



United States Department of the Interior

NATIONAL PARK SERVICE

WESTERN REGION

450 GOLDEN GATE AVENUE, BOX 36063
SAN FRANCISCO, CALIFORNIA 94102

IN REPLY REFER TO:

N1621(WR-RN)

July 16, 1984

Memorandum

To: Regional Director, U.S. Fish and Wildlife Service, Portland, OR 97232

From: ^{ACCTING} Regional Director, Western Region, National Park Service

Subject: Proposed Endangered Status and Critical Habitat for the Desert Pupfish
(Cyprinodon macularius)

Subject proposal, as found in 49 F.R. 20739-20744, includes the intention of improving accuracy of any final rule. It also seeks comments with particular concerns relating to five major issues. Identified concerns being sought consist of (1) identifying any threat or lack thereof, (2) location of additional populations and their relationship to critical habitat, (3) additional information on range and distribution, (4) current or planned activities having possible impact on the species and (5) any impact resulting from the proposed designation of critical habitat.

Position Regarding Proposal

The National Park Service supports the proposal as it relates to subject species and its critical habitat within California. Support with respect to species designation plus identification of critical habitat at Quitobaquite Springs, Organ Pipe Cactus National Monument is withheld until completion of several ongoing studies. We cannot support this portion of the proposal at this time on the basis of several significant factors which we would like to share with you.

Considerations Resulting in Position

1. Quitobaquito springs, pond and water delivery system between them have a combined population of about 8,000 desert pupfish. This population level has evolved in spite of several significant modifications to the entire ecosystem.
2. a). In 1961-62, the pond was deepened for the benefit of the pupfish because it was silting in. This had several important consequences affecting much more than fish welfare. The deepening of the pond created a habitat suitable for the introduction of bass and other exotic fish. In 1969, golden shiners were introduced. This required draining and poisoning of the pond. This was a necessary procedure, but it was also destructive to the pupfish and to the entire pond system. Resiliency of the pupfish population and its habitat after these dramatic alterations has been amply demonstrated.

Supt., ORPI

RECEIVED	
Organ Pipe Cactus, N. M.	
JUL 23 '84	
ACTION	INFO
	SUPERINTENDENT
	ADMIN TECH.
	CH. RANGER
	RESOURCE MGMT.
	CH. MAINTENANCE
	INTERP. SPECIALIST
	PARK RANGER
	PARK TECH.
	SPMA
	FILE

NOTED: *[initials]*

[initials] copy

b). As was noted, deepening of the pond had several other important and unforeseen consequences. A National Park Service sponsored research operation was initiated in 1980. It disclosed that the Sonoran mudturtle (Kinosternon sonoriense), a native species, is declining in number because the pond is too deep and its banks too steep for successful breeding and recruitment. It is our understanding, the Sonoran mudturtle is suffering a decline throughout its range similar to the desert pupfish and for similar reasons. Consequently, it too will probably become an endangered species soon. Research has also shown there is a small population of the yellow mudturtle (Kinosternon flavescens) at Quitobaquito. This turtle is much rarer than the Sonoran mudturtle, and we understand your Office is now gathering information for possible listing. Quitobaquito is probably the only place known where these two turtles are sympatric.

c). Another unforeseen consequence of pond deepening was the elimination of shorebird habitat. The elimination of the gently sloping shoreline not only removed good fish and turtle breeding and rearing areas, it eliminated sandpipers, killdeer and herons from the pond avifauna.

d). Another unforeseen consequence of pond deepening was removal of support for the large cottonwood tree growing in the dam which creates this artificial habitat. The tree now leans severely and is supported by a small wooden brace. Should this brace fail, the tree will be uprooted, threatening a breach in the dam.

3. Studies suggest that resources management action is necessary in order to restore mudturtle breeding habitat. This will have a secondary benefit of creating warm shallows thus improving pupfish breeding habitat and will restore missing components of shorebird habitat. Total breaching of the dam can also be avoided. As a result of eventual needed habitat improvement to this pond, premature designation of the pupfish population and its habitat can only create unrealistic administrative impacts. They could be totally avoided by allowing the National Park Service to continue intensive research efforts aimed at providing the answers needed for restoring improved conditions within the pond, delivery system and springs.

4. Since Quitobaquito pond was constructed in the 1860's, water has been conducted to it from the springs by ditches and pipes. These are the habitat for the bull-rush Scirpus olneyi, an aggressive native species. Formerly, livestock grazing kept the water delivery system clear of reeds. Today they tend to choke the ditches and block water flow. They can only be kept clear by labor-intensive management. If left unchecked, they can clog the system to such an extent that the pond water level can drop 18 inches in a single week, desiccating the best pupfish nesting sites. A new, safe, low-maintenance and ecologically sound water delivery system needs to be designed, installed and tested. These modifications can only occur upon completion of studies previously noted.

5. Perpetuation of the pupfish at Quitobaquito has been maintained with reasonable continuity within recorded time inspite of varied past actions. Not only has this site and this species withstood intensive livestock grazing and watering alongside and within the very site being considered as endangered, but it has withstood centuries of human use and abuse of its natural resources. Today there are far

greater threats of a more subtle nature. Pesticide drift from new agricultural land uses in Mexico and the potential for ground water withdrawals which could conceivably eliminate spring flow and this entire ecosystem have become crucial considerations. Their impacts could totally eliminate any minor positive benefits resulting from formal designation. These insidious and far more critical issues are also now under active investigation by the National Park Service in cooperation with the U.S. Geological Survey. We view these activities as being so critical that any and all administrative or other interferences must be held to a minimum.

6. While the National Park Service recognizes the importance of holding desert pupfish safe from harm, this species is only one part of the Quitobaquito ecosystem. With the formal establishment of endangered status at this time, prior to availability of all evidence, may easily result in our overlooking the interdependence of this fish and its habitat. Attention must now be paid toward improving the entire system. To the degree that Quitobaquito is managed exclusively for the benefit of a single species, sound resources management can only suffer and overall legislated mandates of the National Park Service will not be achieved. Our mandates and policies recognize the need to sustain and improve entire altered ecosystems. They do not concern themselves with rescue efforts aimed primarily at portions of an ecosystem.

Need for Clarification to Proposal

Several reviewers have questioned adequacy of this initial proposal as it relates specifically to a description of the Quitobaquito ecosystem. We are deferring, however, any clarification until such time as the recommendation to exclude Quitobaquito and the pupfish therein is resolved. We look forward to your analysis of these comments.

s/ W. Lowell White

cc:

Regional Director, U.S. Fish and Wildlife Service,
Albuquerque, New Mexico

RM

NI621(WR-RN)

June 27, 1984

Memorandum

To: Regional Director, Western Region

Through: General Superintendent, Southern Arizona Group

From: Superintendent, Organ Pipe Cactus National Monument

Subject: Comments on proposal to designate desert pupfish (Cyprinodon macularius) an endangered fish and to designate the critical habitat
Reply due: July 6, 1984

We have reviewed the above subject Federal Register notice and concur with the proposal to designate the desert pupfish (Cyprinodon macularius) an endangered species.

Our comments on the subject proposal consists of two parts; one relating to the Federal Register notice itself, and secondly to the impacts to the Monument that would result from this listing.

Part One

Section 4(a)(3) on page 20741 states "...The proposed areas include approximately one-half acre of aquatic habitat at Quitobaquito Spring... A riparian buffer zone of at least 100 feet is deemed necessary around the spring." We suggest the 100 foot buffer zone be defined more exactly to include both north and south spring heads, water transport between the two springs, water transport from the lower spring to the pond, and the pond itself. A sketch of the spring/pond complex is included for further clarification. All of the water components of this system contain or potentially contain pupfish. Protection of both spring heads is essential for continued maintenance of pond water levels. To include only a "one-half acre" area and encompassing buffer zone we feel does not consider the high degree of interrelatedness of the numerous components in this ecosystem.

Section 4(b)(8) item 3 addresses "other activities... could reduce the habitat's suitability for pupfish... increased recreational use." Quitobaquito is a popular visitor use area primarily because of its natural attributes but for any number of other values people perceive this place to hold. Current visitor levels can only be projected to increase as total area visitation increases over the years.

While the perpetuation of the pupfish at Quitobaquito has been maintained with reasonable continuity within historic times, numerous threats and concerns warrant careful study and attention be given to the habitat. Pesticide drift from Mexico and the potential for groundwater withdrawal which could affect spring flow remain important considerations. While we realize U.S. endangered species don't cross international boundaries, we have tried to emphasize in other park documents the need for joint research with Mexico that could eventually lead to cooperative land use planning and protection of species on both sides of the border. We hope that additional efforts to protect this species and perhaps others in the future could occur at the State Department level and include appropriate NPS, FWS and Mexican staff.

Part Two

The proposed listing comes as no surprise. We wish that research currently underway could have been funded in a more timely manner to allow implementation of recommended projects before listing occurs.

To accurately assess the resources of the Quitobaquito Management Area and receive as early a warning as possible of potential threats to the resources, an active monitoring program is required. Listing of the pupfish should assure that funding to carry out the necessary monitoring is given high priority. Based on current estimates the following funding levels for monitoring, for annual maintenance of the water delivery system and for annual maintenance of shoreline for improved turtle nesting habitat, and for "one time" site modifications include:

		1st year	subsequent years
1) Park Staff Monitoring and maintenance			
a. .2 FTE	3700		
b. expendable supplies	1900		
	<u>5600</u>		5,600
c. non-recurring supplies	4500		
	<u>10,100</u>	10,100	
2) Research Staff Monitoring			
a. .1 FTE	2400		
b. expendable supplies	100		
	<u>2500</u>		2,500
c. non-recurring supplies	2900		
	<u>5400</u>	5,400	
3) Site Modifications			
a. Non-recurring supplies		15,500	
		<u>31,000</u>	<u>8,100</u>
		31,000	8,100

More specific details of the monitoring requirement and associated costs are provided in Attachment A.

Considering the expenditure of over \$100,000 in research and four years to develop the site specific resource management plan for Quitobaquito, funding must be found to implement these requirements. The annual funding needs are small when compared to the cost incurred identifying those needs.

We appreciate the opportunity to comment on the proposal and urgently request funding to implement the monitoring and site modification requirements.

