

# SAFE HARBOR AGREEMENT

FOR GILA TOPMINNOW (*Poeciliopsis occidentalis occidentalis*)  
AND DESERT PUPFISH (*Cyprinodon macularius*) ON LANDS  
OWNED BY THE NATURE CONSERVANCY (TNC) ACTING  
THROUGH ITS ARIZONA CHAPTER, WITHIN THE  
ARAVAIPA CREEK WATERSHED

Prepared by:

**The Nature Conservancy, Arizona Chapter**

**And**

Arizona Ecological Services Office  
U.S. Fish and Wildlife Service

August 22, 2005

# TABLE OF CONTENTS

1.0 Introduction - Purpose.....	1
1.1 Need for Action.....	1
2.0 Life History of Gila Topminnow and Desert Pupfish.....	1
3.0 Geographic Scope of Agreement .....	3
4.0 Species and Habitats to be Covered by the Agreement .....	4
4.1 Species Covered by this Agreement .....	4
4.2 Habitat Covered by this Agreement.....	4
5.0 Net Conservation Benefit.....	4
6.0 Baseline Conditions .....	5
7.0 Incidental Take.....	5
7.1 Methods of Take .....	5
7.2 Minimization of Take .....	6
7.3 Extent of Take.....	7
7.4 Impacts of Take.....	7
7.5 Monitoring .....	8
8.0 Notification Requirement.....	9
9.0 Responsible Parties .....	9
10.0 Respective Responsibilities of the Parties .....	9
10.1 FWS .....	10
10.2 TNC.....	10
11.0 Duration of Agreement .....	11
12.0 Altered and Unforeseen Circumstances, Adaptive Management, and Amendments Procedures .....	11
12.1 Altered Circumstances .....	11
12.2 Unforeseen Circumstances.....	12
12.3 Adaptive Management and Amendment Procedure .....	12
13.0 Agreement Termination Provisions .....	14
14.0 Permit Revocation Provisions.....	14
15.0 Agreement and Permit Transferability.....	14
16.0 Administrative Matters .....	15
17.0 Signatories.....	17
Literature Cited .....	18
Appendices.....	20
Appendix A. Covered Lands.....	20
Appendix B. Map of Covered Lands .....	22
Appendix C. Public Comments Received.....	23
Appendix D. Response to Public Comments.....	32

# Safe Harbor Agreement for the Gila topminnow and desert pupfish at Aravaipa Canyon Preserve

## **1.0 INTRODUCTION - PURPOSE**

The purpose of this Safe Harbor Agreement (Agreement) is to provide sites for the establishment of additional populations of Gila topminnow and desert pupfish to aid in recovery of these species. These populations would be established on lands owned by The Nature Conservancy (TNC), acting through its Arizona Chapter within the Aravaipa Creek watershed. This Agreement will provide regulatory assurances to TNC, so that the establishment of these populations on property owned by TNC would not result in undue or additional regulatory requirements outside those outlined in this Agreement.

When signed, this Agreement will serve as the basis for the U.S. Fish and Wildlife Service (FWS) to issue a section 10(a)(1)(A) enhancement of survival permit. This permit will authorize incidental take of listed species covered by the Agreement resulting from TNC's ongoing land management activities and the potential return of covered lands to baseline conditions in accordance with existing regulations. The permit will authorize the Permittee (TNC) to incidentally take Gila topminnow and desert pupfish above the established baseline on covered lands. Take would be incidental to ongoing land management activities described below in section 7.0. Take may include all individuals of the species, and their progeny, that are translocated to the covered lands or have increased in numbers and/or distribution on those lands covered under this Agreement, as a result of the Permittee's voluntary conservation actions.

## **1.1 NEED FOR ACTION**

Recovery of topminnow and pupfish is limited by availability of suitable habitat. Permanent water sources, free of predaceous fishes and within the species' historical ranges, are necessary for successful establishment of topminnow and pupfish. Task 2 in the current Desert Pupfish Recovery Plan states that "...efforts should be made to re-establish pupfish into a diversity of habitat types reflective of those occupied historically..." (USFWS 1993). Task 2.2 of the current draft revised Gila Topminnow Recovery Plan lists reintroduction of topminnows into suitable habitats as a criterion for recovery of topminnow (USFWS 1998).

## **2.0 LIFE HISTORY OF GILA TOPMINNOW AND DESERT PUPFISH**

Once common throughout most of the Gila River Basin, Gila topminnow (*Poeciliopsis occidentalis occidentalis*) and desert pupfish (*Cyprinodon macularius*) now occur naturally in a fraction of their historical range (Minckley 1973). Both species are currently listed as

endangered throughout their respective ranges in the United States of America (USFWS 1993). Habitat loss and alteration, as well as introduction of non-native fishes have contributed significantly to declines in natural populations of these two species (Minckley 1973; Bagley et al. 1991; USFWS 1998).

*Gila topminnow* belong to a group of live-bearing fishes within the family Poeciliidae. Males are smaller than females, rarely greater than 1 inch, while females are larger, reaching 2 inches. Body coloration is tan to olivaceous, darker above, lighter below, often white on the belly. Breeding males are usually darkly blackened, with some golden coloration of the midline, and with orange or yellow at the base of the dorsal fin. Fertilization is internal, and sperm packets are stored, which may fertilize subsequent broods. Brood development time is 24 to 28 days. Two to 3 broods in different stages develop simultaneously in a process known as superfetation. *Gila topminnow* give birth to 1-31 young per brood (Schoenherr 1974). Larger females produce more offspring (Minckley 1973).

*Gila topminnow* mature in a few weeks to many months after birth depending on when they are born and water temperature. They breed primarily from March to August, but some pregnant females occur throughout the year (Schoenherr 1974) and some young are produced in the winter months. Minckley (1973) and Constantz (1980) reported that *Gila topminnow* eat bottom debris, vegetation, amphipods, and insect larvae when available.

*Gila topminnow* can tolerate a wide variety of physical and chemical conditions (Meffe et. al. 1983, Meffe and Snelson 1989, Minckley et. al. 1977). They are good colonizers in part because of this tolerance and in part because a single gravid female can start a population (Meffe and Snelson 1989). Minckley (1969, 1973) described their habitat as the edges of shallow aquatic habitats, especially where abundant aquatic vegetation exists.

There are 3 subspecies of desert pupfish, 2 of which have been described; *C. macularius* occurs in the Colorado River Drainage and *C. macularius eremus* occurs in the Rio Sonoyta drainage (Quitobaquito Spring). These fish can live 1-2 years and are typically 1.5 inches in length. They are opportunistic in their food habits, eating small crustaceans, insects, worms, mollusks, and other invertebrates, aquatic macrophytes, algae, and detritus. Pupfish may reach sexual maturity in as little as six weeks. Reproduction occurs when water temperatures exceed 20 degrees Celsius. Males are territorial and may spawn with several females. Care for eggs and young occurs inadvertently as a consequence of the male's relentless habit of driving other male pupfish and other fish species from its territory during breeding.

This pupfish occupies shallow water of desert springs, creeks, small streams, cienegas, and the margins of large bodies of waters such as ponds, lakes, and rivers. Natural habitats were typically shallow and clear with soft bottoms. Aquatic vegetation and small invertebrates were abundant in such habitats. Desert pupfish can tolerate abrupt changes in temperature and salinity that most other desert fishes cannot. They hold the record for surviving in the highest water temperature (112 degrees F) and lowest oxygen level. They can inhabit water with salinities nearly 3 times that of seawater. They can bury themselves in the muddy bottom to avoid adverse conditions or escape predators. Pupfish eggs can survive dry weather by resting in the moist mud

of a drying habitat for days, hatching when surface water returns. In locations with harsh water quality conditions, few other fishes share their habitat. Under milder conditions, pupfish were likely separated from the adult fish of most other species due to its preference for shallow microhabitats.

