evident, one in each of the lower and upper basins. Although early surveys were infrequent, only four records of roundtail chub are documented in the mainstem Colorado River between the two basins (Voeltz 2002). Based on this information, Minckley (1979) and C.O. Minckley (1996) considered roundtail chub rare in the Colorado River mainstem. Thus, the petitioners conclude that the historical situation of roundtail chub in the Colorado River basin appears to be that there were two population centers, one each in the upper and lower basins, likely with very little mixing.

The petitioners argue that discreteness of the populations of roundtail chub in each basin also appears to be supported by molecular investigations. Allozymes and mitochondrial DNA (mtDNA) sequence variation of roundtail chub in the two basins are significantly different (DeMarais 1992; Dowling and DeMarais 1993; Minckley and DeMarais 2000; Gerber *et al.* 2001). Further, the petitioners note that Gerber *et al.* (2001) found that mtDNA of lower basin roundtail chub was entirely absent from roundtail chub in the upper basin.

### Significance

Under our DPS policy, in addition to our consideration that a population segment is discrete, we consider its biological and ecological significance to the taxon to which it belongs, within the context that the DPS policy be used "sparingly" while encouraging the conservation of genetic diversity (61 FR 4721; February 7, 1996). This consideration may include, but is not limited to, evidence of the persistence of the discrete population segment in an ecological setting that is unique for the taxon; evidence that loss of the population segment would result in a significant gap in the range of the taxon; evidence that the population segment represents the only surviving natural occurrence of a taxon that may be more abundant elsewhere as an introduced population outside its historical range; and evidence that the discrete population segment differs markedly from other populations of the species in its genetic characteristics.

### Information Provided in the Petition

The petitioners maintain that roundtail chub in the lower Colorado River basin should be considered significant under our DPS policy for several reasons. They state that roundtail chub in the lower basin occur in an ecological setting unique for the

species based on differences in various ecoregion variables, such as hydrograph, sediment, substrate, nutrient flow, cover, and water chemistry (Burkham 1970; Sellers 1974; Carlson and Muth 1989; Miller and Hubert 1990; Minckley and Rinne 1991; Leopold 1994; Bailey 1995; Rosgen 1996). The petitioners maintain that loss of the lower Colorado River DPS of roundtail chub would result in a significant gap in the range of the taxon because this population segment constitutes a majority of the species' range in two states (Arizona and New Mexico) and all of several major river systems, including the Little Colorado, Bill Williams, and Gila River basins. They also cite data that indicate the lower Colorado River population of roundtail chub is significant in that it differs markedly from other populations of the species in its genetic characteristics. As mentioned above, they note that allozymes and mitochondrial DNA (mtDNA) sequence variation of roundtail chub in the two basins are significantly different (DeMarais 1992; Dowling and DeMarais 1993; Minckley and Demarais 2000; Gerber *et al.* 2001), and cite that Gerber *et al.* (2001) found that mtDNA of lower basin roundtail chub was entirely absent from roundtail chub in the upper basin. Based on this information, the petitioners argue that the lower Colorado River roundtail chub population offers unique opportunities to uncover scientific information available through study of its unique evolutionary trajectory. The petitioners also argue that there are differences in status and management needs between the populations in the two basins (the upper basin has fewer people; has less extreme threats to aquatic habitats, in part because there is more water and less demand for water; and has more significant Federal programs in place to protect and recover native fishes).

### Evaluation of Information in the Petition

Based on the data presented in the petition, there appears to be substantial scientific information that roundtail chub populations in the lower Colorado River warrant further review of whether they are discrete from the rest of the species' range and that they may be significant to the taxon as a whole, as defined in our DPS policy.

According to our DPS policy, if a population of species is found to be both discrete and significant, we then evaluate the conservation status of the population in relation to the listing factors found in section 4(a)(1) of the Act. Our assessment of the conservation status of the population of the roundtail

chub in the lower Colorado River basin based on the information provided in the petition is provided in the "Discussion" section below.

### Discussion

In the following discussion, we discuss each of the major assertions made in the petition, organized by the listing factors found in section 4(a)(1) of the Act. Section 4 of the Act and its implementing regulations (50 CFR 424) set forth the procedures for adding species to the Federal list of endangered and threatened species. A species may be determined to be an endangered or threatened species if it is threatened by one or more of the five factors described in section 4(a)(1) of the Act and meets either the definition of endangered or threatened pursuant to section 3 of the Act. The five listing factors are: (1) The present or threatened destruction, modification, or curtailment of its habitat or range; (2) overutilization for commercial, recreational, scientific, or educational purposes; (3) disease or predation; (4) the inadequacy of existing regulatory mechanisms; and (5) other natural or manmade factors affecting its continued existence.

This 90-day finding is not a status assessment of either species and does not constitute a status review under the Act. The discussion presents information provided in the petition related to the factors used for evaluation of listing pursuant to section 4(a)(1) of the Act for both species, the population of the roundtail chub in the Lower Colorado River Basin and the headwater chub.