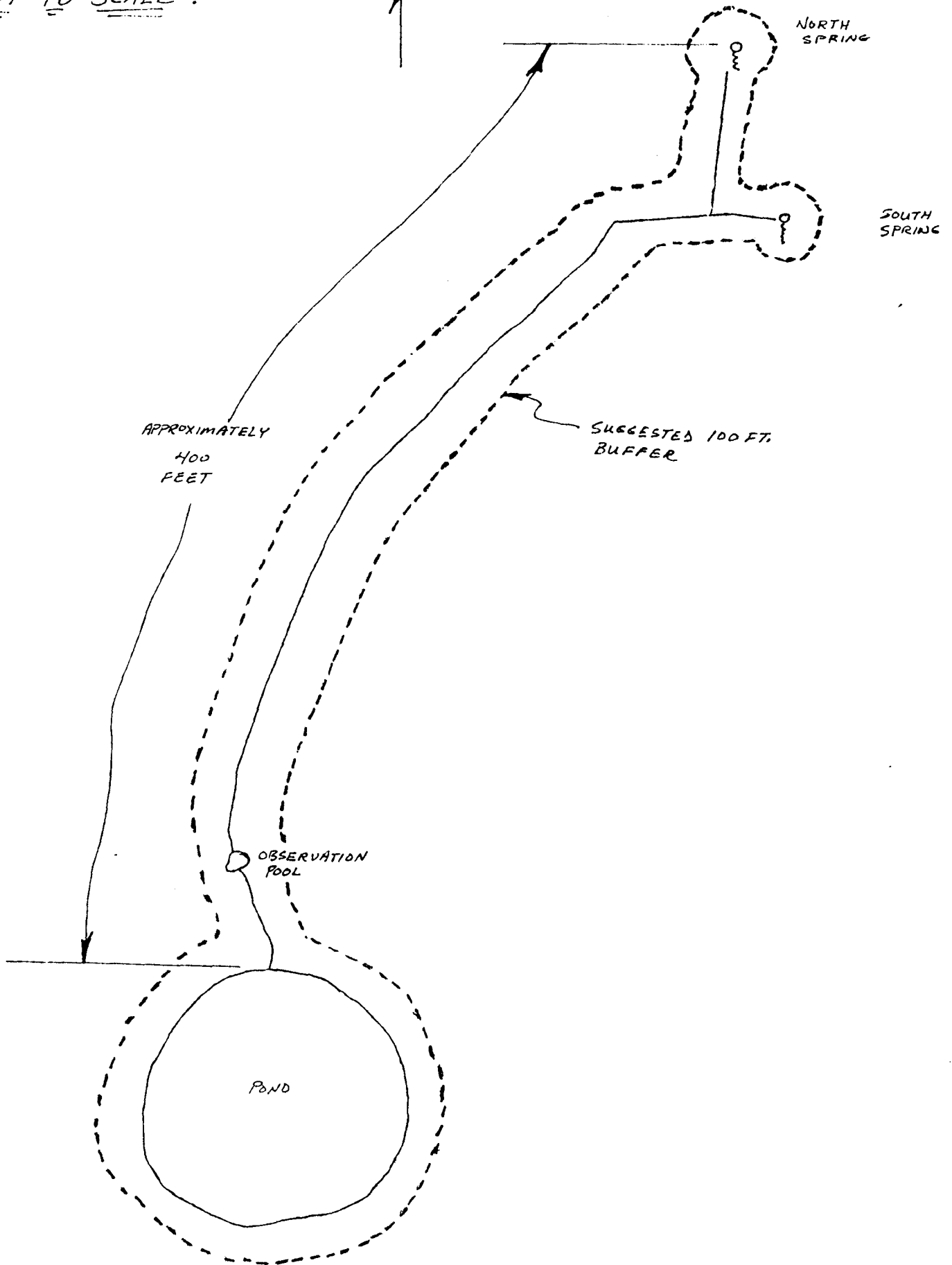
Harold J. Smith

Enclosures

cc:

General Superintendent, Southern Arizona Group w/c/enc.

NOT TO SCALE!



QUITOBAQUITO MANAGEMENT AREA
MONITORING REQUIREMENTS

Monitoring/Maint. Task	TIME		SALARY				
	Yearly Freq.	Total man hours	GS-9 Park Staff	GS-12 Contr. Res.	Expend. Supplies	Non- recur. exp.	One time project
PARK STAFF MONITORING							
1. Pupfish census	2	40	450		0	1500	
2. Check for exotic fish	4	32	360		0	0	
3. Turtle census	1	20	224		0	600	
4. Pesticide monitoring	1	3	34		900	300	
5. Weather station maintenance	12	24	270		25	1000	
6. Photopoints	1	4	45		25	500	
7. Water chemistry	12	24	270		300	600	
8. Small cactus plots	1	2	22		0	0	
9. Misc.(includes checks for leaks in pond water impoundment structure, ditch flow & hazardous tree problems, weir gauge oper. & trail/exhibits/ marker inspec.)	52	104	1169		650	0	
10. Water transport, pond beach maintenance	3	72	809		0	0	
SUBTOTAL		325	3653		1900	4500	
RESEARCH STAFF MONITORING							
11. Bird census	2	32		522	0	600	
12. Exotic aquatic & riparian plants	4	20		326	20	100	
13. Limnology census	2	8		130	50	1000	
14. Mammal species diversity	1	16		261	25	900	
15. Plant transects	3	54		880	0	200	
16. Reptile species diversity	1	16		261	0	100	
SUBTOTAL		146		2380	95	2900	
SITE MODIFICATIONS							
17. Water impoundment integrity (one time insp.)							500
18. Reconstruct H ₂ O delivery system							7000
19. Alter 30% of pond shoreline to improve turtle nesting habitat.							5000
20. Habitat modification to maintain mammal species diversity							3000
TOTALS		325 [Ⓐ] 146 [Ⓑ] 471	\$3653	\$2380	\$1995	\$7400	\$15,500
Total recurring expenses. Needed additions to park base . . . \$7,928						One time costs= \$24,900	

Ⓐ = park staff, 235 hr. = .15 my

Ⓑ = research staff, 146 hr. = .07 my

3653
2380
5195
7928



United States Department of the Interior

NATIONAL PARK SERVICE

WESTERN REGION

450 GOLDEN GATE AVENUE, BOX 310943
SAN FRANCISCO, CALIFORNIA 94102

RECEIVED

Organ Pipe Cactus, N. M.

1984
0584

IN REPLY REFER TO:

N1621(WR-RN)

May 30, 1984

Memorandum

To: General Superintendent, Southern Arizona Group
Superintendent, Organ Pipe Cactus
Cooperative Programs Studies Unit Leader, University of Arizona
Research Biologist Bennett, Western Archeological and
Conservation Center

From: **ACTING** Regional Director, Western Region

Subject: Proposal to designate desert pupfish (*Cyprinodon macularius*)
an endangered fish and to designate the critical habitat
Reply due: July 6, 1984

Please make a careful review of the facts surrounding the designation of Quitobaquito Springs as critical habitat for the pupfish. Does the data clearly support this designation or is more clarification of the species status at Quitobaquito needed? Are we talking only of the spring proper or the pond as well? You undoubtedly have other questions also.

The Endangered Species Act, as amended, allows for omitting segments of a wildlife population or its habitat if and when evidence supports such an action. If such evidence exists at Quitobaquito, we should surface it now with the Fish and Wildlife Service.

The lack of reproduction of the Sonoran mud turtle in Quitobaquito will likely require some modification of Quitobaquito pond to rectify. We should raise this issue with the Fish and Wildlife Service at this time so that they can consider the total picture at Quitobaquito during the designation decision process. Such habitat modifications, as well as Mr. Pete Bennett's research program, will become much more complicated if and when Quitobaquito is designated critical habitat.

We look forward to receiving your comments.

W. V. Pate

Enclosure

50 CFR Part 17

Endangered and Threatened Wildlife and Plants; Proposed Endangered Status and Critical Habitat for the Desert Pupfish (*Cyprinodon macularius*)**AGENCY:** Fish and Wildlife Service, Interior.**ACTION:** Proposed rule.**SUMMARY:** The Service proposes to determine the desert pupfish (*Cyprinodon macularius*) to be an endangered species and to designate its critical habitat. This proposal, if made final, would implement Federal protection provided by the Endangered Species Act of 1973, as amended. The desert pupfish has been drastically reduced in numbers and distribution because of competition for food and space with exotic fishes, predation by exotic fish species, and habitat losses resulting from dam construction, streambank erosion, stream channelization, groundwater pumping, water pollution, and the lining and dredging of irrigation drains. The Service seeks data and comments from the public on this proposal.**DATES:** Comments from all interested parties must be received by July 16, 1984. Public hearing requests must be received by July 2, 1984.**ADDRESSES:** Comments and materials concerning this proposal should be sent to the Regional Director, U.S. Fish and Wildlife Service, Lloyd 500 Building, Suite 1692, 500 N.E. Multnomah Street, Portland, Oregon 97232. Comments and materials relating to this proposal are available for public inspection by appointment during normal business hours at the above address.**FOR FURTHER INFORMATION CONTACT:** Mr. Sanford R. Wilbur, Endangered Species Coordinator, U.S. Fish and Wildlife Service, Lloyd 500 Building, Suite 1692, 500 N.E. Multnomah Street, Portland, Oregon 97232 (503/231-6131; FTS 429-6131).**SUPPLEMENTARY INFORMATION:****Background**

The desert pupfish (*Cyprinodon macularius*) is a small, laterally-

compressed fish with a smoothly rounded body shape. Adult fish rarely grow larger than 75 mm in total length. Males are larger than females and during the reproductive season become brightly colored with blue on the dorsal portion of the head and sides and yellow on the caudal fin and the posterior part of the caudal peduncle. Females and juveniles typically have tan to olive backs and silvery sides. Most adults have narrow, vertical, dark bars on their sides, which are often interrupted to give the impression of a broken, lateral band. The desert pupfish was described in 1853 by Baird and Girard from specimens collected in the San Pedro River of Arizona.

Desert pupfish were once common in the desert springs, marshes, and tributary streams of the lower Gila and Colorado River drainages in Arizona, California, and Mexico. They also formerly occurred in the slow-moving reaches of some large rivers including the Colorado, Gila, San Pedro, and Santa Cruz Rivers. The current distribution is restricted to Salt Creek, San Felipe Creek and its associated wetland, San Sebastian Marsh, and a few shoreline pools and irrigation drains along the Salton Sea in California; Quitobaquito Spring within Organ Pipe Cactus National Monument in Arizona; and the Sonoyta River drainage and Santa Clara Slough in Sonora, Mexico. Recent surveys of Salt Creek and the irrigation drains around the Salton Sea (Moore 1983) and the Sonoyta River (McMahon and Miller 1984) indicate that these populations may now be reduced to such low levels that they are no longer viable. The status of the population in Santa Clara Slough is not presently known, but it is possible that the flood that inundated vast reaches of the Colorado River delta in 1983 may have given tilapia (*Tilapia zillii*), largemouth bass (*Micropterus salmoides*), and other exotic fishes that compete with, or prey upon, desert pupfish access to this slough.

Desert pupfish are adapted to harsh desert environments and are capable of surviving extreme environmental conditions. They have been reported to survive water temperatures in excess of 110° F (Moyle 1976), oxygen levels as low as 0.1 to 0.4 parts per million (Lowe et al. 1967), and salinities nearly twice that of seawater (Barlow 1958). They are also capable of surviving daily temperature fluctuations of 45° F (Lowe and Heath 1969) and salinity changes of as much as 10 to 15 parts per thousand (Kinne 1960). Although desert pupfish are extremely hardy in many respects, they cannot tolerate competition or

predation and are thus readily displaced by exotic fishes.

Desert pupfish mature rapidly and may produce up to three generations per year. Spawning males typically defend a small spawning and feeding territory in shallow water. The eggs are usually laid and fertilized on a flocculent substrate and hatch within a few days. After a few hours the young begin to feed on small plants and animals. Spawning occurs throughout the spring and summer months. Individuals typically survive for about a year.

These characteristics, along with the adaptability of the desert pupfish to laboratory aquaria, make it a valuable research animal for ichthyologists and other biologists. A great deal has been learned from this species about fish ecology, genetics, behavior, and physiology. In addition, the rapidity with which the desert pupfish and other members of the genus *Cyprinodon* differentiated into distinct species may give scientists valuable insights into the process of speciation.