Recovery plans for both Gila topminnow and desert pupfish list reestablishment of these fish into suitable habitats within their historical ranges as recovery objectives or tasks (USFWS 1993, USFWS 1998). The location of natural and reestablished populations of Gila topminnow and desert pupfish, along with detailed life history information is in Weedman and Young (1997).

The U.S. Fish & Wildlife Service's (FWS) Safe Harbor Policy, finalized in June 1999 (64 FR 32706) and revised in May 2004 (69 FR 24084), encourages voluntary management for listed species to promote recovery on non-Federal lands by giving assurances to landowners that no additional future regulatory restrictions will be imposed for species covered under such an agreement. In other words, a landowner provides a net conservation benefit that is not required under the Endangered Species Act (Act) or by regulation for an endangered species and no new restrictions beyond those agreed to in the Safe Harbor Agreement will be imposed on the habitats thus created or improved.

Safe Harbor Agreements are voluntary arrangements between the FWS and cooperating non-Federal landowners. Following development of an approved agreement, the FWS will issue an "enhancement of survival" permit to authorize future incidental take to provide participating landowners with assurances that no additional restrictions will be imposed as a result of their conservation actions.

This Agreement is a voluntary agreement between TNC and the FWS, and each party has the commitment and means to implement it.

### **3.0 GEOGRAPHIC SCOPE OF AGREEMENT**

The lands covered by this Agreement are properties owned by TNC within the Aravaipa Creek watershed, that are described in Appendix A, attached hereto and incorporated herein by reference as covered lands. The Arizona Game and Fish Department (AGFD), Bureau of Land Management (BLM), the FWS, and TNC have identified several aquatic sites suitable for stocking Gila topminnow and/or desert pupfish on TNC lands, Figure 1.

Other perennial water found within the covered lands will also be considered on a case-by-case basis. The FWS, in cooperation with TNC and AGFD, will verify habitat suitability for stocking of topminnows and pupfish. If TNC acquires additional, suitable habitat for these species, the Agreement may be amended if TNC requests the inclusion of newly acquired properties into the Agreement.

## **4.0 SPECIES AND HABITATS TO BE COVERED BY THE AGREEMENT**

### **4.1 SPECIES COVERED BY THIS AGREEMENT**

Species covered under this agreement are Gila topminnow and desert pupfish.

### **4.2 LANDS COVERED BY THIS AGREEMENT**

This Agreement covers the TNC lands referenced in Appendix A, on which the aquatic sites are located, illustrated in Figure 1. Both Gila topminnow and desert pupfish have historically occupied a variety of habitats. In general, habitat consisted of relatively shallow water (<3.3-ft (1 m) in depth) along stream or river margins, ponds, cienegas, and springs (Minckley 1973, 1999; USFWS 1993, USFWS 1998). Both species are associated with aquatic or streamside vegetation, algal mats, and organic debris, and both are adapted to environmental extremes (i.e., water salinity, water temperature, flooding, etc.) (USFWS 1998, Minckley 1999).

## **5.0 NET CONSERVATION BENEFIT**

In nature, populations of Gila topminnow and desert pupfish expanded in size and geographical range during wetter periods. These populations subsequently contracted and often disappeared during times of drought (USFWS 1998, Minckley 1999). Due to high reproductive potential and an adaptation to environmental extremes, numbers of individuals of both species will likely fluctuate over time after being stocked into aquatic sites covered under this Agreement. The establishment of new populations, pursuant to this Agreement, of both species will provide a net conservation benefit through the increase of population numbers and distribution within the historical ranges of the covered species during the term of this Agreement.

The items listed below are specific "tasks" in the recovery plans intended to lead to recovery and eventual downlisting of Gila topminnow and desert pupfish (USFWS 1993, USFWS 1998). Level 1 populations are natural populations occupying historical habitat "and which were not known to have been placed in those habitats by humans" (USFWS 1993). Level 2 and Level 3 populations have been re-established by humans into habitat within historical range. Level 2 populations occur in natural habitats and should receive a high degree of protection and only require minor management to persist. Level 2 populations are not considered "established" until they have persisted for a period of ten years. Level 3 populations may require extensive human management to maintain, and occur in highly modified or man-made habitats, (USFWS 1993, USFWS 1998). These reestablished populations are in natural habitat, but may require extensive human management to maintain. Therefore, these reestablished populations are considered to be level 3 populations, but could be considered as level 2 populations based upon persistence and management needs. The reestablished populations under this agreement will be considered in the recovery of these species consistent with the recovery plans for these two species and with the Safe Harbor policy. Although such agreements may not permanently conserve these populations or their habitats, they nevertheless offer important short-term, mid-term, and in some cases, long-term net conservation benefits.

## **6.0 BASELINE CONDITIONS**

TNC, AGFD, and BLM, sampled the aquatic sites on the lands covered under this Agreement on January 17, 2002, and did not collect any Gila topminnow or desert pupfish (USFWS files). Furthermore, these sites were unoccupied by any fish at the time of sampling. The absence of Gila topminnow and desert pupfish was expected. The draft revised Gila Topminnow Recovery Plan states that there are no existing populations of Gila topminnow in the San Pedro River basin (USFWS 1998), and desert pupfish were last recorded from the San Pedro River in 1950 (USFWS 1993). In addition, surveys conducted during the 1999-2000 Aravaipa Creek Fish Monitoring Project resulted in seven native fish species being sampled, but no Gila topminnow or desert pupfish were found (Voeltz and Davidson 2002). Therefore, the baseline conditions for Gila topminnow and desert pupfish within the lands covered by this Agreement is zero.

## **7.0 INCIDENTAL TAKE**

Safe Harbor Agreements are written in anticipation of “take” of the covered species at some point in the future. Take cannot occur below the established baseline on the covered lands. Take is expected to occur as a result of conservation activities, otherwise legal activities, and the potential return to baseline at the termination of the Agreement and its associated section 10(a)(1)(A) permit. Measures will be implemented to prevent or reduce levels of “take”; however, incidental take of both Gila topminnow and desert pupfish could result under a variety of circumstances.

### **7.1 METHODS OF TAKE:**

The following is a list of activities that could result in incidental take:

1. Prescribed burns conducted on covered lands may cause short-term impacts such as increased sedimentation or nutrient flows, and loss of pool habitat resulting in take of both species in aquatic sites on covered lands. Long-term effects are expected to be positive, resulting in improved watershed quality, increased infiltration, and higher base flows within aquatic sites on and downstream of the covered lands.
2. Grazing on TNC property could result in incidental take of both species on covered lands (examples include increased siltation of a stream due to overgrazing and erosion, cattle gaining access to habitats occupied by Gila topminnow and/or desert pupfish through damaged fences, etc.).
3. Contamination of water due to run-off from an old two-track road could result in take; however, this road will remain closed to the public, and conditions should continue to improve. It is anticipated that contaminant run-off will be reduced over time, as the road is no longer used.

