

Addendum
(revised January 27, 2017)
**Biological Assessment for the Coronado National Forest Land and Resource
Management Plan**

Desert pupfish_____ (*Cyprinodon macularius*)

Endangered Species Act Status:	Endangered
Recovery Plan:	1993
District Occurrence:	Nogales, Sierra Vista, Safford
Critical Habitat:	Yes, but does not occur on or near Forest
Determination of Effects to Species:	May affect, likely to adversely affect

Natural History and Distribution

Life history, distribution, status of the species range-wide and listing factors are found in documents located on the U.S. Fish and Wildlife Service (USFWS) website https://www.fws.gov/southwest/es/arizona/Desert_Pupfish.htm (accessed 2016). An account of the taxonomy, biology, and reproductive characteristics of this species is found in the Final Rule listing the Desert Pupfish as an endangered species (USFWS 1986).

The 2012 Biological and Conference Opinion for the Continued Implementation of the Land and Resource Management Plan for the Coronado National Forest (CNF; USFWS 2012) provide information about the Desert pupfish in Forest Service Region 3. All these documents are incorporated by reference into this document.

Status, Threats, and Conservation of the Species

Status

In a recent assessment of status, subpopulations of the “desert pupfish complex” were described collectively as stable, although environmental and demographic stochasticity could result in local extirpations (USFWS 2010). Local populations may be far more variable due to a variety of factors such as the number of habitat with independent fates, habitat area, presence of nonnative species, and other threats.

No natural populations of Desert pupfish remain in Arizona, although numerous captive and wild reestablished populations currently exist. These populations have been established on private, municipal, county, state, and Federal lands, including the Aravaipa Creek watershed, Mud Springs on the Tonto National Forest, and on the Muleshoe Cooperative Management Area. In 2013, the Bureau of Land Management reintroduced desert pupfish into the Las Cienegas National Conservation Area (LCNCA) in three locations (USFS 2016). Plans are also in progress to reestablish desert pupfish in the San Pedro Riparian National Conservation Area. Additional captive sites persist in southern Arizona, with a number of refuge ponds having recently been created under Safe Harbor Agreements including a site on the Audubon Society Appleton-Whittell Research Ranch near the Sierra Vista Ranger District.

pumping, hybridization with channel catfish, and introduction of nonindigenous fish (USFWS 1984). The effects of climate change (i.e., decreased precipitation and water resources and increased evapotranspiration) are also a threat to this species.

Conservation

While there are no immediate plans to stock Yaqui catfish on the Coronado National Forest, the Forest commits to assisting AZGFD and USFWS in identifying potential stocking locations for native fishes on the Forest.

Habitat Effects for Desert pupfish and Yaqui catfish

Wildland-Urban Interface and Landscape-scale Fire

The Wildland-Urban Interface (WUI) represents all vegetation communities on the CNF within those areas of human populations and developments at imminent risk from wildfire. Treatment of these areas includes thinning, removal of fuels from the landscape, or altering the fuel profile to reduce the potential for loss of property. The treatment of WUI allows the Forest the flexibility to manage landscape-scale wildland fire for resource benefit; however, wildland fire will not be consulted on in this document.

Landscape-scale wildland fire is one of the methods for ecosystem restoration. The goal of this program is to enhance resiliency of all vegetation communities on the CNF by maintaining more sustainable fuel loads, improved habitat diversity, and watershed integrity.

Management of WUI and landscape-scale wildland fire has the potential to result in long term beneficial affects to Desert pupfish and Yaqui catfish habitat if a catastrophic fire were to occur within these landscapes. With upland restoration treatments maintaining watershed stability, the objective RIA-O-1 would treat 2,500 to 10,000 acres of uplands every 10 years in order to maintain watershed stability and function of streams, flood plains, and riparian vegetation. The objective is expected to result in lower intensity fires and ground cover that readily resprouts after fire. This would help limit runoff and sediment from any one fire event in the uplands above occupied or potentially occupied Desert pupfish or Yaqui catfish habitat. Management ignited fires would generally not burn in wetland habitat; however, land and resource management plan (LRMP) components dictate that it will be utilized in adjacent upland habitats, which may cause indirect effects on riparian and streamside habitat. Effects include increased runoff of floodwaters, deposition of debris and sediment originating in the burned area.