The desert pupfish was included in the Service's December 30, 1982, Review of Vertebrate Wildlife for Listing as Endangered or Threatened Species (47 FR 58454-58460). In that review, the desert pupfish was classified as a category 1 species indicating that the Service currently has substantial information on hand to support a proposed rule to list the species as endangered or threatened. On April 12, 1983, the Service was petitioned by the Desert Fishes Council to list the desert pupfish. The Service published a notice of finding on June 14, 1983 (48 FR 27273-27274) indicating that substantial information was presented in the petition to indicate that action may be warranted to list the desert pupfish as endangered or threatened. The State of California classified the desert pupfish as an endangered species in 1980.

Summary of Factors Affecting the Species

Section 4(a)(1) of the Endangered Species Act (16 U.S.C. 1531 et seq.) and the regulations promulgated to implement the listing provisions of the Act (codified at 50 CFR Part 424; under revision to accommodate 1982 Amendments—see proposal at 48 FR 36062, August 8, 1983) set forth the procedures for adding species to the Federal lists. A species may be determined to be an endangered or a threatened species due to one or more of the five factors described in section 4(a)(1). These factors and their application to the desert pupfish (*Cyprinodon macularius*) are as follows:

A. *The present or threatened destruction, modification, or curtailment of its habitat or range.* At the beginning of the 20th Century, the desert pupfish was widespread throughout the lower Gila River and its tributaries, the San Pedro and Santa Cruz rivers, and the lower Colorado River in Arizona, California, and Baja California and Sonora, Mexico. Starting in the 1880's, many desert rivers began experiencing major erosional cycles that resulted in the loss of permanent waters in numerous pupfish streams and the drying up of the shallow, littoral areas preferred by this species. Miller (1961) related this increase in erosion to overgrazing. The construction of mainstream dams on the Gila, Colorado, and Salt rivers for irrigation and flood control dewatered the lower Gila and Salt rivers and eliminated the marshy sidepools in the Colorado River that were preferred by desert pupfish. After this occurred, the pupfish were forced into the mainstream channels of the remaining permanent streams where they were eaten by predators or outcompeted by native and exotic species.

The desert pupfish in the Salton Sea area have been severely reduced in numbers and distribution as the result of the introduction of exotic fish species, modifications to the water conveyance facilities used for irrigating and draining agricultural lands, the application of agricultural pesticides, and the dewatering of natural spring habitats by groundwater pumping. These factors, in combination, have reduced pupfish numbers in most habitats to such low levels that their long-term survival prospects are poor.

The only known habitat in California in which the desert pupfish makes up a dominant part of the fish fauna is a short reach of San Felipe Creek near San Sebastian Marsh (Black 1980). However, the integrity of this habitat is threatened by a proposal to convert the privately owned lands to irrigated agriculture. The removal of large volumes of groundwater from the aquifers that feed San Felipe Creek could cause the marsh to become desiccated and destroy its habitat value for pupfish. Geothermal exploration is also a potential threat to this habitat. Geothermal lease applications have been filed with the Bureau of Land Management for some tracts in the vicinity of San Sebastian marsh. If geothermal energy is discovered in this area in commercially marketable quantities, it is likely the privately owned lands around San Sebastian Marsh could be developed with adverse consequences to the

pupfish habitat. The Federal lands around Salt Creek have already been leased for geothermal exploration.

B. *Overutilization for commercial, recreational, scientific, or educational purposes.* A few individuals are occasionally taken incidentally from the Salton Sea by anglers collecting sailfin mollies (*Poecilia latipinna*) for bait. However, there is no evidence that desert pupfish are currently overutilized for any purpose.

C. *Disease or predation.* Several known predators and competitors of desert pupfish have become established in the natural and manmade tributaries of the Salton Sea, including tilapia (*Tilapia mossambica* and *Tilapia zillii*), sailfin mollies, shortfin mollies (*Poecilia mexicana*), mosquitofish (*Gambusia affinis*), porthole livebearers (*Poeciliopsis gracilis*), and several members of the families Centrarchidae, Ictaluridae, and Cyprinidae. In Arizona, desert pupfish have been displaced from many of their historic spring habitats by largemouth bass (*Micropterus salmoides*).

Recent studies have shown that juvenile tilapia compete with desert pupfish for many of the same food items, and that adults prey on fish and fish eggs. Field and laboratory observations have revealed that tilapia also interfere with the reproductive behavior of desert pupfish (Schoenherr 1980). The extent to which this type of interference has suppressed pupfish reproduction is not known. Largemouth bass are voracious predators that are capable of eliminating pupfish completely from small spring habitats (Miller and Pister, 1971).

Desert pupfish in the Salton Sea area have been infected by a parasitic copepod (anchor worm) of the Lernaeidae family. These parasites were probably contracted from one of the introduced exotic species, possibly *Tilapia zillii*. Even though this fish was spot-checked for parasites and diseases before it was introduced into the area in 1973, it is possible that this parasite and other fish diseases have entered the system on fish that were not inspected.

A brackish water snail of the Thiariidae family was recently introduced by unknown methods into a small stream near North Shore on the Northern periphery of the Salton Sea. These snails could compete with the desert pupfish for food inasmuch as some food items are common to both organisms. Also, the snail may feed on pupfish eggs, and could be an intermediate host for parasites transmittable to pupfish. The natural dispersal of this snail throughout the Salton Sea ecosystem appears to be limited by salinity. It is not known what

effect it would have on the survival prospects of the desert pupfish if it does become established throughout the system.

D. *The inadequacy of existing regulatory mechanisms.* California State law (The Endangered Species Act of 1970, Chapter 1510, Stats. 1970) prohibits the taking of desert pupfish without a permit. However, State law does not provide any protection for habitats that support endangered species.

E. *Other natural or manmade factors affecting its continued existence.* The exotic aquatic weed, *Hydrilla verticillata*, was recently introduced into the All American Canal. This plant is capable of spreading rapidly and is very difficult to control. Consequently it is possible that this aquatic weed may soon find its way into habitats that support desert pupfish. It is not known what the direct effect of its establishment would be on the desert pupfish. However, the extreme methods of chemical, mechanical, and biological control that have been used in other areas where this plant has become established would be likely to have a detrimental effect upon pupfish habitat.

The extensive use of pesticides in areas that border pupfish habitat has previously caused occasional localized fish kills. The population in Quitobaquito Spring is located downwind from nearby farms in Mexico that are sprayed with organophosphates and chlorinated hydrocarbons. Recent studies of this population (Kynard 1981) revealed that the fish in Quitobaquito Spring contained detectable levels of both parathion and DDT derivatives in the late 1970's. Because of the extremely restricted range of the desert pupfish, any major accidental spills or increased levels of pesticide drift could have a devastating impact on the entire population in Quitobaquito Spring.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by this species in the preparation of this proposed rule. Based on this evaluation, the preferred action is to propose to list the desert pupfish as endangered. The now localized distribution of this fish, competition from exotic species, predation pressure, and continued adverse modifications of habitat (i.e., groundwater pumping, pesticide application, changes in water conveyance facilities) indicate it is imminently threatened with extinction; therefore endangered classification is warranted. Recent status surveys have been instrumental in assessing essential habitat and the present condition of the desert pupfish. Overcollection is not the

primary threat facing the desert pupfish. For these reasons the Service does not believe that determining critical habitat for the desert pupfish will contribute to the species' further decline; hence, this proposed rule includes a proposal for critical habitat.

Critical Habitat

Critical habitat as defined by Section 3 of the Act means: (i) The specific areas within the geographical area occupied by the species at the time it is listed in accordance with the Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) that may require special management considerations or protection, and (ii) specific areas outside the geographic area occupied by the species at the time it is listed upon a determination that such areas are essential for the conservation of the species.

Section 4(a)(3) of the Act requires that critical habitat be designated to the maximum extent prudent and determinable concurrently with the determination that a species is endangered or threatened. Critical habitat is being proposed for the desert pupfish at Quitobaquito Spring, Organ Pipe Cactus National Monument, Pima County, Arizona, and portions of San Felipe Creek, Carrizo Wash, and Fish Creek Wash, Imperial County, California. The proposed areas include approximately one-half acre of aquatic habitat at Quitobaquito Spring, and approximately 11 miles of stream channel along San Felipe Creek and two of its tributaries. A riparian buffer zone of at least 100 feet is deemed necessary around the spring and along the tributaries and mainstem of San Felipe Creek because any activities that are carried out adjacent to the spring and stream channel may have a direct impact on the quality of aquatic habitat for desert pupfish; this riparian buffer zone is believed to be essential to the conservation of the species. The regulations promulgation section contains a legal description of the proposed critical habitat.

The areas proposed as critical habitat satisfy all known criteria for the ecological, behavioral, and physiological requirements of the species. The species successfully reproduces in Quitobaquito Spring and the designated reaches of San Felipe Creek, Carrizo Wash, and Fish Creek Wash. These areas also provide adequate food and cover. Perhaps most importantly, these areas are also isolated or at least partially isolated, from predatory and competing exotic fishes. Because the desert pupfish

is non-migratory, the areas it inhabits must fulfill all the requisites for survival and successful reproduction.

Section 4(b)(8) requires, for any proposed or final regulation which designates critical habitat, a brief description and evaluation of those activities (public or private) which may adversely modify such habitat or may be affected by such designation. It should be emphasized that critical habitat designation may not affect each of the activities listed below, as critical habitat designation affects only Federal agency actions through section 7 of the Act.

1. Withdrawal of water either directly or indirectly from San Sebastian Marsh could destroy or reduce the suitability of this habitat for desert pupfish.

2. Stocking of additional exotic fish or other non-endemic species into waters within the critical habitat may introduce parasites and increase the incidence of predation on desert pupfish.

3. Other activities (which, though not anticipated at this time, could conceivably occur in the foreseeable future) could also reduce the habitat's suitability for desert pupfish. These activities include geothermal development, stream channelization, increased recreational use, and the siting of transmission lines, roads, canals, or irrigation drains within the designated areas.

Section 4(b)(2) of the Act requires the Service to consider economic and other impacts of specifying a particular area as critical habitat. The Service will consider the critical habitat designation in light of all additional relevant information at the time the final rule is prepared.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Endangered Species Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing encourages and results in conservation actions by other Federal, State, and private agencies, groups, and individuals. The Endangered Species Act provides for land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. Such actions are initiated by the Service following listing. The protection required of Federal agencies and the prohibitions against taking and harm are discussed, in part, below.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species

that is proposed or listed as endangered or threatened. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR Part 402, and are now under revision (see proposal at 48 FR 29990; June 29, 1983). Section 7(a)(4) requires Federal agencies to informally confer with the Service on any action that is likely to jeopardize the continued existence of a proposed species or result in the destruction or adverse modification of proposed critical habitat. When a species is actually listed, section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of such a species, or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into consultation with the Service.

Federal activities that could affect the species and its habitat in the future include, but are not limited to, the following: The issuance of permits for mineral exploration or grazing, the development of the area for recreation, the issuance of permits for roads, transmission lines, canals, or irrigation drains, or the channelization of San Felipe Creek for flood control purposes.

The Act and implementing regulations found at 50 CFR 17.21 set forth a series of general prohibitions and exceptions that apply to all endangered fish or wildlife. These prohibitions, in part, would make it illegal for any person subject to the jurisdiction of the United States to take, import or export, ship in interstate commerce in the course of a commercial activity, or sell or offer for sale in interstate or foreign commerce listed species. It also would be illegal to possess, sell, deliver, carry, transport, or ship any such wildlife which was illegally taken. Certain exceptions would apply to agents of the Service and State conservation agencies.

