

population of Virgin River chub, a category 2 candidate for Federal listing, was considered a separate, unnamed subspecies of roundtail chub (*G. robusta*), and was referred to as the Moapa roundtail chub.

Because of this recent taxonomic work, the U.S. Fish and Wildlife Service (Service) accepts that specific rank is warranted for the Virgin River chub and proposes to change the listing of the Virgin River chub in the Virgin River from a subspecies to a vertebrate population segment in the List of Endangered and Threatened Wildlife. In addition, the Service hereby initiates a status review of the Virgin River chub in the Muddy River to determine whether this vertebrate population segment warrants listing as a threatened or endangered species under the Endangered Species Act of 1973, as amended (Act).

DATES: Comments from all interested parties must be received by September 22, 1995. Public hearing requests must be received by September 7, 1995.

ADDRESSES: Comments and materials concerning this proposal and notice should be sent to Mr. Carlos H. Mendoza, Acting State Supervisor, U.S. Fish and Wildlife Service, 4600 Kietzke Lane, Building C-125, Reno, Nevada 89502-5093 (facsimile: 702-784-5870). Comments and materials received will be available for public inspection, by appointment, during normal business hours at the above address.

FOR FURTHER INFORMATION CONTACT: Selena Werdon, Fish and Wildlife Biologist, at the above address (telephone: 702-784-5227).

SUPPLEMENTARY INFORMATION:

Background

Discovered in the early 1870's, the Virgin River chub was described by Edward Drinker Cope and Harry Crecy Yarrow as a full species, *Gila seminuda*, in 1875. Later, Max M. Ellis (1914) considered the Virgin River chub to be intermediate between the roundtail chub (*G. robusta*) and bonytail chub (*G. elegans*), and reduced the fish to a subspecies of roundtail chub (*G. robusta seminuda*). The fish was believed to be restricted to the Virgin River between Hurricane, Utah, and its confluence with the Colorado River.

In a recent taxonomic study of *Gila* using morphological and genetic characters, DeMarais and others (1992) concluded that the prior treatment of the Virgin River chub as a subspecies of the roundtail chub was inappropriate and arbitrary. The authors asserted that specific rank is warranted for *G. seminuda*, which likely arose through

introgressive hybridization involving *G. robusta* and *G. elegans* (DeMarais *et al.* 1992). Moreover, DeMarais *et al.* (1992) included the chub in the Muddy River, a Virgin River tributary, within *G. seminuda*. These conclusions were accepted by the American Fisheries Society and the American Society of Ichthyologists and Herpetologists Fish Names Committee (Joseph S. Nelson, *in litt.*, 1993). The Service also accepts these conclusions.

The Service and other authorities (Holden and Stalnaker 1970, Minckley 1973, Smith *et al.* 1977) have treated the chubs within the Muddy River as a separate, unnamed subspecies of roundtail chub (= Moapa roundtail chub). The Service also has considered this chub to be a category 2 candidate for Federal listing since 1982 (47 FR 58455, 54 FR 556, 56 FR 58804, and 59 FR 58982). Category 2 species are taxa for which information now in the possession of the Service indicates that proposing to list as endangered or threatened is possibly appropriate, but for which sufficient data on biological vulnerability and threat are not currently available to support proposed rules. Though genetically allied to the chub within the Virgin River and apparently of hybrid origin, the Muddy River population of *G. seminuda* is "distinctive" (DeMarais *et al.* 1992; Bruce DeMarais, pers. comm. June 29, 1994). Moreover, despite access to Lake Mead, no migration between the Virgin River and Muddy River populations has been verified (Allan and Roden 1978). As a result of the distinctiveness and reproductive isolation of the two populations, the Service concludes that the Virgin River chub consists of two vertebrate population segments.

The decline of chub in the Muddy River was first documented in the 1960's (Wilson *et al.* 1966, Deacon and Bradley 1972). By 1964, the abundance of chub at a 1938 collection site had decreased more than 83 percent; a similar decrease (approximately 92 percent) was documented at a 1942 collection site (Wilson *et al.* 1966). Between 1964 and 1968, Deacon and Bradley (1972) noted an upstream shift in the distribution of the Muddy River population. By 1974-1975, the chub had been completely eliminated from the lower Muddy River and were further reduced in abundance in the middle portion of the river (Cross 1976). The decline may have been related to cumulative effects of parasitism (Wilson *et al.* 1966), changes in flow, water quality, and substrate (Deacon and Bradley 1972, Cross 1976), channelization (Cross 1976), and the establishment of nonnative fish species

(Deacon *et al.* 1964, Hubbs and Deacon 1964, Deacon and Bradley 1972, Cross 1976).

The Service has carefully assessed the best scientific and commercial information available regarding the Virgin River population of Virgin River chub in determining to propose this rule. Based on this evaluation and especially recent taxonomic work, the preferred action is to change the listing of the Virgin River chub in the Virgin River in the List of Endangered and Threatened Wildlife (50 CFR 17.11(h)) from an endangered subspecies throughout its entire range to an endangered vertebrate population segment in the Virgin River in Utah, Arizona, and Nevada. As a result, the Virgin River chub in the Virgin River will remain listed as endangered in the same area as it was prior to this taxonomic work, while the Virgin River chub in the Muddy River will remain unlisted. In addition, the Service hereby initiates a status review of the Virgin River chub in the Muddy River to determine whether this population segment warrants listing as threatened or endangered under the Act. The limited information and data currently available to the Service indicate that the chub in the Muddy River remain reduced in abundance from historical levels, and that the species has been eliminated from the lower Muddy River. This decline is likely a result of a combination of habitat degradation, interactions with nonnative species, and parasitism.

Public Comments Solicited

The Service intends that any final action resulting from this proposal or that any listing proposal eventually resulting from this notice be as accurate and effective as possible. Therefore, comments or suggestions from the public, other concerned governmental agencies, the scientific community, industry, private interests, or any other interested party concerning any aspect of this proposed rule and notice are hereby solicited. Comments particularly are sought concerning:

- (1) Biological, commercial trade, or other relevant data concerning any threat (or lack thereof) to Virgin River chub in the Muddy River;
- (2) The location of any additional populations of the species and the reasons why any habitat should or should not be determined to be critical habitat as provided by section 4 of the Act;
- (3) Additional information concerning the range, distribution, and population size of the Muddy River population segment;