4. Light recreational activities including hiking, camping, horseback riding, and hunting, could result in incidental take caused by trampling of habitat, or minor pollution of stream segments from soaps, detergents, trash, etc.
5. Monitoring of Gila topminnow and desert pupfish populations as agreed upon in this Agreement may result in individuals being inadvertently, harmed, harassed, or killed.
6. Management actions to remove non-native aquatic species may cause harassment and possibly a small amount of mortality.
7. Reestablishment of vegetation within the aquatic sites or in terrestrial sites on covered lands may result in harassment and possibly a small amount of mortality.

Nothing in this Agreement prevents the Permit holder from implementing management activities not described in the Agreement, as long as such actions maintain the original baseline conditions and the effects of such take are not significantly different from those discussed above. Management activity, such as grazing on covered lands will be scheduled in advance. Notification, at least 60 days before activities that could result in substantial take, as in items 1 and 2 above, will be provided to the FWS. This will allow the FWS, in consultation with AGFD, the opportunity to relocate fish temporarily if necessary. If activities are going to require long-term removal of fish, arrangements can be made to house them at alternative locations or release them elsewhere.

Take of pupfish and topminnow may also occur related to the capture, transport, release, and additional monitoring of both species. The effects of this source of take will be analyzed separately under the issuance of section 10(a)(1)(A) research and recovery permits to qualified individuals and agencies conducting such work.

In addition to the activities listed above, factors beyond TNC's control could result in topminnow and/or pupfish mortality. Examples of such factors include, but are not limited to, invasion by non-native species such as non-native fishes, bullfrogs (*Rana catesbeiana*), or other species, predation by native wildlife, wildfire, drought, and flooding. These sources of mortality are addressed below under Changed Circumstances, section 12.1.

## 7.2 MINIMIZATION OF TAKE

The following measures will be taken to avoid excessive take of the covered species from the activities listed above. These minimization measures are:

1. Prescribed fire will only be used to restore upland habitat, and burning in the riparian areas will be avoided.
2. TNC and other participants will periodically monitor for intrusions of cattle into the aquatic sites. Fence repairs and erosion control projects will be initiated as needed and as funding becomes available.



3. Continued monitoring of the closed road will occur, and projects to reduce erosion will be initiated as needed and as funding becomes available.
4. Recreational use within and adjacent to covered lands will be monitored for excessive impacts. If impacts become excessive in an area, discussion of potential minimization measures between TNC, the FWS, and other interested parties such as AGFD and BLM will occur.
5. Individuals sampling fish populations as part of population monitoring will be qualified biologists and hold all necessary state and Federal permits.
6. All staff, students, and volunteers working in or around these habitats will be instructed on proper safeguards prior to initiating work in or around these habitats.

### 7.3 EXTENT OF TAKE

The first two actions listed in section 7.1 above, could result in partial to complete (100%) take of both Gila topminnow and desert pupfish from aquatic sites on lands covered in this Agreement. The next five management actions (Items 3-7 in section 7.1) are not expected to result in substantial take of either species. Isolated individuals could be subject to take during these routine activities, but care will be taken to reduce the possibility and frequency of take during these activities.

### 7.4 IMPACTS OF TAKE

The source of Gila topminnow and/or desert pupfish stocked onto properties under this Agreement will be either from captive refugia populations or from wild sites where the populations are large enough to remain viable after the removal of some fish. Due to the reproductive potential of these species, it is unlikely that removal of individuals from existing populations will have a long-term negative impact on the species. Removal of fish from wild populations will be done under a separate research and recovery section 10(a)(1)(A) permit held by AGFD or another designated entity. The impact of such removals will be evaluated under the issuance of that permit.

The proposed populations of Gila topminnow and desert pupfish would increase the number of populations within the range of Gila topminnow and desert pupfish consistent with the recovery plans for these species. The potential impact of incidental take within these new populations would be consistent with the normal fluctuations of natural populations. This could range from a few individuals to potentially all individuals within a reestablishment site. Natural populations were subject to local extirpation and periodic recolonization as part of normal metapopulation dynamics. If an entire population at a site is lost through incidental take, the cause of the take will be identified, minimization measures will be evaluated, and if appropriate the site will be reestablished with translocated individuals from another site managed under this agreement or another source consistent with criteria for the initial translocations. These activities are

consistent with the management of Level 3 populations as discussed in the recovery plans for Gila topminnow (USFWS 1998) and desert pupfish (USFWS 1993). Therefore the level of anticipated take will not exceed the baseline for the covered lands in this Agreement and not appreciably reduce the anticipated conservation benefit of this Agreement and its associated section 10(a)(1)(A) permit.

## 7.5 MONITORING

Monitoring under this agreement will consist of both biological monitoring and compliance monitoring.

Biological monitoring will occur annually on any TNC lands covered under this Agreement in which Gila topminnow and/or desert pupfish have been stocked. Qualified biologists from TNC or a representative agent of the FWS, such as AGFD, will conduct the monitoring.

Sampling of habitats will be conducted using standard protocols (i.e., dip nets and seines) and standard field sampling techniques. Extirpated populations will be restocked if necessary, only after conferring with the FWS and AGFD. TNC will not be responsible for any costs for initial or subsequent stockings.

Information to be collected during site visits will include the following:

1. Type of site (stream, spring, pond, etc.);
2. General description of the site and its condition, including water quality (water temperature, pH, conductivity, and dissolved oxygen);
3. Presence or absence of Gila topminnows and/or desert pupfish and at least approximate numbers of adults and juveniles;
4. Presence or absence of non-native aquatic species;
5. Color photos (35mm slides or digital photos) of the habitat taken at fixed points; and
6. Any impacts from land management activities.

Compliance monitoring will occur at the same time as the biological monitoring, and during or after any actions where take of species covered under this Agreement is anticipated.

Information to be collected during compliance monitoring will include the following:

1. Any impacts from land management activities;
2. Effectiveness of minimization measures; and
3. The amount and extent of take related to land management activities.

If impacts from land management activities are observed that are far greater than anticipated, TNC will contact the FWS within 10 business days to review the impacts and reevaluate the minimization measures associated with such activities. Any modification to the Agreement will be consistent with the amendment procedures discussed later in this document. All monitoring

information collected shall be summarized in a report due to the FWS on February 15 every year the Agreement is in effect.

## **8.0 NOTIFICATION REQUIREMENT**

TNC will notify the FWS 60 days in advance of land management actions on covered lands, such as prescribed fire or grazing, that could result in take of covered species to provide the FWS or another appropriate party (such as AGFD), access and the opportunity to collect and relocate individuals, if the FWS so chooses.

## **9.0 RESPONSIBLE PARTIES**

TNC will be responsible for providing project site(s) for reestablishment of fish populations, reporting on the status of topminnow and pupfish populations to the FWS, notifying the FWS prior to initiating actions which may result in take, allowing access for monitoring and salvage of fish prior to any action that could result in take, and any and all conditions of the Section 10(a)(1)(A) enhancement of survival permit.

The FWS will be responsible for providing advice and scientific expertise during the project; reviewing and providing appropriate permits with assurances; assisting with population monitoring, reintroductions, and renovation as needed (and as personnel and funding is available); cooperating on conservation efforts with TNC and other appropriate parties (such as BLM and AGFD); and providing Gila topminnow and desert pupfish (or arranging for appropriate genetic stock) to be stocked on TNC lands, in coordination with AGFD.

AGFD, while not a signatory to this agreement, has been instrumental in the development and coordination of the recovery actions covered by this Agreement. In addition, AGFD, as the primary state agency managing Arizona's wildlife, will be instrumental in the implementation of this agreement.