Permits may be issued to carry out otherwise prohibited activities involving endangered fish or wildlife species under certain circumstances. Regulations governing permits are at 50 CFR 17.22. Such permits are available for scientific purposes or to enhance the propagation or survival of the species.

If listed under the Act, the Service will review this species to determine whether it should be placed upon the Annex of the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere, which is implemented through section 8A(e) of the Act, and whether it should be considered for other appropriate international agreements.

Public Comments Solicited

The Service intends that any final rule adopted will be as accurate and as effective as possible in the conservation of each endangered or threatened species. Therefore, any 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 these proposed rules are hereby solicited. Comments particularly are sought concerning:

(1) Biological, commercial trade, or other relevant data concerning any threat (or lack thereof) to the desert pupfish;

(2) The location of any additional populations of desert pupfish and the reasons why any habitat of this species should or should not be determined to be critical habitat as provided by Section 4 of the Act;

(3) Additional information concerning the range and distribution of this species;

(4) Current or planned activities in the subject area and their possible impacts on the desert pupfish; and

(5) Any foreseeable economic and other impacts resulting from the proposed critical habitat.

Final promulgation of the regulations on the desert pupfish will take into consideration the comments and any additional information received by the Service, and such communications may lead to adoption of a final regulation that differs from this proposal.

The Endangered Species Act provides for a public hearing on this proposal, if requested. Requests must be filed within 45 days of the date of the proposal. Such requests should be made in writing and addressed to the Regional Director, U.S. Fish and Wildlife Service, Lloyd 500 Building, Suite 1692, 500 N.E. Multnomah Street, Portland, Oregon 97232.

National Environmental Policy Act

The Fish and Wildlife Service has determined that an Environmental Assessment, covered by the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination was published in the Federal Register on October 25, 1983 (48 FR 49244).

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Authors

The primary authors of this rule are Dr. Kathleen E. Franzreb and Mr. Edward M. Lorentzen, Sacramento Endangered Species Office, U.S. Fish and Wildlife Service, 1230 "N" Street,

14th Floor, Sacramento, California 95814 (916/440-2791; FTS 440-2791).

List of Subjects in 50 CFR Part 17

Endangered and threatened wildlife, Fish, Marine mammals, Plants (agriculture).

Proposed Regulations Promulgation

PART 17—[AMENDED]

Accordingly, it is hereby proposed to amend Part 17, Subchapter B of Chapter I, Title 50 of the Code of Federal Regulations, as set forth below:

1. The authority citation for Part 17 reads as follows:

Authority: Pub. L. 93-205, 87 Stat. 884; Pub. L. 94-359, 90 Stat. 911; Pub. L. 95-632, 92 Stat. 3751; Pub. L. 96-159, 93 Stat. 1225; Pub. L. 97-304, 98 Stat. 1411 (16 U.S.C. 1531 *et seq.*).

2. It is proposed to amend § 17.11(h) by adding the following in alphabetical order under Fishes to the List of Endangered and Threatened Wildlife:

§ 17.11 Endangered and threatened wildlife.

(h)

Species	Common name	Scientific name	Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Fishes:								
	Pupfish, desert	<i>Cyprinodon macularius</i>	U.S.A. (AZ, CA); Mexico	Entire	E	17.95(e)		N/A

3. It is further proposed to amend § 17.95(e) for Fisher by adding critical habitat for the desert pupfish as follows:

§ 17.95 Critical Habitat—fish and wildlife (e) Fishes.

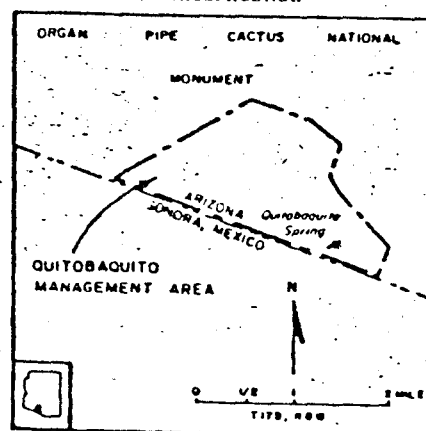
Desert Pupfish

(*Cyprinodon macularius*)

Arizona: Prima County.

1. *Quitobaquito Spring*. The spring is approximately 25 miles W/NW of Lukeville, Arizona in Organ Pipe Cactus National Monument, in T. 17 S., R. 8 N. The spring consists of approximately one-half acre in the Quitobaquito Management Area. A 100 foot

riparian buffer zone around the spring is included in the critical habitat.



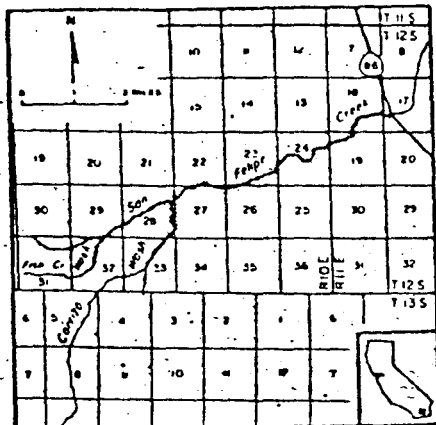
California: Imperial County.

1. *San Felipe Creek*. Approximately 8½ stream miles and 100 feet on either side of San Felipe Creek or the stream channel commencing from the State Highway 86 bridge crossing (approximately ¼ mi S of intersection of Hwy 78 and Hwy 86) upstream to the eastern boundary of Section 31, T. 12 S., R. 10 E.; including those areas of the stream channel in: T. 12 S., R. 11 E., Section 17, 18, and 19; T. 12 S., R. 10 E., Section 22, 23, 24, 28, 27, 28, 29, and 32.

2. *Carrizo Wash*. Approximately 1½ stream miles and 100 feet on either side of the stream channel commencing from the confluence of Carrizo Wash with San Felipe Creek upstream to the southern boundary of N½ Section 33, T. 12 S., R. 10 E., including

those areas of the stream channel in T. 12 S., R. 10 E., Section 27, 28, and N½ 33.

3. *Fish Creek Wash*. Approximately three-fourths of one stream mile and 100 feet on either side of the stream channel from the confluence of Fish Creek Wash with San Felipe Creek upstream to the southern boundary of N½ Section 32, T. 12 S., R. 10 E., including those areas of the stream channel in T. 12 S., R. 10 E., Sections 29 and N½ 32.



Constituent element for all four areas proposed as critical habitat include clean unpolluted water, free of exotic organisms, especially exotic fishes, in small slow-moving desert streams and spring pools with marshy backwater areas.

Dated: May 5, 1984.

G. Ray Arnett,

Assistant Secretary for Fish and Wildlife and Parks.

[FR Doc. 84-13126 Filed 84-15-84; 8:45 am]

BILLING CODE 4310-55-M



IN REPLY REFER TO:

N2623 (WR-RN)

April 10, 1986

Memorandum

To: Superintendent, Organ Pipe Cactus

From: ^{Acting} Associate Regional Director, Resource Management and Planning, Western Region

Subject: Endangered Status and Critical Habitat for Desert Pupfish

Enclosed is a copy of a final rule by Fish and Wildlife Service (FWS) that determines the desert pupfish (*Cyprinodon macularius*), to be an endangered species. The ruling also designates critical habitat for the species, which includes approximately one-half acre of aquatic habitat at Quitobaquito Spring and a 100-foot riparian buffer around the spring.

We will continue to work closely with you in consulting with Fish and Wildlife Service on any future construction projects at the Quitobaquito Spring complex such as completion of the improved water supply system from the spring to the pond and development of potential haul-out area(s) for turtles inhabiting the pond.

Bruce M. Kilgore

Enclosure

cc: w/enc.
General Superintendent, Southern Arizona Group Office
Cooperative Parks Studies Unit Leader R. Johnson,
University of Arizona, Tucson

United States Department of the Interior
NATIONAL PARK SERVICE
WESTERN REGION
450 GOLDEN GATE AVENUE, BOX 36063
SAN FRANCISCO, CALIFORNIA 94102

RECEIVED	
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ACTION	INFO
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☒	INTELL. SPECIALIST
☒	PLANT. RANGER
☒	WATER SERV.
☒	SPRINT
☒	EO
☒	FILE

14. Section 69.303 is amended by revising paragraph (c) to read as follows:

§ 69.303 Station equipment.

(c) Investment in all other station equipment shall be apportioned between the Special Access and Common Line elements on the basis of the relative number of equivalent lines in use, as provided herein. Each interstate or foreign Special Access line, excluding lines designated in § 69.115(e), shall be counted as one or more equivalent lines where channels are of higher than voice bandwidth, and the number of equivalent lines shall equal the number of voice capacity analog or digital channels to which the higher capacity is equivalent. Local exchange subscriber lines shall be multiplied by the interstate separations factor for non-traffic sensitive plant to determine the number of equivalent local exchange subscriber lines.

15. Sections 69.304 is amended by revising paragraph (a) and (b) to read as follows:

§ 69.304 Customer OSP.

(a) Investment in local exchange subscriber lines shall be assigned to the Common Line element.

(b) Investment in interstate and foreign private lines and interstate WATS access lines shall be assigned to the Special Access element.

16. Section 69.305 is amended by revising paragraph (b) to read as follows:

§ 69.305 Carrier OSP.

(b) Carrier OSP, other than WATS access lines, not assigned pursuant to paragraph (a) of this section that is used for interexchange services that use switching facilities for origination and termination that are also used for local exchange telephone service shall be apportioned between the dedicated Transport and Common Transport elements. Such OSP shall be assigned to the Dedicated Transport element if it is used exclusively for the interexchange services of a particular carrier.

[FR Doc. 86-8838 Filed 3-28-86; 8:45 am]

BILLING CODE 6712-01-M

INTERSTATE COMMERCE COMMISSION

49 CFR Part 1051

[No. MC-C-10939]

Motor Carriers; Petition for Waiver or Modification of the Recordkeeping Requirements for Shipments of Low Value Packages

AGENCY: Interstate Commerce Commission.

ACTION: Final rule.

SUMMARY: On January 27, 1986, the Commission issued a decision granting a waiver to United Parcel Service (UPS) from the recordkeeping requirements of 49 CFR 1051.1 [51 FR 3516, January 28, 1986]. In that decision we announced that we would examine further the possibility of waiving the recordkeeping provisions with respect to all general freight carriers. The Commission has determined that such proposal has merit and, therefore, is adopting rules allowing waiver of the recordkeeping requirements of 49 CFR 1051.1 for all common carriers and shippers where packages designated as low value are involved.

EFFECTIVE DATE: April 30, 1986.

FOR FURTHER INFORMATION CONTACT: Robin Williams Denick, (202) 275-7711.

or

Howell I. Sporn, (202) 275-7691.

SUPPLEMENTARY INFORMATION:

PART 1051—[AMENDED]

Title 49 of the CFR is amended as follows:

1. The authority citations following § 1051.1 and § 1051.2 are removed and an authority citation for 49 CFR Part 1051 is added to read as follows:

Authority: 49 U.S.C. 10321 and 11144; 5 U.S.C. 553.

2. Section 1051.1 is amended by adding new paragraph (c) to precede the cross reference to read as follows:

§ 1051.1 Information to be shown.

(c) The carrier and shipper may elect to waive the above provisions and use a more streamlined recordkeeping or documentation system, as devised by the common carrier, for distribution of "low value" packages. Election of this waiver includes the option of shipping such packages under the released rates provision of 49 U.S.C. 10730. The shipper has the ultimate responsibility for determining which of its packages should be designated as low value. A useful guideline for such a determination

is an invoice value less than or equal to the costs associated with preparing a loss or damage claim.