### A. Present or Threatened Destruction, Modification, or Curtailment of the Species' Habitat or Range

#### *Geographic Range and Status*

#### Information Provided in the Petition

The petitioners claim that the decline of the roundtail chub was noted as early as 1961 (Miller 1961), and that recent status reviews of both headwater and roundtail chub (Bestgen 1985; Girmendonk and Young 1997; Bezzarides and Bestgen 2002; Voeltz 2002) led our Desert Fishes Recovery team to recommend that both species be listed as endangered on numerous occasions. They also cite the recent Arizona Game and Fish Department (Voeltz 2002) review of these species, which found declines from historical levels and indicated that many of the remaining populations were vulnerable to extirpation from various threats. Of the 40 recently documented populations of roundtail chub in the lower Colorado River basin, Voeltz (2002) found that 6

were stable-threatened, 13 were unstable-threatened, 10 were extirpated, and 11 populations were of unknown status. Voeltz (2002) considered a population stable if the species was abundant or common and data over 5–10 years indicated a recruiting population; secure if no obvious threats were apparent; and threatened if nonnative aquatic species were present or serious current or future habitat-altering land or water uses were identified.

Of the 19 recently documented populations of headwater chub, Voeltz (2002) found that 6 were stable-threatened, 6 were unstable-threatened, 1 was stable-secure, 3 were extirpated, and 3 populations were of unknown status. Deadman Creek, the one population that Voeltz considered stable-secure, has since been invaded by nonnative green sunfish (*Lepomis cyanellus*); thus that population should now be considered stable-threatened (Voeltz, Arizona Game and Fish Department, pers. comm. 2003).

#### Habitat

##### Information Provided in the Petition

The petitioners state that roundtail and headwater chub are threatened by a variety of actions: livestock grazing, water withdrawal, dam and dam operation, roads and logging, recreation, mining, urban development, channelization, and the cumulative effects of these actions. The petitioners contend that habitat in substantial portions of the range of these species has been significantly altered by these factors, and they contend that remaining areas known to be occupied by roundtail and headwater chub are threatened by additional loss and degradation of habitat (Minckley 1985; Bestgen and Propst 1989; Bezzlerides and Bestgen 2002; Tellman *et al.* 1997; Voeltz 2002).

##### Summary of Habitat Threats and Evaluation of Information in the Petition

The petitioners have provided substantial scientific information that a variety of anthropogenic activities that affect the habitat of roundtail and headwater chub in the lower Colorado River basin either singly or in combination with one another, may be destroying or modifying roundtail and headwater chub habitat.

#### **B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes**

##### Information Provided in the Petition

The petitioners do not provide information suggesting that

overutilization for commercial, recreational, scientific, or educational purposes is a threat to either the roundtail or headwater chubs; however, they do consider overutilization in their analysis of the inadequacy of existing regulatory mechanisms and in their analysis of recreation as form of habitat loss.

##### Evaluation of Information in the Petition

Our response to these issues is included within those sections of our analysis.

#### **C. Disease or Predation**

##### Information Provided in the Petition

The petitioners contend that nonnative fish that compete with and/or prey on roundtail and headwater chub are a serious and persistent threat to the continued existence of these species (U.S. Fish and Wildlife Service 1999 a, b, 2001a, b), and they cite a number of examples of nonnative fish species negatively affecting native fish populations. They also claim that largemouth bass, smallmouth bass, green sunfish, flathead catfish, channel catfish, black bullhead (*Ameiurus melas*), and yellow bullhead are all known or suspected to prey on native fish and are to some degree sympatric (occupying the same or overlapping geographic areas without interbreeding) with either roundtail or headwater chub (Girmendonk and Young 1997; Voeltz 2002).

The petitioners contend that most streams within the range of the roundtail and headwater chub contain multiple nonnative species (U.S. Fish and Wildlife Service 2001a and b), and that aquatic nonnative species continue to be introduced into streams in Arizona, likely through a variety of mechanisms, both intentional and accidental, that include interbasin water transfer, sport stocking, aquaculture, aquarium releases, bait-bucket release (release of fish used as bait by anglers), and biological control (Rosen *et al.* 1995; U.S. Fish and Wildlife Service 2001). The petitioners note that nonnatives are present and considered a threat to remnant populations of roundtail or headwater chub in 28 of the 30 streams in which they occur (Voeltz 2002).

The petitioners also contend that disease, and especially parasites, may be a threat and cite the following information. Roundtail and headwater chub have been found to be infected by a number of parasites, including protozoans (*Ichthyophthirius multifiliis*), trematodes (*Ornithodiplostomum ptychocheilus*,

*Clinostomum marginatum*, and *Plagioporus* species), cestodes (*Isoglaridacris bulboocirrus*), nematodes (*Dacnitoidea* species, *Rhabdochona decaturensis*, and *Rhabdochona* species), and anchor worms (*Lernaea* species) (Girmendonk and Young 1997; James 1968; Mpoame 1981; Voeltz 2002).

##### Evaluation of Information in the Petition

The petition provides substantial scientific information that predation and disease is a factor that may threaten the continued existence of the roundtail and headwater chubs.