## **10.0 RESPECTIVE RESPONSIBILITIES OF THE PARTIES**

The above notwithstanding, the parties to this Agreement understand that neither TNC, nor the FWS, under this Agreement can be compelled to provide financial assistance of any kind, except to the extent that such assistance is explicitly required under the Agreement or any other legal instrument entered into by any such party or cooperator to the Agreement. In addition to the specific tasks and contributions to this effort as identified in the above section titled "Responsible Parties," the parties further agree as follows:

## 10.1 FWS

1. The FWS does not assume jurisdiction over TNC lands by this Agreement. The FWS assumes no liability for damage except that resulting from its own negligence on TNC lands.
2. The FWS will not be held liable in any way to restore the property to its prior condition upon termination or expiration of this Agreement.
3. The FWS agrees to provide technical advice and assistance in obtaining permits that may be required for TNC to fulfill the terms of this Agreement. A state permit will be required.
4. The FWS, in partnership with AGFD, or another designated agent, will be responsible for obtaining fish for reestablishment efforts when they are available.
5. The FWS agrees to ensure that all fish reestablished on covered lands have undergone a fish health assessment, to check for the presence of pathogens, as part of standard handling procedures associated with translocation of aquatic species.
6. The FWS, AGFD, or their agents will salvage covered fish species from aquatic sites on the covered lands (as deemed appropriate), prior to activities that could result in take and/or if TNC elects to return the site to baseline conditions.
7. The FWS will assist in conducting biological and compliance monitoring in accordance with section 7.5 of this Agreement.
8. The FWS will assist in securing funding for Gila topminnow and desert pupfish conservation activities when appropriate (e.g., under the Partners for Fish and Wildlife program).

## 10.2 TNC

1. TNC retains all rights to control trespass and access, and retains all responsibility for taxes, assessments, and damage claims.
2. TNC is the owner of the lands described in Appendix A and covered by this Agreement. A change of ownership shall not change the terms of this Agreement, which shall remain in effect on the described property for the duration of the period specified in section 11.0., provided the new owner agrees in writing to become party to the original Agreement and permit in accordance with 50 CFR 13.25. TNC agrees to notify the FWS of planned or pending changes of ownership at least 60 days in advance.

3. TNC agrees to allow the FWS (its members, agents, or assignees) access to the project site, upon prior, reasonable, notification by the FWS, for monitoring purposes, and to inspect work completed.
4. TNC agrees to hold the Agreement's associated Section 10(a)(1)(A) enhancement of survival permit and abide by all terms and conditions of the permit upon its final issuance by the FWS and acceptance by TNC.
5. TNC will assist in salvaging fish species from aquatic sites on the covered lands, prior to activities that could result in take or returning the site to baseline conditions.
6. TNC will assist in conducting biological and compliance monitoring in accordance with section 7.5 of this Agreement.
7. TNC will prepare an annual report that documents all activities associated with the Agreement in the previous year, including translocation and reestablishment of fish, land management activities that may have resulted in take, an estimate of the amount of take that may have occurred, and any further measures that may be taken to reduce the likelihood of take in the future. Any proposed amendments or approved amendments that occur during the year should also be documented. The annual report should cover a calendar year and is due annually on February 15.

## **11.0 DURATION OF AGREEMENT AND PERMIT**

This Agreement will commence effective the date signed by the last signatory to this Agreement, and will continue for a term of 20 years. The associated section 10(a)(1)(A) Enhancement of Survival Permit will also have a term of 20 years. A minimum of 18 years of conservation is anticipated under this Agreement. It is anticipated that if a voluntary return to baseline occurs, it will be within the last two years of this Agreement and its associated section 10(a)(1)(A) permit. However, prior to the date of expiration of this Agreement and any voluntary return to baseline, this Agreement may be renewed upon written agreement by both parties. This does not preclude either party from early termination of the Agreement as described in section 13.0.

## **12.0 ALTERED AND UNFORESEEN CIRCUMSTANCES, ADAPTIVE MANAGEMENT, AND AMENDMENT PROCEDURES**

### **12.1 ALTERED CIRCUMSTANCES**

Altered circumstances are changes in circumstances affecting the species or geographic area covered by the Agreement that can reasonably be anticipated, and planned for, during the development of this agreement. These include the following:

1. Non-native aquatic species: The possibility of invasion by non-native aquatic species that may prey on the covered species or detrimentally alter the habitat is foreseeable.

This includes species such as bullfrogs, sunfish, *Gambusia*, and crayfish. In this instance, the FWS and TNC in cooperation with AGFD will work to renovate such sites and reestablish the populations of topminnow and pupfish.

2. Early loss of established populations: It is foreseeable that established populations may be lost due to several factors, including but not limited to high flows, extensive erosion and siltation, and ash flows. The cause of extirpation needs to be identified and sources located. If adaptations to the management practices associated with grazing, controlled burning, or other management activities can be identified that would reduce the likelihood of a future extirpation, then these practices should be adopted. Then if the habitat is still suitable for the covered species, reestablishment of these species may proceed. If the habitat is no longer suitable, the site will be removed from management under the Agreement, with the concurrence of the FWS and TNC.
3. Excessive mortality from native species: Several species native to the San Pedro River Basin could prey on the covered species. These could include several species of fish, reptiles, birds, and mammals. If predation by native species prohibits the populations of the covered species from becoming established, the FWS, TNC, and AGFD will confer on the possibilities of habitat modifications to increase habitat complexity. The goal of increasing the habitat complexity in aquatic sites is to reduce predation.

## 12.2 UNFORESEEN CIRCUMSTANCES

Unforeseen circumstances are changes in circumstances affecting the species or geographic area covered by the Agreement that cannot be reasonably anticipated and planned for during the development of this Agreement and that result in a substantial and adverse change in the status of the covered species. It is understood that unforeseen circumstances will not require TNC to provide additional conservation measures above those provided for in this Agreement, without consent of TNC.

## 12.3 ADAPTIVE MANAGEMENT AND AMENDMENT PROCEDURE

TNC agrees to meet annually, or more frequently if necessary, and as agreed upon, with the FWS, to review progress in implementing the Agreement and to review needs for project modifications due to changing circumstances. Any major change in land use or natural changes in the watershed that affect the covered species or their habitats will be reported by TNC to the designated FWS representative, or by the FWS representative or other cooperators (such as AGFD) to TNC, as soon as possible.

Two types of Adaptive Management modifications within the covered lands may be implemented under this Agreement. These are termed: 1. major revisions to the Agreement, and 2. ongoing management adjustments (minor revisions). The FWS must be conferred with on all proposed modifications.

1. A major revision is defined as one triggered by the availability of substantial new scientific information, typically from a source not related to the Agreement, concerning any biological assumption or criterion upon which the conservation program is based and that would require modification of any of the Agreement's specific biological criteria or conservation measures. Major revisions would likely require that the Agreement be amended to reflect any required new standards or management activities. This, in turn, would require mutual agreement between TNC and the FWS and a formal written amendment.
2. Ongoing management adjustments (minor revisions) are defined based on the Agreement's monitoring program, concern any situation within the covered lands that requires a management response, and that are within the scope of the existing Agreement. Examples of circumstances requiring ongoing management adjustments would be the identification of specific problems at specific Gila topminnow and desert pupfish sites within the covered lands (e.g., colonization by non-natives, drought, or extirpation of a population). The FWS and TNC will address ongoing management adjustments collaboratively in the following manner:
  - a. The cause of the circumstance will be determined, if possible.
  - b. An appropriate response will be determined. If a discernible problem can be identified, the decision whether or not to re-establish the Gila topminnow and/or desert pupfish population will be made based on the following factors:
    - i. The technical and logistical feasibility of correcting the problem, and the likelihood of long-term success;
    - ii. The biological importance of the population to the net conservation benefit of the species (section 5.0); and
    - iii. Funding availability to undertake corrective action and re-establish a new population.