Additional Information

Additional information is contained in the Commission's decision. To purchase a copy of the full decision, write to T.S. Infosystems, Inc., Room 2229, Interstate Commerce Commission Building, Washington, DC 20423, or call 289-4357 (D.C. Metropolitan area) or toll free (800) 424-45403.

Energy and Environmental Considerations

The final rule, as shown in this notice, will not affect significantly the quality of the human environment or the conservation of energy resources.

Regulatory Flexibility Analysis

The Commission certifies that adoption of the rule modification approved in this proceeding will not have a significant economic impact on a substantial number of small entities because only recordkeeping requirements are waived for certain shipments.

The index terms for 49 CFR Part 1051 are as follows: Buses, Freight, and Motor Carriers.

Decided: March 6, 1986.

By the Commission, Chairman Gradison, Vice Chairman Simmons, Commissioners Sterrett, Andre, and Lamboley. Commissioner Lamboley commented with a separate expression. Vice Chairman Simmons dissented with a separate expression.

James H. Bayne,

Secretary.

[FR Doc. 86-6974 Filed 3-28-86; 8:45 am]

BILLING CODE 7035-01-M

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

Endangered and Threatened Wildlife and Plants; Determination of Endangered Status and Critical Habitat for the Desert Pupfish

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The Service determines the desert pupfish (*Cyprinodon macularius*) to be an endangered species. Critical habitat is also designated for this species in Imperial County, California, and Pima County, Arizona. Viable, self-

sustaining populations of desert pupfish are now believed to exist in only two of the historic habitats in the United States. The remaining populations in Mexico are also reported to be declining or vulnerable. The surviving natural populations are impacted by competition from exotic fishes for food and space, predation by exotic fishes, water pollution, ground-water pumping, agricultural pesticide drift, stream channelization, and possibly the habitat modifications associated with flooding in the Colorado River delta in 1983 and 1984. Designation of the desert pupfish as an endangered species affords this species the full protection provided by the Endangered Species Act of 1973, as amended.

DATE: The effective date of this rule is April 30, 1986.

ADDRESS: The complete file for this rule is available for inspection, by appointment, during normal business hours at the U.S. Fish and Wildlife Service, Lloyd 500 Building, Suite 1692, 500 NE., Multnomah Street, Portland, Oregon 97232.

FOR FURTHER INFORMATION CONTACT: Mr. Wayne S. White, Chief, Division of Endangered Species, at the above address, (503/231-6131 or FTS 429-6131).

SUPPLEMENTARY INFORMATION:

Background

The desert pupfish (*Cyprinodon macularius*) is a small, laterally-compressed fish with a smoothly rounded body shape. Adult fish rarely grow larger than 75 millimeters (3 inches) in total length. Males are larger than females and during the reproductive season become brightly colored with blue on the dorsal portion of the head and sides and yellow on the caudal fin and the posterior part of the caudal peduncle. Females and juveniles typically have tan to olive backs and silvery sides. Most adults have narrow, vertical, dark bars on their sides, which are often interrupted to give the impression of a disjunct, lateral band. The desert pupfish was described in 1853 by Baird and Girard from specimens collected in the San Pedro River of Arizona.

The desert pupfish was once common in the desert springs, marshes, and tributary streams of the lower Gila and Colorado River drainages in Arizona, California, and Mexico. It also formerly occurred in the slow-moving reaches of some large rivers, including the Colorado, Gila, San Pedro, and Santa Cruz. The species is currently known from only two historic locations in the United States. In California, it still exists in two Salton Sea tributaries (San Felipe Creek system and its associated

wetland San Sebastian Marsh, Imperial County, and Salt Creek, Riverside County) and a few shoreline pools and irrigation drains along the Salton Sea in Imperial and Riverside Counties. In Arizona, it still inhabits Quitobaquito Spring within the Organ Pipe Cactus National Monument in Pima County. The species is also believed to inhabit the Colorado River system in the Rio Sonoyta drainage and Santa Clara Slough in Sonora, Mexico. Recent surveys of Salt Creek and the irrigation drains around the Salton Sea (Moore, 1983) and the Rio Sonoyta (McMahon and Miller, 1985) indicate that the populations there may now be reduced to such low levels that they are no longer viable. The current status of the population in Santa Clara Slough is unknown. However, the floods that inundated vast reaches of the Colorado River delta in 1983 and 1984 may have given tilapia (*Tilapia zillii*), largemouth bass (*Micropterus salmoides*), and other exotic fishes that compete with, or prey upon, the desert pupfish, access to this slough. These recent high flows also may have enhanced habitat conditions for exotic fishes by improving water quality in the delta.

Refugia populations of desert pupfish have been established in Arizona at Bog Hole (Santa Cruz County), Research Ranch (Santa Cruz County), Arizona-Sonora Desert Museum (Pima County), Boyce Thompson Arboretum (Pinal County), and Arizona State University (Maricopa County). The Bog Hole and Research Ranch populations are believed to be derived from Quitobaquito Spring. The fish at Arizona-Sonora Desert Museum and Boyce Thompson Arboretum were obtained from Dexter National Fish Hatchery, which obtained its fish from the Santa Clara Slough population. Two populations have been established in refugia at Arizona State University, one derived from Quitobaquito Spring and the other from Santa Clara Slough.

In California, refugia populations exist at Salton Sea State Park (Riverside County), the Living Desert Reserve (Riverside County), and three separate locations in Anza-Borrego State Park (San Diego County). The populations in Salton Sea State Park and the Living Desert Reserve are derived from Salton Sea Stock. Two of the refugia populations at Anza-Borrego State Park (Palm Spring and the Visitor Center) are derived from the Salton Sea; the third (Palm Canyon) is derived from San Felipe Creek. Most of these refugia populations are maintained in highly artificial environments, and contain relatively small numbers of fish.

Desert pupfish are also being held at Dexter National Fish Hatchery, Dexter,

New Mexico. These fish were obtained from Santa Clara Slough. They are being maintained in that facility for use in research and for future reintroduction efforts in Arizona.

Desert pupfish were recently introduced into one natural and two manmade spring habitats on Bureau of Land Management (BLM) land in Arizona. These populations, which were established from the stock at Dexter National Fish Hatchery, are located at Peoples Canyon in the Bill Williams River drainage (Yavapai County), Howard Well in the Gila River drainage (Graham County), and Mesquite Spring in the Gila River drainage (Pinal County). However, it will be some time before it is known whether these introductions have resulted in the establishment of self-sustaining populations that can survive the local climatic regime.

Land ownership of the remnant natural habitats in the United States is divided between private and Federal interests. Quitobaquito Spring is entirely on National Park Service Lands within the boundaries of Organ Pipe Cactus National Monument. Title to the lands along San Felipe Creek is arranged in a checkerboard pattern, about evenly divided between Federal and private holdings.

Desert pupfish are adapted to harsh desert environments and are capable of surviving extreme environmental conditions. They have been reported to survive water temperatures in excess of 43.3 Centigrade (110 Fahrenheit) (Moyle, 1976), oxygen levels as low as 0.1 to 0.4 parts per million (Lowe *et al.*, 1967), and salinities nearly twice that of seawater (Barlow, 1958). They are also capable of surviving extreme fluctuations in temperature (Lowe and Heath, 1969) and daily salinity changes of as much as 10 to 15 parts per thousand (Kinne, 1960). Although desert pupfish are extremely hardy in many respects, they cannot tolerate competition or predation and are thus readily displaced by exotic fishes.

Desert pupfish mature rapidly and may produce up to three generations per year. Spawning males typically defend a small spawning and feeding territory in shallow water. The eggs are usually laid and fertilized on a flocculent substrate and hatch within a few days. After a few hours, the young begin to feed on small plants and animals. Spawning occurs throughout the spring and summer months. Individuals typically survive for about a year.

These characteristics, along with the adaptability of the desert pupfish to laboratory aquaria, make it a valuable research animal for ichthyologists and

other biologists. A great deal has been learned from this species about fish ecology, genetics, behavior, and physiology. In addition, the rapidity with which the desert pupfish and other members of the genus *Cyprinodon* differentiated into distinct species may give scientists valuable insights into the process of speciation.

The precarious status of the desert pupfish is recognized by the State of California, which has classified the desert pupfish as an "endangered" species, and by the State of Arizona, which has included the desert pupfish on its list of native species that are in danger of being extirpated from the State. The desert pupfish was included in the Service's December 30, 1982, Review of Vertebrate Wildlife for Listing as Endangered or Threatened Species (47 FR 58454). In that review, the desert pupfish was classified as a category 1 species, indicating that the Service had substantial information on hand to support a proposed rule to list the species as endangered or threatened. On April 12, 1983, the Service was petitioned by the Desert Fishes Council to list the desert pupfish. The Service published a notice of finding on June 14, 1983 (48 FR 27273), announcing that the petition had presented substantial information indicating that listing may be warranted. On May 16, 1984, the Service published a proposed rule to list the desert pupfish as an endangered species and declare critical habitat (49 FR 20739), in accordance with Section 4(b)(3)(B)(i) of the Endangered Species Act of 1973, as amended.

Summary of Comments and Recommendations

In the May 16, 1984, proposed rule (49 FR 20739) and associated notifications, all interested parties were requested to submit factual reports or information that might contribute to the development of a final rule. Appropriate State agencies, county governments, Federal agencies, foreign governments, scientific organizations, and other interested parties were contacted and requested to comment. Newspaper notices were published in the *Arizona Republic*, the *Tucson Citizen*, and *Ajo Copper News* on June 13, 1984, and in the *Imperial Valley Press* on June 15, 1984, which invited general public comment. The Service received written comments from 28 interested parties in response to these notifications and newspaper notices. These comments are grouped together by subject matter and are discussed below, together with the Service's response. Four of the commentators expressed support for the proposed rule, and one commentator submitted

recommendations for protecting critical habitat without expressing support or opposition.

Comments were received from the Arizona Game and Fish Department (AGFD), Bureau of Land Management (BLM) and Arizona-New Mexico Chapter of the American Fisheries Society (AFS) expressing support for listing the desert pupfish as endangered but recommending that introduced populations in all or parts of Arizona be excluded. The Service replies that the reintroductions already conducted and those proposed in Arizona are essential for recovery of this species. The Service does not believe this rule is the appropriate mechanism for excluding such populations from the protection afforded by the Endangered Species Act. When the Act was reauthorized in 1982, it was amended to authorize the Secretary to designate introduced populations, including those introduced before a species is listed, as experimental, if circumstances warrant such designation. Populations that are determined to be experimental, and not essential to the survival of the species, pursuant to section 10(j) of the Act are exempt from the formal consultation requirements prescribed in section 7. The 1982 Amendments to the Act also provide greater flexibility with respect to the taking of endangered species from experimental populations. Section 9 of the Act generally prohibits the taking of endangered species of fish and wildlife. However, experimental populations are treated as threatened species even though the donor populations from which they are derived are listed as endangered. If an introduced population is determined to be experimental, and thereby threatened for the purposes of Section 9, the Secretary may impose less restrictive prohibitions on the take of animals from that population pursuant to section 4(d) of the Act. In view of the increased flexibility provided by the 1982 Amendments relative to experimental populations, the Service believes that the appropriate mechanism for responding to the concerns expressed by BLM, AGFD, and AFS regarding the proposed introductions is through a separate rulemaking conducted pursuant to section 10(j).