Water Resources – Natural

The following objectives would help sustain and maintain suitable habitat for these species by providing adequate in-stream flow water rights, and proper ecosystem functions: RIA-O-1, NWS- O-1, NWS-O-2, and NWS-O-3. The guidelines NWS-G-2, NWS-G-3, NWS-G-4 and NWS-G-5 allow for natural in-stream movement, reduce fuel build up, and protect water quality, quantity, and habitat features at natural springs and seeps.

Invasive Species Management

This program area has the potential to help with removing invasive nonnative species. Invasive species management will be guided primarily by the Environmental Assessment for the Invasive Exotic Plant Management Program (IEPMP BA; 2004). However, the LRMP also provides guidelines, such as ISM-G-1,

which directly benefits native species by recommending the removal of non-native invasive animals in or near occupied habitat, while the guideline RAM-G-6 will help in restoring native plant species. Herbicide treatments are expected to continue under this plan as they have under the previous LRMP. The use of herbicide can have adverse effects on aquatic species as well as upland species; however, these effects have been addressed and mitigated in the IEPMP BA. Any potential future projects implemented under this plan would be assessed on a case by case basis to determine potential effects on individual species and to mitigate them, but given that this species only occurs off-Forest, it is expected that the potential impacts of these actions would be insignificant and discountable.

Forest Products

The sale of forest products are often associated with thinning and fuels reduction projects or silvicultural treatments. Projects such as these can result in impacts to upland and aquatic habitat by reducing cover and exposing soils to erosion. The guidelines RIA-G-3, RIA-G- 4, NWS-G-1, and NWS-G-3 would favor retention of large riparian woody debris and trees and minimize input of sediment into streams thereby increasing water quality, providing habitat with cover, reducing fuel buildup and regulating stream temperatures. These plan components would help to mitigate effects of the forest products program.

Minerals Management

Although Minerals Management activities are minimized through appropriate administration of mineral laws and regulations and exploration and mining activities operate in environmentally sound ways, such activities could impact fish species through changes to downstream occupied habitat or dewatering of streams and springs often associated with mineral extraction. Potential impacts can occur as a result of mining infrastructure including but not limited to roads, buildings, water sources, processing plants, and tailings piles, and any future mineral operations would be dependent on the results of explorations. Actual mining infrastructure and disturbance would be impossible to predict at the time of this document, but there are approximately 28 known minerals projects on the Forest: 17 projects are active and currently in place, while four projects are expected to occur in the foreseeable future, and two minerals projects are completed and five are withdrawn from consideration at the point. Four of these projects are on the Santa Catalina RD within the Santa Catalina EMA, one on the Safford RD within the Galiuro EMA, eleven on the Nogales RD within the Santa Rita and Tumacacori EMAs, and twelve on the Sierra Vista RD within the Huachuca EMA. The standard MIN-S-2 and the guideline MIN-G-2 would minimize downstream runoff and sedimentation impacts to fish through the revegetation of disturbed sites and the use of hydrologic functions similar to natural systems, respectively. All existing and future projects have undergone or will undergo individual National Environmental Policy Act (NEPA) requirements and Endangered Species Act (ESA) consultation separate from the LRMP. If a project is inconsistent with the LRMP, it will require a project specific LRMP amendment.

Motorized Transportation System

Currently, neither the Desert pupfish nor the Yaqui catfish occur on the Forest, so downstream effects are the only potential effects. It is possible that both of these species may be reintroduced on the Forest in the future; therefore, if reintroductions occur, potential downstream effects of this program area could include increased sedimentation in habitats where these fish occur. The potential effects would occur differently depending upon distance from the road. The use of motorized vehicles represents a popular and growing form of recreation on the CNF. Under the Standard MTS-S-1, motor vehicle use is restricted to existing roads. The objective MTS-O-4 helps protect downstream streams from erosion and sedimentation by installing at least one hardened road surface per year at creek crossings. Similarly, MTS-O-5 would realign or remove 2 miles of roads from aquatic or meadow habitat in a decade to improve habitat conditions for aquatic species. The standard, MTS-S-1 also ensure that sedimentation

from vehicles is reduced and the guideline MTS-G-3 helps to sustain natural water flow and maintain native vegetation communities.