Minor revisions may also involve routine administrative changes to the operation and management of the program that do not diminish the level or means of net conservation benefits from corrective actions in response to unforeseen circumstances. Such minor revisions do not alter the terms of the Section 10(a)(1)(A) permit. On written request by TNC, the FWS is authorized to approve minor amendments to this Agreement, as long as amendments do not conflict with the primary purpose of this Agreement.

Nothing in the Safe Harbor assurances policy shall be construed to limit or constrain the FWS or any other governmental entity from taking additional actions at its own expense to protect or conserve a species included in an Agreement, subject to landowner approval. The Safe Harbor assurance policy does not apply if the Agreement is not fully implemented, or to species not

covered under this Agreement, if new species are listed or found to occur within the Agreement area.

### **13.0 AGREEMENT TERMINATION PROVISIONS**

Either party may terminate this Agreement upon 60 days advance written notice to the other party. A schedule for the return of all sites back to baseline needs to be agreed upon, but shall not be longer than 60 days after the delivery of written notice of intent to terminate by one of the parties, unless both parties agree on an alternative deadline. At that time, the Agreement, the associated Section 10(a)(1)(A) enhancement of survival permit, and the assurances under the agreement will be terminated.

Should either party terminate this Agreement, TNC lands shall be returned to the baseline conditions documented in section 6.0 of this Agreement by the FWS. Only after baseline conditions have been confirmed may the FWS terminate TNC's Section 10(a)(1)(A) permit and this Agreement.

### **14.0 PERMIT REVOCATION PROVISIONS**

The FWS may revoke the permit if continuation of the permitted activity would either appreciably reduce the likelihood of survival and recovery in the wild of any listed species or directly result in the adverse modification of designated critical habitat. Prior to revoking a permit for either of these two reasons, the FWS will pursue all appropriate options to avoid permit revocation. These options may include, but are not limited to extending or modifying the existing permit, capturing and relocating the species, compensating the landowner to forgo the activity, purchasing an easement or fee simple interest in the property, or arranging for a third-party acquisition of an interest in the property.

### **15.0 AGREEMENT AND PERMIT TRANSFERABILITY**

If in the event any or all the covered lands are sold by TNC, this Agreement and the associated permit may be transferred with the covered properties to any new non-Federal landowner. At this point, TNC's responsibilities as defined by the Agreement and the permit would cease. TNC shall give at least 60 days notice prior to the transfer of the property to the new owner, so the FWS can discuss the potential transfer of the Agreement and permit to the potential new owner. The potential new owner will need to agree in writing to become a party to the original Agreement and permit or enter into a new Agreement and be permitted to benefit from the Agreement's assurances.

If TNC would like to transfer the permit to a new permittee without the transfer of lands to a new owner, TNC and the proposed new permittee should jointly submit a written request to transfer the permit. This request should be provided to the FWS at least 60 days prior to a proposed transfer date.



## 16.0 ADMINISTRATIVE MATTERS

1. For matters applicable to this Agreement, the FWS Point of Contact (POC) is the Field Supervisor of the Arizona Ecological Service Office, or designate.
2. Pursuant to Section 22, Title 41, United States Code, it is further mutually agreed that no member of or delegate to Congress or resident commissioner, after their election or appointment, and either before or after they have qualified and during their continuance in office, shall be admitted to any share or part of this Agreement, or to any benefit to arise thereupon; but this provision shall not be construed to extend to this Agreement if made with a corporation for its general benefit.
3. This Agreement may be amended or modified at any time by mutual written consent of all the parties. No change to this Agreement shall be binding upon the FWS or TNC unless and until such amendments or modifications are agreed upon in writing and signed by both parties.
4. No Third Party Benefit – Nothing contained herein, express or implied, is intended nor shall be construed to confer or to give any individual or entity, other than the parties hereto, any rights or remedies by reason of this Agreement.
5. Availability of funds – Implementation of this Agreement is subject to the requirements of the Anti-Deficiency Act and the availability of appropriated funds. Nothing in this Agreement will be construed by the Parties to require the obligation, appropriation, or expenditure of any funds from the U.S. Treasury. The Parties acknowledge that the FWS will not be required under this Agreement to expend any Federal agency's appropriated funds unless and until an authorized agency official affirmatively acts to commit to such expenditures as evidenced in writing.
6. Applicable Laws – All activities undertaken pursuant to this Agreement and its associated 10(a)(1)(A) permit must be in compliance with all applicable state, federal, tribal, and local laws and regulations.
7. Relationship to the Act and other authorities – The terms and conditions of this Agreement shall be governed by and construed in accordance with the Act and applicable Federal law. In particular, nothing in this Agreement is intended to limit the authority of the FWS to seek penalties or otherwise fulfill its responsibilities under the Act. Moreover, nothing in this Agreement is intended to limit or diminish the legal obligations and responsibilities of the FWS as an agency of the Federal government.
8. No monetary damages – No party shall be liable in damages to any other party or other person for any breach of this Agreement, any performance or failure to perform

a mandatory or discretionary obligation imposed by this Agreement or any other cause of action arising from this Agreement.

## 17.0 SIGNATORIES

IN WITNESS WHEREOF, THE PARTIES HERETO have executed this Safe Harbor Agreement to be in effect as of the date last signed below.

BY Patrick Graham  
Patrick Graham, State Director  
The Nature Conservancy of Arizona  
Tucson, Arizona

Date 9-6-05

BY Geoffrey L. Haskett  
for Geoffrey L. Haskett, Deputy Regional Director  
Region 2, United States Fish and Wildlife Service  
Albuquerque, New Mexico

Date 9/13/05

## LITERATURE CITED

- Bagley, B.E., D.A. Hendrickson, F.J. Abarca, and S. Hart. 1991. Status of the Sonoran topminnow (*Poeciliopsis occidentalis*) and desert pupfish (*Cyprinodon macularius*) in Arizona. Arizona Game and Fish Department, Phoenix, AZ. Special Report on Project E5-2, Job 9, Title VI of the Endangered Species Act.
- Constantz, G.D. 1980. Energetics of viviparity in the Gila topminnow (Pisces: Poeciliidae). *Copeia* 1980:676-678.
- Meffe, G.K., D.A. Hendrickson, and W.L. Minckley. 1983. Factors resulting in decline of the endangered Sonoran topminnow, *Poeciliopsis occidentalis* (Antheriniformes: Poeciliidae) in the United States. *Biological Conservation* 25:135-159.
- Meffe, G.K and F.F. Snelson, Jr. (eds.). 1989. Ecology and evolution of livebearing fishes (Poeciliidae). Prentice Hall Englewood Cliffs.
- Minckley, W.L. 1969. Attempted re-establishment of the Gila topminnow within its former range. *Copeia* 1969(1):193-194.
- Minckley, W.L. 1973. Fishes of Arizona. Arizona Game and Fish Department, Phoenix, Arizona.
- Minckley, W.L. 1999. Ecological review and management recommendations for recovery of the endangered Gila topminnow. *Great Basin Naturalist* 59(3):230-244.
- Minckley, W.L., J.N. Rinne, and J.E. Johnson. 1977. Status of the Gila topminnow and its co-occurrence with mosquitofish. U.S. Forest Service, Research Paper RM-198:1-8, Rocky Mountain Forest and Range Experimental Station, Fort Collins, Colorado.
- Schoenherr, A.A. 1974. Life history of the topminnow, *Poeciliopsis occidentalis* (Baird and Girard) in Arizona, and an analysis of its interaction with the mosquitofish *Gambusia affinis* (Baird and Girard). Ph.D. Dissertation, Arizona State University, Tempe, Arizona.
- U.S. Fish and Wildlife Service (USFWS). 1993. Desert Pupfish Recovery. U.S. Fish and Wildlife Service, Albuquerque, New Mexico.
- U.S. Fish and Wildlife Service (USFWS). 1998. Draft Gila topminnow, *Poeciliopsis occidentalis occidentalis*, revised recovery plan. Prepared by Arizona Game and Fish Department for U.S. Fish and Wildlife Service, Albuquerque, New Mexico, 83 pp.
- Voeltz, J.B. and R.F. Davidson. 2002. Nongame and Endangered Wildlife Program Technical Report 198. Arizona Game and Fish Department. Phoenix, Arizona.