AGFD and AFS also recommended that the final rule identify the status of introduced populations throughout the desert pupfish's historic range. AFS further recommended that a survey be conducted in Santa Clara Slough to assess the impact that the recent high flows in the Colorado River delta have had on that habitat. The Service replies that the current status of all known

introduced and refugia populations of desert pupfish is discussed in the background section. Continued monitoring of the desert pupfish and its habitat, including Santa Clara Slough, will be part of the recovery effort.

BLM noted that the proposal failed to recognize that BLM has designated the area around San Sebastian Marsh in Imperial County, California, as an Area of Critical Environmental Concern (ACEC), and that BLM and other agencies are involved in cooperative efforts to acquire private inholdings within that ACEC. The Service acknowledges that BLM and other agencies are cooperating in efforts to secure the integrity of the critical habitat, and appreciates such efforts.

AGFD, BLM, and AFS expressed concern about a lack of interagency coordination during the development of the proposed rule. The Service acknowledges that some misunderstandings occurred as a result of differing interpretations of decisions reached at a 1981 meeting attended by representatives of all affected agencies. Measures have been taken to insure that adequate coordination occurs on all future actions involving the desert pupfish.

One letter of support for the rulemaking, as proposed for California populations, was received from the Western Regional Office (WRO) of the National Park Service (NPS). However, support was withheld for the listing and designation of critical habitat at Quitobaquito Spring, Arizona, pending the completion of ongoing studies. The WRO expressed concern that listing the desert pupfish would mandate single species management actions for the area, thus precluding research and management activities that are needed to maintain other native species at the Monument. The WRO noted that threats to Quitobaquito Spring include pesticide drift from new agricultural uses in Mexico and groundwater pumping that could conceivably eliminate spring flow to that entire ecosystem. The Service responds that it is not appropriate to exclude the population at Quitobaquito Spring from the application of the final rule. That determination is based on threats to the habitat that are cited in the proposed rule and that are reiterated by the WRO in its comments on the proposal. Section 4(b)(1) of the Endangered Species Act specifies that determinations to list a species shall be based solely on the best scientific and commercial data available regarding the status of a species. Pursuant to section 4(b)(2) of the Act, the Service may exclude an area from critical habitat if

the benefits of such exclusion outweigh the benefits of inclusion, unless the failure to designate the area will result in extinction of the species. The NPS, however, did not provide any information or data to indicate that the benefits of excluding Quitobaquito Spring and its riparian area outweigh the benefits of its inclusion as critical habitat. The Service recognizes that the NPS has a responsibility to conserve other native species that occur at Quitobaquito Spring, but considers that listing the desert pupfish and designating its critical habitat are compatible with NPS conservation responsibilities.

Comments were received from four user groups expressing concern or opposition to the proposed rule. Two of these, the Coachella Valley Water District (CVWD) and Imperial Irrigation District (IID) shared several concerns and doubted that the desert pupfish qualifies for listing under the Endangered Species Act. The two districts contended that the range of the desert pupfish and the amount of available habitat is greater today than it was prior to the formation of the Salton Sea in 1905. They also contended that the construction of agricultural drains around the Salton Sea and the establishment of refugia at Anza-Borrego State Park and other locations have increased the amount of desert pupfish habitat over what was available historically. On this basis, they asserted that the range and habitat of the desert pupfish is not in danger of destruction, significant modification, or curtailment. The Service responds that the decline in the distribution and abundance of the desert pupfish is well documented in the proposed rule. The Service rejects contentions by the two districts that the distribution of the desert pupfish is greater today than prior to 1905 because of the formation of the Salton Sea. Although the desert pupfish was once abundant in the Salton Sea and its tributaries, this species has now been extirpated from all but one of its historic habitats in Arizona, from all but one of its historic habitats in California, and from all but one or two of its historic habitats in Mexico.

CVWD and IID noted that no information is presented in the proposed rule to indicate that the desert pupfish is overutilized for commercial, recreational, scientific, or educational purposes. The Service responds that overutilization for commercial, recreational, scientific, or educational purposes is not a significant current threat to the survival of the desert pupfish.

CVWD and IID questioned the validity of the sampling techniques and methodology used to estimate desert pupfish numbers in and around the Salton Sea, and they viewed as spurious those reports in the literature that indicate a decline in desert pupfish abundance since 1960. They projected that the Salton Sea would contain 239,000 pupfish if the population density is only one desert pupfish per acre. On this basis, they contended that the threats related to predation and disease are not adequately documented, and therefore, listing of the desert pupfish as endangered is not justified. The Service responds that the sampling techniques used to document the decline of desert pupfish in the Salton Sea and its tributaries are scientifically valid. All of the published data indicate that desert pupfish numbers in the Salton Sea have declined drastically in the last 20 to 30 years. The two districts did not present any data to support their projection that the Salton Sea may have a population of 239,000 desert pupfish. For that projection to be valid, desert pupfish would have to be uniformly distributed throughout the Sea and have an average population density of at least one desert pupfish per acre. The Service does not accept the validity of either assumption. Historical observations indicate that the desert pupfish was never very common in the open waters of the Salton Sea, and recent collection records show the desert pupfish to be extremely rare or absent from the inshore areas. In 1983, the California Department of Fish and Game (CDFG) surveyed a variety of Salton Sea habitats. Its surveys involved over 13,000 trap-hours and yielded only six desert pupfish. These six fish represented less than 0.1% of the total number of all fish collected. The Service believes these survey data, in conjunction with the results summarized by Black (1980), McMahon and Miller (1985), Miller (1943), Miller (1961), and Schoenherr (1980) provide adequate documentation to support a finding that the desert pupfish population has declined and that the species is endangered.

Both CVWD and IID commented that existing land uses within Organ Pipe Cactus National Monument are controlled to insure protection of the desert pupfish at that site. They also stated that BLM and NPS have designated desert pupfish habitats as protected and manage them accordingly. They noted that the State of California has placed the desert pupfish on its endangered species list. On this basis, they contended that existing regulatory mechanisms are adequate to insure the

continued existence of the desert pupfish. The Service responds that some protective actions have been taken by State and Federal agencies to help prevent the extinction of the desert pupfish. However, the Service does not believe these actions are sufficient to insure the species' continued existence. This determination is supported by the comments of the Resources Secretary of the State of California, who noted that, subsequent to State listing, CDFG has requested emergency Federal listing of this critically endangered fish on three occasions.

CVWD and IID also contended that other natural or manmade factors do not support a finding that the desert pupfish is endangered. They commented that *Hydrilla* is not currently present in desert pupfish habitat, and therefore, no scientific basis exists for believing this plant is a threat to this species. They further commented that the Service failed to provide any scientific evidence that pesticides are significantly reducing the pupfish population or that a major pesticide spill is probable. The Service agrees that *Hydrilla* is not present in desert pupfish habitat, but the Service disagrees with the conclusion that it is not a potential threat. *Hydrilla* has invaded many aquatic habitats and the distinct possibility exists that it could become established in the fish's habitat. If this plant does invade the ecosystem, extreme control methods (mechanical, chemical, and biological) will likely be recommended. As an example, CVWD has proposed using grass carp to control aquatic weed growth in the Imperial and Coachella Valleys. If *Hydrilla* becomes established in the irrigation drains and canals around the Salton Sea and grass carp are used as a control, the carp may compete for food and space with the desert pupfish. With respect to the contention that pesticide drift is not a problem, the Service notes that the National Park Service's comments on the proposed rule also indicate that pesticide drift from Mexico is a significant potential threat to the population in Quitobaquito Spring.

The CVWD and IID commented that section 4(b) of the Endangered Species Act requires the Secretary to take into consideration the efforts being made by any State, or any political subdivision of a State, to protect a species. They stated that the State of California has placed the desert pupfish on its endangered species list and that this action provides prohibitions against taking the fish without a permit. They noted that CDFG has been working with the Federal Government to establish an Area of Environmental Concern and an

Outstanding Natural Area in the San Felipe Creek watershed to protect the desert pupfish. They noted that desert pupfish have been established in refugia at Anza-Borrego State Park and other locations. They also noted that Riverside, San Diego, and Imperial Counties are required, under the California Environmental Quality Act, to mitigate impacts related to development that might adversely affect the desert pupfish. They concluded that because of these conservation actions, the desert pupfish is not in danger of extinction throughout all or a significant portion of its range, and, therefore, it does not need to be listed as endangered. After consulting with the affected States, the Service has determined that existing conservation efforts are not adequate to insure the continued existence of the desert pupfish. That determination is based on the comments submitted by State Officials from Arizona and California, which are summarized herein.

IID, CVWD, and the two other water user groups, Imperial Dam Advisory Board (IDAB), and Yuma County Water User's Association (YCWUA), expressed concern that listing the desert pupfish would adversely affect operation and maintenance activities associated with irrigation. In addition, YCWUA contended that the maintenance work performed by water related agencies has been beneficial to the desert pupfish because the amount of usable fish habitat has been increased by the periodic removal of aquatic vegetation; hence, the desert pupfish should not be listed as endangered. IID requested that all maintained systems currently used for irrigation or the diversion of runoff or flood waters be excluded from the application of the final rule. The Service responds that the dredging activities carried out by water districts to maintain the irrigation drains and canals around the Salton Sea have not been a significant factor in the recent decline of the desert pupfish. Prior to the invasion of tilapia and sailfin mollies into these habitats, desert pupfish were present in large numbers and survived the districts' periodic dredging operations without apparent ill effect. Even though desert pupfish are now truly scarce or entirely absent from these habitats, the Service recognizes that there is still some potential for incidental take to occur in the course of the districts' normal maintenance operations. However, the Service has determined that it does not have the authority under the Endangered Species Act to exclude the districts' irrigation drains and canals

from the application of the final rule. That determination is based on section (4)(b)(1) of the Act, which specifies that determinations to list a species shall be based solely on the best scientific and commercial data available. The Service notes, however, that incidental take of an endangered species may be authorized pursuant to section 7 or section 10(a) of the Endangered Species Act.

CVWD requested that the listing process be extended for six months to allow time for additional data to be obtained. The Service replies that it does not believe that substantial information has been presented to show that CDFG's collection data are either insufficient or inaccurate.

A letter of support was received from the Organ Pipe Cactus National Monument. In addition, it recommended expanding the critical habitat to be designated at Quitobaquito Spring to include a buffer zone. The Service considers the proposed critical habitat to be sufficient to delineate the areas essential to the conservation of the desert pupfish. If future surveys indicate the existence of additional areas warranting designation as critical habitat, the Service will consider making such a designation.

Three California State agencies expressed support for listing the desert pupfish as endangered. The Secretary of the State of California commented that he and Governor Deukmejian fully support including *Cyprinodon macularius* on the Federal list of endangered species, and endorse the designation of critical habitat as proposed. The CDFG supported listing the desert pupfish as endangered and concurred with the proposed critical habitat. CDFG also noted that it had asked the Service to list this species on an emergency basis on three separate occasions. The California Department of Parks and Recreation suggested that Salt Creek in Imperial County should be added as critical habitat, and that the critical habitat in the San Felipe Creek drainage should be expanded to provide a buffer zone large enough to protect the hydrologic features that sustain perennial flows in San Felipe Creek and San Sebastian Marsh. The Service responds that it has decided to retain critical habitat as described in the proposed rule. That determination is based on the information and recommendations submitted by CDFG. If future surveys document the occurrence of viable populations of desert pupfish in other habitats or demonstrate that protection of the designated critical habitat along San

Felipe Creek is not adequate for the conservation of the population there, the Service will consider revising the critical habitat.