Recreation Management

This program area has the potential through recreation activities to impact Desert pupfish and Yaqui catfish through disturbance and potential loss/fragmentation of habitat as stated under the Natural Water Resources section above. Currently, effects from this program are insignificant to downstream populations; however, should either of these fish be reintroduced on the Forest, potential effects of this program area could include increased sedimentation in habitats where these fish occur. The potential effects would occur differently depending upon the distance from the recreation area. The use of motorized vehicles represents a popular and growing form of recreation on the CNF. Under the Standard MTS-S-1, motor vehicle use is restricted to existing roads. The guideline REC-G-2 provides guidance to minimize recreational capacities before resource damage is caused.

Range Management

This program area has the potential through grazing activities to impact the Desert pupfish and Yaqui catfish or their habitat, often through livestock riparian and floodplain/streambank vegetation removal. Potential downstream effects of this program area could result in increased sedimentation off forest in habitats where these fish occur. The potential downstream effects would occur differently depending upon the distance from the forest boundary due to the buffering effect of intervening habitat. Plan components applying to this program area are listed below, followed by discussion of potential effects to the species. RAM-G-5 recommends that grazing structures within riparian areas be located to avoid conflict with riparian functions and processes. The guideline RIA-G-2 recommends livestock grazing in riparian areas only when a site-specific analysis has determined that there would be no significant deleterious effects to riparian area form or function. This guideline would protect the riparian areas from overgrazing thereby affecting the fish species that inhabit these stream reaches from increased sedimentation. All allotment management plans are required to go through their own NEPA and ESA consultation, and the Forest is currently working on a Biological Assessment to address ongoing grazing activities on a forest-wide basis.

Cumulative Effects

As defined in ESA (50 CFR §402.02), cumulative effects are those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the Action Area of the federal action subject to consultation. For this consultation, the Action Area has been defined as the Coronado National Forest plus adjacent lands that the proposed action may directly or indirectly affect. The time period is defined as the predicted life of this plan which is 10 years. Activities that may occur which may affect individuals include: expanding range of competitive and predatory nonnative fishes and other wildlife, recreation, mining, wildland fire, climate change, and overgrazing on adjacent lands. These types of activities have occurred in the past and are likely to occur into the foreseeable future.

Summary of Effects and Determination – Desert pupfish

This species does not occur on forest, but it may be reintroduced on the Forest at a future date, and it is known to occur downstream of the CNF. Generally, the overall guidance of the LRMP standards and guidelines is to protect resources while maintaining multiple use activities. The guidance for the WUI and Landscape-scale Fire, Water Resources-Natural, Invasive Species Management, Forest Products, Minerals Management, Motorized Transportation System, Recreation Management, and Range Management Programs overall will result in long term beneficial effects for riparian and upland conditions. In the short term, however, implementation of activities associated with the LRMP in the

upper reaches of the watershed may result in negative effects to the species due to methods used to accomplish this improvement, because implementation of the LRMP does not preclude activities that may result in measurable effects to the species, and due to the general lack of complete filtering necessary to prevent possible adverse effects. Therefore, the implementation of the CNF LRMP is **May Affect, Likely to Adversely Affect** the Desert pupfish.

Summary of Effects and Determination – Yaqui catfish

This species does not occur on forest, but occurs southwest, and downstream, of the Peloncillo EMA. Generally, the overall guidance of the LRMP standards and guidelines is to protect resources while maintaining multiple use activities. There are no known minerals projects on forest upstream of occurrence of this species. The guidance for the WUI and Landscape-scale Fire, Water Resources-Natural, Invasive Species Management, Forest Products, Motorized Transportation System, Recreation Management, and Range Management Programs overall with result in long term beneficial effects for riparian and upland conditions. In the short term, however, implementation of activities associated with the LRMP in the upper reaches of the watershed may result in negative effects to the species due to methods used to accomplish this improvement, because implementation of the LRMP does not preclude activities that may result in measurable effects to the species, and due to the general lack of complete filtering necessary to prevent possible adverse effects. Therefore, the implementation of the CNF LRMP **May Affect and is Likely to Adversely Affect** the Yaqui catfish.

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Bill Radke, e-mail message to Rebekah Karsch, September 26, 2016.

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