Weedman, D.A. and K.L. Young. 1997. Status of the Gila topminnow and desert pupfish in Arizona. Nongame and Endangered Wildlife Program Technical Report 118. Arizona Game and Fish Department, Phoenix, Arizona.

## APPENDICES

### Appendix A: Covered Lands

**Parcel No. 20:**

Lots 1,2,3, and the Southwest Quarter and the North half of Lot 4; the North half of the Northeast Quarter; the Southwest Quarter of the Northeast Quarter; the Northwest Quarter of the Southeast Quarter; and the North half of the Southwest Quarter of the Southeast Quarter of Section 18, Township 7 South, Range 19 East of the Gila and Salt River Base and Meridian, Graham County Arizona.

EXCEPT all the coal and other minerals as reserved in Patent from United States of America.

**Parcel No. 21:**

The West Half of Lots 1 and 2, Section 19, Township 7 South, Range 19 East of the Gila and Salt River Base and Meridian, Graham County Arizona.

EXCEPT all the coal and other minerals as reserved in Patent from United States of America.

**Parcel No. 25:**

The East half and the Southwest quarter of Section 13. Township 7 South, Range 18 East, Gila and Salt River Base and Meridian, Pinal County, Arizona.

EXCEPTING THERE FROM all coal, oil, gas and other mineral deposits as reserved in Patent from United States of America.

**Parcel No. 26:**

The Northwest quarter of Section 14, Township 7 South, Range 18 East, Gila and Salt River Base and Meridian, Pinal County, Arizona.

EXCEPTING THERE FROM all coal, oil, gas and other mineral deposits as reserved in Patent from United States of America.

**Parcel No. 27:**

The South half of the Southeast quarter and the Southwest quarter of Section 23, Township 7 South, Range 18 East, Gila and Salt River Base and Meridian, Pinal County, Arizona.

EXCEPTING THERE FROM all coal, oil, gas and other mineral deposits as reserved in Patent from United States of America.

**Parcel No 28:**

The West half of the Northwest quarter of Section 25, Township 7 South, Range 18 East, Gila and Salt River Base and Meridian, Pinal County, Arizona.

EXCEPTING THERE FROM all coal, oil, gas and other mineral deposits as reserved in Patent from United States of America.

**Parcel No. 29:**

The North half of Section 26, Township 7 South, Range 18 East, Gila and Salt River Base and Meridian, Pinal County, Arizona.

EXCEPTING THERE FROM all coal, oil, gas and other mineral deposits as reserved in Patent from United States of America.

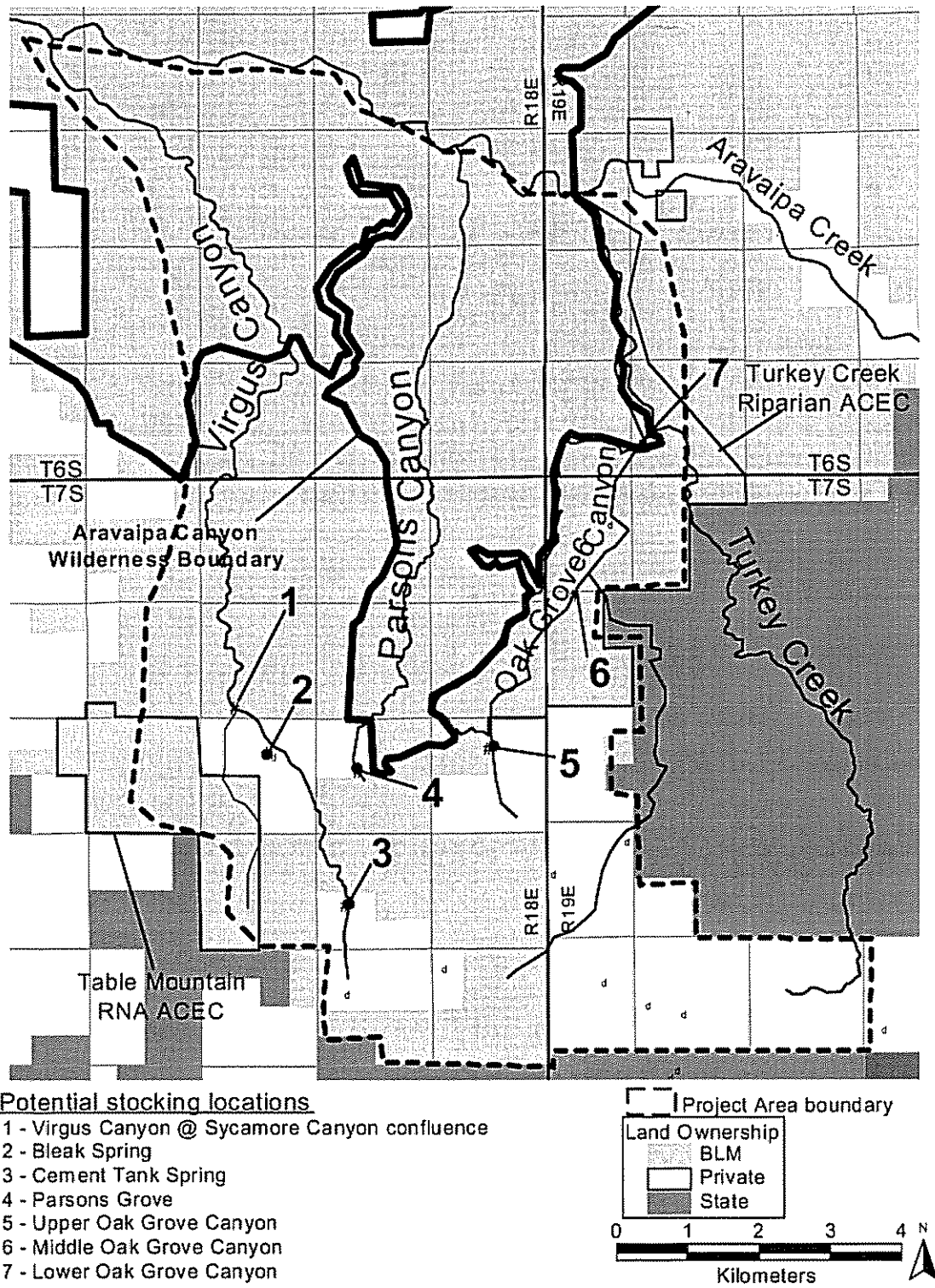
**Parcel No. 31:**

Lots 1, 2, 3, 4, and 5; the North half of the Northeast quarter and the Southeast quarter of the Northeast quarter; and the Northwest quarter of Section 15, Township 7 South, Range 18 East, Gila and Salt River Base and Meridian, Pinal County, Arizona.