Two county agencies in California, the Riverside County Parks Department and the Riverside County Planning Department, submitted comments supporting the proposed rule.

Dr. Robert R. Miller, University of Michigan Museum of Zoology; Dr. Larry C. Oglesby, Pomona College; Dr. Jonathan Baskin, California State Polytechnical University; Dr. Allan Schoenherr, Fullerton College; and Mr. J.A. St. Amand, and Mr. K.E. Moore, CDFG Biologists, provided personal observation data on the decline of pupfish numbers. These biologists also provided additional support for the Service's conclusions on the species, and they provided some views on other potential threats. Specifically, Dr. Oglesby was concerned that the brackish water snail of the family Thiaridae, a recent introduction into the Salton Sea system, could compete with the pupfish for food. Mr. J.A. St. Amand reported that the fish could be threatened by lining of the drains and canals for water conservation and potentially by geothermal developments in the Imperial Valley. The Service agrees that these factors could also threaten the continued existence of the desert pupfish.

Dr. Schoenherr also stated that based on his survey results he believes San Felipe Creek contains the only viable California population of the species. The Service agrees that this may be true but believes more study is required before a final determination can be made.

Three conservation organizations, the Desert Fishes Council (DFC), International Union for Conservation of Nature and Natural Resources (IUCN), and Arizona Wildlife Federation (AWF) submitted comments expressing support for listing the desert pupfish as endangered and provided additional information or recommendations concerning the proposed rule. DFC and AWF recommended various measures to protect the remaining desert pupfish habitats. IUCN submitted a draft data sheet on the desert pupfish, prepared for inclusion in the forthcoming IUCN Fish Red Data Book, and indicated that the desert pupfish will probably be categorized as endangered in that publication.

Four conservation organizations (Defenders of Wildlife, Desert Tortoise Council, Lower Basin Native Fishes Subcommittee, and Yuma Audubon Society) submitted general comments expressing support for the proposed

rule, but they did not provide any additional information or recommendations concerning the desert pupfish or its habitat.

The Imperial County Planning Department commented that the California Department of Parks and Recreation is considering expansion of the Ocotillo Wells Recreational Area and noted that off-road vehicular use in the San Felipe Creek watershed could adversely affect the critical habitat, but it did not offer an opinion on the rule. The Service agrees that off-road vehicular use may pose a threat.

The Coachella Valley Water District, the Imperial Irrigation District, and the Imperial Dam Advisory Board each requested that a public hearing be held on the proposed rule. On August 13, 1984, the Service published a notice in the *Federal Register* (49 FR 32320) announcing that a public hearing was scheduled to receive public input on this proposal. The hearing was held in Imperial, California, on August 30, 1984. Testimony was presented at this hearing by representatives of four organizations. Two of the representatives spoke in opposition to the proposal, one spoke in support of the proposal, and one spoke in support of expanding critical habitat in the San Felipe Creek watershed, without expressing support or opposition to the proposal as it related to listing the desert pupfish as endangered. A summary of the testimony presented at this hearing is given below along with the Service's response.

The testimony of CVWD and IID was essentially the same as presented in the written comments that were submitted by the two districts regarding the proposed rule. The Service has already responded to these issues. The testimony of the Imperial County Planning Department (ICPD) was also similar to that presented in its written comments on the proposal. In addition, ICPD noted that Imperial County requires a permit for water wells that are drilled in Imperial County and requested the Service to notify ICPD if it becomes aware of attempts to utilize water wells in the vicinity of San Sebastian Marsh. ICPD requested that the critical habitat be expanded to include the area described as critical habitat by Lebo *et al.* (1982). The Service has previously responded to the issue of whether the critical habitat in California should be expanded, and will notify ICPD if it becomes aware of any new well activity in the vicinity of San Sebastian Marsh. The CDFG presented testimony in support of listing the desert pupfish as endangered and responded to

several points that were raised by CVWD and IID.

Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service has determined that the desert pupfish (*Cyprinodon macularius*) should be classified as an endangered species. Procedures found at section 4(a)(1) of the Endangered Species Act (16 U.S.C. 1531 *et seq.*) and regulations promulgated to implement the listing provisions of the Act (codified at 50 CFR Part 424; revised to accommodate 1982 Amendments—see 49 FR 38900, October 1, 1984) were followed. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1). These factors and their application to the desert pupfish (*Cyprinodon macularius*) are as follows:

(A) *The present or threatened destruction, modification, or curtailment of its habitat or range.* At the beginning of the 20th century, the desert pupfish was widespread throughout the lower Gila River and its tributaries, the San Pedro and Santa Cruz Rivers, and the lower Colorado River in Arizona, California, and Baja California; and Sonora, Mexico. Starting in the 1930's many desert rivers began experiencing major erosional cycles that resulted in the loss of permanent waters in numerous pupfish streams and the drying up of the shallow, littoral areas preferred by this species. Miller (1961) related this increase in erosion to overgrazing. The construction of mainstream dams on the Gila, Colorado, and Salt Rivers for irrigation and flood control dewatered the lower Gila and Salt Rivers and eliminated the marshy sidepools in the Colorado River that were utilized by desert pupfish. After this occurred, the pupfish were forced into the mainstream channels of the remaining permanent streams where they were eaten by predators or outcompeted by native and exotic species.

The desert pupfish is now known to exist only in two locations in the United States, the Salton Sea area and Quitobaquito Spring. The desert pupfish in the Salton Sea area have been severely reduced in numbers and distribution as the result of the introduction of exotic fish species, modifications to the water conveyance facilities used for irrigating and draining agricultural lands, the application of agricultural pesticides, the dewatering of some natural spring habitats by ground-water pumping, and the inundation of

other spring habitats by the rising waters of the Salton Sea. These factors, in combination, have reduced pupfish numbers in most habitats to such low levels that long-term survival prospects are poor.

The only known habitat in California in which the desert pupfish make up a dominant part of the fish fauna is a short reach of San Felipe Creek and two small tributaries near San Sebastian Marsh* (Black 1980). However, the integrity of this habitat is threatened by proposals to convert the privately owned lands to irrigated agriculture. The removal of large volumes of ground-water from the aquifers that feed San Felipe Creek could cause the marsh to become desiccated and destroy its habitat value for pupfish. Geothermal development is also a potential threat to this habitat. Geothermal lease applications have been filed with the Bureau of Land Management for some tracts in the vicinity of San Sebastian Marsh. If geothermal energy is discovered in this area in commercially marketable quantities, it is likely the privately owned lands around San Sebastian Marsh would be developed with adverse consequences to pupfish habitat. The Federal lands around San Sebastian Marsh have been leased for oil and gas exploration with a no surface occupancy stipulation. Oil and gas development on the adjacent privately owned lands could adversely affect desert pupfish habitat, particularly if there are significant surface disturbances. The Federal lands around Salt Creek have been leased for geothermal development and oil and gas exploration.

The population in Quitobaquito Spring is located downwind from nearby farms in Mexico that are sprayed with organophosphates and chlorinated hydrocarbons. Recent studies of this population (Kynard, 1981) revealed that the fish in Quitobaquito Spring contained detectable levels of both parathion and DDT derivatives in the late 1970's. Because of the extremely restricted range of the desert pupfish, any major accidental spills or increased levels of pesticide drift could have a devastating impact on the entire population in Quitobaquito Spring.

B. *Overutilization for commercial, recreational, scientific, or educational purposes.* A few individuals may occasionally be taken incidentally from the Salton Sea by anglers collecting sailfin mollies (*Poecilia latipinna*) for bait. However, there is no evidence that desert pupfish are currently overutilized for any purpose.

C. *Disease or predation.* Several known predators and competitors of

desert pupfish have become established in the natural and manmade tributaries of the Salton Sea, including tilapia (*Tilapia mossambica* and *Tilapia zillii*), sailfin mollies, shortfin mollies (*Poecilia mexicana*), mosquitofish (*Gambusia affinis*), pothole livebearers (*Poeciliopsis gracilis*), and several members of the families Centrarchidae, Ictaluridae, and Cyprinidae. Desert pupfish populations in the Salton Sea area have also been infected by a parasitic copepod (anchor worm) of the family Lernaeidae. In Arizona, desert pupfish have been displaced from many of their historic spring habitats by largemouth bass.

Recent studies have shown that juvenile tilapia compete with desert pupfish for many of the same food items, and that adult tilapia prey on fish and fish eggs. Field and laboratory observations have revealed that tilapia also interfere with the reproductive behavior of desert pupfish (Schoenherr, 1980). The extent to which this type of interference has suppressed pupfish reproduction is not known. Largemouth bass are voracious predators that are capable of eliminating pupfish completely from small spring habitats (Miller and Pister, 1971).

D. *The inadequacy of existing regulatory mechanisms.* California State law (The Endangered Species Act of 1970, Chapter 1510, Stats. 1970) prohibits the taking of desert pupfish without a permit. That law was recently amended (Chapter 1240, Stats. 1984) to require State agencies to consult with CDFG on State projects that may affect State listed species. However, few of the activities that pose a threat to the desert pupfish in California are likely to require State agency approval. Hence, California's endangered species law does not provide an adequate regulatory mechanism to protect the remaining desert pupfish habitats. The Service is not aware of any regulatory mechanisms that have been established to protect the surviving Mexican populations and their habitats, or to alleviate the threats to the Quitobaquito Spring population that are associated with aerial pesticide spraying and increased ground-water pumping in Mexico.

E. *Other natural or manmade factors affecting its continued existence.* The exotic aquatic weed, *Hydrilla verticillata*, was recently introduced into the All American Canal. This plant is capable of spreading rapidly and is very difficult to control. Consequently, it is possible that this aquatic weed may soon find its way into habitats that support desert pupfish. It is not known what the direct effect of its

establishment would be on desert pupfish. However, the extreme methods of chemical, mechanical, and biological control that have been used in other areas where this plant has become established would be likely to have a detrimental effect upon pupfish habitat.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by this species in determining to make this rule final. Based on this evaluation, the preferred action is to list the desert pupfish as endangered with critical habitat. The now localized distribution of this fish, competition from exotic species, predation pressure, and continued adverse modifications of habitat (i.e., ground-water pumping, pesticide applications, and changes in water conveyance facilities) indicate it is imminently threatened with extinction. Therefore, endangered classification is warranted.

Critical Habitat

Critical habitat, as defined by Section 3 of the Act means: (i) the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) that may require special management considerations or protection, and (ii) specific areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

Section 4(a)(3) of the Act requires that critical habitat be designated to the maximum extent prudent and determinable concurrently with the determination that a species is endangered or threatened. Recent status surveys have been instrumental in assessing essential habitat and the present condition of the desert pupfish. Overcollection is not the primary threat facing the desert pupfish. For these reasons the Service does not believe that determining critical habitat for the desert pupfish will contribute to a further decline in the species; hence, critical habitat is designated by this rule. Critical habitat is being designated for the desert pupfish at Quitobaquito Spring, Organ Pipe Cactus National Monument, Pima County, Arizona, and along portions of San Felipe Creek, Carrizo Wash, and Fish Creek Wash, Imperial County, California. The areas designated as critical habitat include approximately one-half acre of aquatic habitat at Quitobaquito Spring and a 100 foot riparian buffer around the spring,

and approximately 11 miles of stream channel along San Felipe Creek and two of its tributaries and a riparian buffer zone of 100 feet on both sides of the stream channel. A riparian buffer zone of 100 feet around Quitobaquito Spring and at least 100 feet on each side of the stream channel are deemed necessary because any activities that are carried out adjacent to these areas may have a direct impact on the quality of aquatic habitat for desert pupfish. Constituent elements for all four areas designated as critical habitat include clean unpolluted water that is relatively free of exotic organisms, especially exotic fishes, in small slow-moving desert streams and spring pools with marshy backwater areas. The "Regulations Promulgation" section contains a legal description of the critical habitat.