#### **D. Inadequacy of Existing Regulatory Mechanisms**

##### Information Provided in the Petition

The petitioners state that there are at present no specific Federal protections for roundtail or headwater chub, and generalized Federal protections found in Forest plans, Clean Water Act dredge and fill regulations for streams, and other statutory, regulatory, or policy provisions have been inadequate to check the rapid decline of these two fishes. The petitioners cite Doremus and Pagel (2001) who found that State, local, and private laws and regulations were of substantially less effectiveness at conservation of imperiled species than the Act and concluded that “Background law generally does not protect species against either of these two primary threats (habitat degradation and exotic species). Even the Act provides little protection against exotic species, but it does provide the strongest currently available protection against habitat degradation.” The petitioners review a substantial body of Federal, State, and Tribal statutes, regulations, and planning work against conservation of roundtail and headwater chubs and their habitat, and contend that these also indicate the plight of roundtail and headwater chub can be remedied only through Federal listing under the Act.

As an example, the petitioners examined management on 58 U.S. Forest Service allotments with known roundtail or headwater chub populations and contend that the agency failed to consider the effects of livestock grazing on these species on 23 allotments, and that livestock grazing was considered to potentially impact these species or their habitat on 20 of the other 35; in two of these cases the U.S. Forest Service concluded that grazing would “eventually trend the species toward federal listing.” They also contend that of the 58 allotments that contained these species, poor riparian and watershed conditions were

found on 40 of the 58 allotments, and only four allotments were noted as having healthy riparian conditions.

#### *Evaluation of Information in the Petition*

The petition provides substantial information that relates to the inadequacies of existing regulatory mechanisms to address significant threats to roundtail and headwater chub throughout their range.

#### **E. Other Natural or Manmade Factors Affecting the Species' Continued Existence**

##### *Information Provided in the Petition*

The petitioners contend that the probability of catastrophic stochastic (random) events is exacerbated by a century of livestock grazing and fire suppression that have led to unnaturally high fuel loadings (Cooper 1960; Covington and Moore 1994; Swetnam and Baison 1994; Touchan *et al.* 1995; White 1985). Forests that once frequently burned at low intensities now rarely burn, but when they do, it is often at stand-replacing intensity (Covington and Moore 1994). Fires in the southwest frequently occur during the summer monsoon season. As a result, fires are often followed by rain that washes ash-laden debris into streams (Rinne 1996). It is such debris, rather than the fires themselves, that impacts and/or devastates fish populations. For example, the petition states that the 1990 Dude Fire was known to severely impact fish in the East Verde River. Voeltz (2002) states: "Fish populations within the East Verde drainage were heavily impacted following the Dude Fire in 1990. Runoff from storms following the fire washed ash and sediments off of the burned slopes into the system, reducing or eliminating fish populations in many of

the small tributary streams in the area of the fire."

The petitioners also maintain that extensive human alteration of watersheds that has occurred over the past 150 years in the lower Colorado River basin has resulted in changes in the hydrologic regimes of the rivers and in the geomorphology of the river channels. This human-initiated change is exacerbated by the naturally highly variable climate of the area. Peaks of flood flows have increased in volume while moving through the system more rapidly, so that damaging floods have become more frequent and more destructive. This increase in destruction is also tied to removal of riparian vegetation and encroachment of agricultural fields and buildings upon the floodplain. Because of the reduced distribution and isolation of remaining roundtail and headwater chub populations in combination with increased severity of fire and altered hydrologic regimes, the petitioners argue that both species are at risk of extinction independent of any other factors, such as nonnative fish or habitat degradation.

##### *Evaluation of Information in the Petition*

The petition provides substantial scientific information that illustrates the severity of the threat of stochastic events to rare and fragmented populations, and includes research conducted specifically in the southwest, and on a suite of fishes including roundtail and headwater chubs (Fagan *et al.* 2002).

##### *Finding*

We have reviewed the petition and literature cited in the petition, and we have evaluated that information in relation to other pertinent literature and information available in our files. On the basis of our review, we find that the petition presents substantial scientific

information indicating that listing the roundtail chub as a distinct population segment in the lower Colorado River basin, and the headwater chub throughout its range, may be warranted.

We have reviewed the available information to determine if the existing and foreseeable threats pose an emergency. We have determined that emergency listing is not warranted for these species at this time, because of the overall number of extant populations and the fact that some of these appear to be stable at the current time. However, if at any time we determine that emergency listing of the roundtail or headwater chub are warranted, we will seek to initiate an emergency listing.

The petitioners also request that critical habitat be designated for this species. We always consider the need for critical habitat designation when listing species. If we determine in our 12-month finding that listing the roundtail and headwater chub is warranted, we will address the designation of critical habitat at the time of the proposed rulemaking.

##### *References Cited*

A complete list of all references cited herein is available upon request from the Field Supervisor (see **ADDRESSES** section).

##### *Author*

The primary authors of this document are staff at the Arizona Ecological Services Office (see **ADDRESSES** section).

**Authority:** The authority for this action is the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Dated: June 30, 2005.

##### **Matt Hogan,**

*Acting Director, Fish and Wildlife Service.*

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