EXCEPT any part lying within the boundaries of Louisville and Grand Duke Patented Mining Claims, as revealed by Mineral Survey No. 3313;

EXCEPTING AND RESERVING all the coal and other minerals as reserved in Patent from United States of America.

Appendix B: Map of Covered Lands, including BLM proposed reintroduction. TNC proposed reestablishment sites are numbered as 2, 3, 4, and 5.





Appendix C: Public comments received during public review period.

Mar-28-05 16:17 From-

T-463 P.001/003 F-362

e

ENVIRONMENTAL DEFENSE

finding the ways that work

March 28, 2005

Marty Tuegel  
U.S. Fish and Wildlife Service  
Arizona Ecological Services Field Office  
2321 West Royal Palm Road, Suite 103  
Phoenix, Arizona 85021-4951  
(520) 670 - 6155

Dear Mr. Tuegel,

Environmental Defense strongly supports the issuance of the requested permit for the proposed Safe Harbor Agreement on The Nature Conservancy's lands in Arizona. We believe this effort will advance the recovery of the gila topminnow and the desert pupfish that are the subject of the agreement. However, we have several suggestions to improve or clarify the Agreement.

Clarify the matter of covered "sites."

The Agreement uses inconsistent and confusing terminology with regard to the areas covered by it. According to Section 3.0, "enrolled sites covered by this Agreement are lands ... described in Appendix A." Appendix A, in turn, identifies eight numbered parcels, each encompassing part or all of one or more lots in specified townships. Thus, the covered "sites" appear to be entire parcels, including both the lands and waters therein. However, twice in Section 10 and once in Section 15, the Agreement refers to enrolled "aquatic sites" without defining or explaining this term. Are these the same eight sites, some subset of those sites, the aquatic (and riparian?) portions of those sites, or different sites? Adding to the confusion is the mention in Section 7.1 of take occurring as a result of the reestablishment of vegetation "within these sites or associated terrestrial sites." Are "associated terrestrial sites" simply the non-aquatic portions of the eight parcels identified in Appendix A, or are they areas outside the eight parcels? Clarifying this confusing terminology is important in order to understand clearly the obligations and rights of the parties. For example, Section 7.2 contemplates monitoring "for intrusions of cattle into the riparian areas and covered sites." This implies that cattle are to be excluded from the covered sites; i.e., from the entirety of the parcels identified in Appendix A. Is that what the parties intend, or do they intend instead only to exclude cattle from the streams and riparian areas within those parcels?

1875 Connecticut Avenue, NW • Washington, DC 20009 • Tel 202 387 3500 • Fax 202 234 8049 • [www.environmentaldedf.org](http://www.environmentaldedf.org)  
New York, NY • Oakland, CA • Boulder, CO • Raleigh, NC • Austin, TX • Project Offices • Boston, MA • Los Angeles, CA

Recycled paper. Recycle 100% post-consumer recycled paper.

Clarify provisions relating to prior notice of certain actions and salvage of fish.

There is also ambiguity in the Agreement about when prior notice of certain actions must be given by TNC, and what is to happen as a result of such notice. For example, Section 8.0 obliges TNC to notify FWS in advance of land management actions "that could result in substantial mortality of covered species." However, Section 9.0 sets forth a different standard, obliging TNC to give FWS prior notice of "any action that could result in take." These differing standards need to be reconciled. There is a further ambiguity in Section 8.0. It requires advance notice of certain actions "on TNC lands, such as prescribed fire or grazing." The phrase "on TNC lands" suggests a much more extensive area than just the eight parcels included as covered "sites." Is this what the parties actually intend or did the parties intend to cover just "enrolled lands?"

In both Sections 8.0 and 9.0, the purpose of requiring TNC to give prior notice of certain actions is to enable FWS or another appropriate party the opportunity to rescue and relocate affected individuals. This suggests that it is FWS (or perhaps the State of Arizona) that will carry out any such salvage operations. However, Section 10.1 says that "FWS will assist in salvaging covered fish," which implies that someone other than FWS has the principal responsibility for conducting salvage operations. This ambiguity should be clarified now, so that the expectations of the parties are clearly understood.

Clarify provisions relating to monitoring.

Section 7.5 describes biological and compliance monitoring. The "standard protocols" and "standard field sampling techniques" that are referenced in this section would appear to apply to biological monitoring only. The agreement is far less clear on how compliance monitoring is to be done, particularly since what is described as "compliance monitoring" focuses more on the efficacy of management activities than on whether agreed upon management activities have been properly undertaken (the more typical conception of "compliance monitoring").

Duration of the Agreement

Section 11 describes the agreement duration, but fails to describe the length of the permit term. We urge you to specify this in the final agreement and to provide a permit term that is substantially longer than the agreement term. Since the covered species are apparently expected to persist with little management, it would likely benefit the species to remove any incentive for TNC to return to baseline at the end of the agreement term. By extending the permit term beyond the date at which the agreement expires, you allow all parties to evaluate past results of the safe harbor and negotiate a new agreement if appropriate.

Conservation Measures

Although the agreement's stated purpose is to "establish additional populations of Gila topminnow and desert pupfish" the draft agreement is vague in assigning responsibility to any party to carry out introductions. This is likely because Arizona Game and Fish Department is going to carry out introductions but is not a party to the agreement. The

draft agreement also does not describe whether a particular quality or quantity of aquatic or riparian habitat will be managed or maintained.

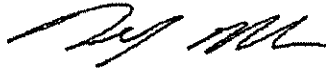
We expect that TNC has every intention of providing significant habitat for the species and that the Service and Arizona Game and Fish Department plan to reintroduce the fishes. It would significantly strengthen the agreement were the Responsibilities of the Parties or another section of the agreement to provide more details about how the introductions will be carried out and more detail about population and habitat management that will subsequently occur.

Thank you for considering these comments and please feel free to contact us if you have questions relating to these or other aspects of the safe harbor agreement.

Sincerely,



Michael J. Bean, Co-Director  
Center for Conservation Incentives



Tim Male, PhD.  
Senior Ecologist



THE STATE OF ARIZONA  
**GAME AND FISH DEPARTMENT**

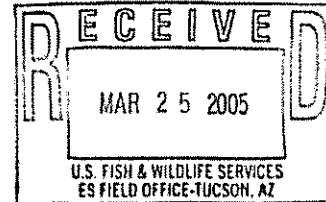
2221 WEST GREENWAY ROAD, PHOENIX, AZ 85023-4399  
 (602) 942-3000 • AZGFD.GOV

GOVERNOR  
 JANET NAPOLITANO  
 COMMISSIONERS  
 CHAIRMAN, W. HAYS GILSTRAP, PHOENIX  
 JOE MELTON, YUMA  
 MICHAEL M. GOLIGHTLY, FLAGSTAFF  
 WILLIAM H. MCLEAN, GOLD CANYON  
 SUSAN E. CHILTON, ARIZONA  
 DIRECTOR  
 DUANE L. SHROUFE  
 DEPUTY DIRECTOR  
 STEVE K. FERRELL



March 18, 2005

Mr. Steve Spangle  
 Field Supervisor  
 U.S. Fish and Wildlife Service  
 2321 W. Royal Palm Road, Suite 103  
 Phoenix, AZ 85021



Re: TNC Safe Harbor Agreement application and NEPA analysis

Dear Mr. Spangle:

The Arizona Game and Fish Department (Department) commends the efforts of the U.S. Fish and Wildlife Service (USFWS) and the Arizona Chapter of The Nature Conservancy (TNC) for developing a draft Safe Harbor Agreement (SHA) to benefit Gila topminnow and desert pupfish at the Aravaipa Canyon Preserve managed by TNC. As you know, the Department assisted TNC with the preparation of this SHA, so the major Department concerns (biological and technical) have already been addressed.