The areas being designated as critical habitat satisfy all known criteria for the ecological, behavioral, and physiological requirements of the species. The species successfully reproduces in Quitobaquito Spring and the designated reaches of San Felipe Creek, Carrizo Wash, and Fish Creek Wash. These areas also provide adequate food and cover. Perhaps most importantly, these areas are also isolated or at least partially isolated from predatory and competing exotic fishes. Because the desert pupfish is non-migratory, the areas it inhabits must fulfill all the requisites for survival and successful reproduction.

Section 4(b)(8) requires, for any proposed or final regulation that designates critical habitat, a brief description and evaluation of those activities (public or private) which may adversely modify such habitat or may be affected by such designation. It should be emphasized that critical habitat designation may not affect each of the activities listed below, as critical habitat designation affects only Federal agencies through section 7 of the Act.

1. Withdrawal of water either directly or indirectly from San Sebastian Marsh could destroy or reduce the suitability of this habitat for desert pupfish.

2. Stocking of additional exotic fish or other non-endemic species into waters within the critical habitat, or into waters through which such fish may gain access to the critical habitat, may introduce parasites and increase the incidence of predation on desert pupfish.

3. Other activities (which, though not anticipated at this time, could conceivably occur in the foreseeable future) could also reduce the habitat's suitability for desert pupfish. These activities include geothermal development, oil or gas development, stream channelization, intensive

recreational use, and the siting of transmission lines, roads, canals, or irrigation drains within the designated areas.

Section 4(b)(2) of the Act requires the Service to consider economic and other impacts of designating a particular area as critical habitat. The Service has considered the critical habitat designation in light of relevant additional information obtained and concludes that no significant economic or other impacts are expected to result from the critical habitat designation. The designation of critical habitat is apparently compatible with NPS conservation objectives for Organ Pipe Cactus National Monument. Some geothermal and oil and gas leases have been issued by BLM within or in the vicinity of the critical habitat area in California. BLM, however, has informed the Service that it does not expect that geothermal or oil and gas exploration and development will occur in the foreseeable future. BLM's current management of the portion of critical habitat within the San Sebastian Marsh/San Felipe Creek ACEC and interagency land exchange efforts in progress since 1980 are also apparently compatible with the critical habitat designation. In addition, there is no known involvement of Federal funds or permits for the private land included in the critical habitat designation. For these reasons, no adjustments to the boundaries of the proposed critical habitat were warranted.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Endangered Species Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups, and individuals. The Endangered Species Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. Such actions are initiated by the Service following listing. The protection required of Federal agencies and the prohibitions against taking and harm are discussed, in part, below.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat. Regulations implementing this interagency cooperation provision of the Act are

codified at 50 CFR Part 402 and are now under revision (see proposal at 48 FR 29990; June 29, 1983). Section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of a listed species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service. Federal activities that may affect the desert pupfish and its habitat in the future were previously discussed in the "Critical Habitat" section of this rule.

The Act and its implementing regulations found at 50 CFR 17.21 set forth a series of general prohibitions and exceptions that apply to all endangered wildlife. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to take, import or export, ship in interstate commerce in the course of a commercial activity, or sell or offer for sale in interstate or foreign commerce any listed species. It also is illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that had been taken illegally. Certain exceptions apply to agents of the Service and State conservation agencies.

Permits may be issued to carry out otherwise prohibited activities involving endangered wildlife species under certain circumstances. Regulations governing permits are at 50 CFR 17.22 and 17.23. Such permits are available for scientific purposes, to enhance the propagation or survival of the species, and/or for incidental take in connection with otherwise lawful activities. In some instances, permits may be issued during a specified period of time to relieve undue economic hardship that would be suffered if such relief were not available.

National Environmental Policy Act

The Fish and Wildlife Service has determined that an Environmental Assessment, as defined by the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination was published in the Federal Register on October 25, 1983 (48 FR 49244).

Regulatory Flexibility Act and Executive Order 12291

The Department of the Interior has determined that designation of critical habitat for this species will not constitute a major action under

Executive Order 12291 and certifies that this designation will not have a significant economic effect on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*).

Land use in the critical habitat is currently limited to recreation, scientific research, and oil and gas leasing. The public lands adjacent to the critical habitat were recently leased for geothermal exploration. The potential for geothermal or oil and gas development in the area is considered to be low in view of the negative results obtained from nearby test wells. The management objectives of NPS and BLM, for those portions of critical habitat within Organ Pipe Cactus National Monument and the San Sebastian Marsh/San Felipe Creek ACEC, respectively, are compatible with the designation of critical habitat. There is also no known involvement of Federal funds or permits for the private land included as critical habitat. No other Federal activities are presently known or anticipated that would adversely affect or be adversely affected by the critical habitat designation. Therefore, no significant economic or other impacts are expected to result from the critical habitat designation for the desert pupfish. In addition, no direct costs, enforcement costs, or information collection or recordkeeping requirements are imposed on small entities by this designation. These determinations are based on a Determination of Effects that is available at the Regional Office, U.S. Fish and Wildlife Service, 500 N.E. Multnomah Street, Suite 1692, Portland, Oregon 97232.

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Authors

The primary authors of this rule are Mr. Edward M. Lorentzen and Dr. Kathleen E. Franzreb, Sacramento Endangered Species Office, U.S. Fish and Wildlife Service, 2800 Cottage Way, Room E-1823, Sacramento, California 95825 (916/484-4935 or FTS 468-4935).

List of Subjects in 50 CFR Part 17

Endangered and threatened wildlife, Fish, Marine mammals, Plants (agriculture).

Regulations Promulgation

PART 17—[AMENDED]

Accordingly, Part 17, Subchapter B of Chapter I, Title 50 of the Code of Federal Regulations, is amended as set forth below:

1. The authority citation for Part 17 continues to read as follows:

Authority: Pub. L. 93-205, 87 Stat. 884; Pub. L. 94-359, 90 Stat. 911; Pub. L. 95-632, 92 Stat. 3751; Pub. L. 96-159, 93 Stat. 1225; Pub. L. 97-304, 96 Stat. 1411 (16 U.S.C. 1531 *et seq.*).

2. Amend § 17.11(h) by adding the following, in alphabetical order under "FISHES," to the List of Endangered and Threatened Wildlife:

§ 17.11 Endangered and threatened wildlife.

(h) * * *

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
FISHES							
Pupfish, desert	<i>Cyprinodon macularius</i>	U.S.A. (AZ, CA) Mexico	Entire	E	222	17.95(e)	NA

3. Amend § 17.95(e) by adding critical habitat for the desert pupfish as follows: The positions of this entry under § 17.95(e) will follow the same sequence as the species occurs in 17.11.

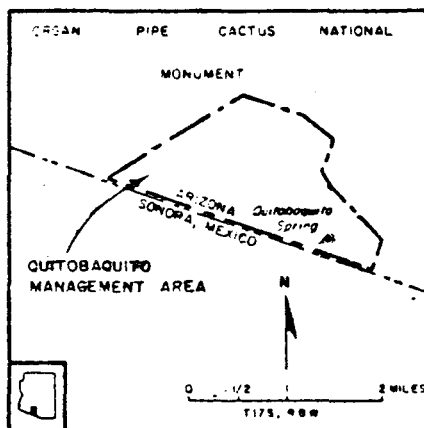
§ 17.95 Critical habitat—fish and wildlife.

(e) * * *

Desert Pupfish (*Cyprinodon macularius*)

Arizona: Pima County.

1. Quitobaquito Spring, approximately 25 miles WNW Lukeville, Arizona in Organ Pipe Cactus National Monument, in T17S R8N; and a 100-foot riparian buffer zone around the spring.



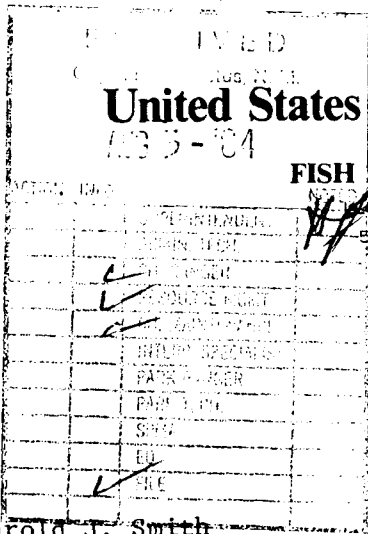
California: Imperial County.

1. San Felipe Creek. Approximately 8 1/2 stream miles and 100 feet on either side of San Felipe Creek or the stream channel commencing at the State Highway 86 bridge crossing (approximately 1/4 mile south of

intersection of Hwy. 78 and Hwy. 86) upstream to the eastern boundary of Section 31. T12S; R10E; including those areas of the stream channel in: T12S; R11E; Section 17, 18, and 19; T12S; R10E; Section 22, 23, 24, 26, 27, 28, 29, and 32.

2. Carrizo Wash. Approximately 1 1/4 stream miles and 100 feet on either side of or the stream channel commencing at the confluence of Carrizo Wash with San Felipe Creek upstream to the southern boundary of N 1/2 Section 33; T12S; R10E; including those areas of the stream channel in T12S; R10E; Section 27, 28, and N 1/2 Section 33.

3. Fish Creek Wash. Approximately three-fourths of one stream mile and 100 feet on either side of the stream channel from the confluence of Fish Creek Wash with San Felipe Creek upstream to the southern boundary of N 1/2 Section 32; T12S; R10E; including those areas of the stream channel in T12S; R10E; Section 29 and N 1/2 Section 32.



FISH AND WILDLIFE SERVICE

August 1, 1984

William F. Shake
Assistant Regional Director
Federal Assistance



United States
Department of the Interior

Pupfish RG

RECEIVED	
Fish and Wildlife Service	
Lloyd 500 Building, Suite 1692	
500 N.E. Multnomah Street	
Portland, Oregon 97232	
ACTION INTO	
In Reply Refer To:	AFSA-SE Your Reference:
APR 11 1986	
FILE	

Harold J. Smith
Superintendent
Organ Pipe National Monument
P.O. Box 38
Ajo, AZ 85321

Dear Mr. Smith:

Some time ago you provided the U.S. Fish and Wildlife Service your comments on the proposed rule to list desert pupfish (Cyprinodon macularius) as an endangered species with critical habitat. As a result of our request for comments on the proposal and a public hearing held in Imperial, California, we have concluded to take final action on the listing as originally proposed. Enclosed is a copy of a recent Federal Register publication announcing that action.

I want to thank you for taking the time to comment on our proposal. You can be assured that your comments were carefully considered by us before any final action was taken. If you have any question regarding this matter, please see the Federal Register on where to submit any further correspondence.

Again, your concern and interest in this matter is most appreciated.

Sincerely yours,

Wayne S. White
Acting Assistant Regional Director
Federal Assistance

Enclosure

See FR Vol. 51, No. 61
attached to memo from
WRO, N2623 (WR-RN), 4/10/86