We understand that the SHA is an agreement between the USFWS and TNC, however, we believe more clarification is necessary regarding the role that the Department will play in implementing this agreement. For example, all stocking, augmenting, or salvaging of topminnow and pupfish will be conducted by the Department (per existing agreements), or delegated to a qualified party through the Department permitting process. The SHA, as currently written, indirectly addresses these issues, but could be outlined in greater detail by adding the Department to section 10 (Respective Responsibilities of the Parties) of the SHA.

Specific comments/suggestions on the SHA are as follows:

- Section 7.3 mentions "4 remaining items" (numbered 3-6) from section 7.1. There are actually a total of seven items in section 7.1, so Section 7.3 should refer to "5 remaining items" and be numbered 3-7.
- On page 9, we request that the reference to "appropriate genetic stock" be changed to "appropriate stock" due to recent USFWS Region 2 direction regarding genetic lineage based recovery.

MAR 21 2005

Mr. Steve Spangle  
March 18, 2005  
Page 2

- The following references in the SHA are not listed in the Literature Cited section: Schoenherr (1974), Constantz (1980), Meffe et al. (1983), Meffe and Snelson (1989), Minckley et al. (1977), and Minckley (1969). In addition the correct citation for the AGFD (2002) reference is as follows: "Voeltz, J.B. and R.F. Davidson. 2002. Aravaipa Creek fish monitoring and survey results from 1999 and 2000. Nongame and Endangered Wildlife Program Technical Report 198, Arizona Game and Fish Department, Phoenix, Arizona."

The Department appreciates the opportunity to provide comments on the Aravaipa Canyon Preserve SHA. We fully support these conservation efforts, and look forward to implementing the SHA project. Please contact me at your earliest convenience if you wish to discuss this topic further.

Sincerely,



Duane L. Shroufe  
Director

DLS:jv.

cc: Bruce Taubert, Assistant Director, Wildlife Management Division  
Bob Broscheid, Habitat Branch Chief  
Eric Gardner, Nongame Branch Chief  
Gerry Perry, Regional Supervisor, Region V

SALLY E. STEFFERUD

---

March 27, 2005

Steve Spangle, Field Supervisor  
U.S. Fish and Wildlife Service  
2321 W. Royal Palm Road, Suite 103  
Phoenix, Arizona 85021

Re: Permit TE-099809-0; Safe Harbor Agreement for The Nature Conservancy at Aravaipa Creek

Dear Steve:

Thank you for the opportunity to comment on the permit application by The Arizona Nature Conservancy for a Safe Harbor Agreement at Aravaipa Creek to engage in restoration efforts for Gila topminnow *Poeciliopsis occidentalis* and desert pupfish *Cyprinodon macularius*. As my colleague at Fish and Wildlife Service for many years, until my retirement in 2002, you are aware of my qualifications. However, for the formal comment record, I am a fish biologist with over 25 years of work on native fishes of the southwest. I have extensive experience with Aravaipa Creek, most recently conducting an analysis of the history of fish research and monitoring in that stream, under contract with the University of Arizona and Bureau of Land Management. I have worked with Gila topminnow and desert pupfish since 1982, and was for many years the Service's lead biologist for conservation and recovery of both species. I am the author of the 1984 recovery plan for Gila topminnow. As Service lead and as liaison to the Desert Fishes Recovery Team, I had substantial involvement in development of the 2000 draft revised recovery plan for Gila topminnow and the 1993 recovery plan for desert pupfish.

My general comments are below, while comments on specific items of the draft Safe Harbor Agreement (SHA) are in an attachment. I have three items of general comment: 1) support for reestablishment of Gila topminnow and desert pupfish into waters of the Aravaipa Creek drainage; 2) concern that a highly improbable risk of take has been allowed to impose damaging delay and cost on recovery of the two species; and, 3) concern that reliance on populations established under SHAs may undermine recovery of the two species by reducing their protection and decreasing the likelihood of long-term persistence.

1) I support translocation and reestablishment of Gila topminnow and desert pupfish into suitable habitats throughout the Aravaipa Creek watershed. Both are native to the area and were probably extirpated from the Aravaipa drainage when the large cienega at the head of the canyon and most side- and back-waters along the creek vanished in the late 1800's due to human activities. The Arizona Nature Conservancy has done much to conserve native fishes in Aravaipa Creek and can be expected to work hard to maintain and protect reestablished Gila topminnow and desert pupfish populations on their lands. Their dedication to native fish

conservation will help ensure that these translocations will succeed in the long-term despite the loss of protection inherent in the SHA.

2) It is alarming that an organization like The Nature Conservancy, whose sole purpose is conservation of natural resources, finds participation in recovery of Gila topminnow and desert pupfish so daunting as to expend considerable time and money obtaining reduction of species' legal protections through a SHA before allowing a Federally-listed species onto their lands. The potential for Section 9 take of either of the species through activities of The Nature Conservancy (as described in the agreement) is extremely small and if it occurred would be almost impossible to detect. In the unlikely event take occurred, it is improbable that it would be of significant consequence to the population. It has been over four years since initiation of work to reestablish these two fish in Aravaipa drainage, and the paperwork is still in progress. It appears that an exaggerated concern for the improbable death of a few individuals has extensively delayed actions that would benefit the species as a whole, as well as expending significant fiscal and staff resources badly needed to accomplish other actions toward survival and recovery of the two species. This approach may save a few individuals at the expense of the whole species.

The funds and time expended on this SHA are particularly inappropriate given that the Service and other responsible parties have not made significant progress in ensuring the basic survival of Gila topminnow. Criteria for this work are given in the draft revised recovery plan. While the plan recognizes the need to proceed concurrently on recovery actions and survival needs, it emphasizes the priority of securing survival. Of the eight naturally occurring metapopulations recognized by the plan, five are declining, and the status of one is unsure. None meet the plan's definition of secure. Similarly, the securing of natural populations of desert pupfish is largely unaccomplished. Survival and recovery actions for both Gila topminnow and desert pupfish are proceeding at a pace slower than the rate of their continuing decline. If that trend continues, the species may reach extinction before sufficient action can be accomplished to prevent it. I suggest The Nature Conservancy and the Service rethink the need for such SHAs in future fish reestablishments on Conservancy lands, thus expediting the process for recovery actions.

3) The draft SHA states that the value of these populations to recovery of Gila topminnow and desert pupfish is "somewhat reduced." This should be modified to state that the value to recovery from these populations is substantially reduced by the terms of the agreement. Because of the loss of protection inherent in a SHA, particularly one with a zero baseline condition, the populations of Gila topminnow and desert pupfish proposed for Aravaipa Creek drainage will not meet the criteria for contributing to the recovery objective of either the desert pupfish recovery plan or the Gila topminnow draft revised recovery plan.

Because of the severe declines of Gila topminnow and desert pupfish, neither recovery plan anticipates full species recovery (i.e. full withdrawal of Federal protection by removal from the list of Endangered and Threatened species) to ever be possible. However, the Endangered Species Act provides ways in which Federal protection may be removed from portions of a species without the need for delisting, including the experimental nonessential provisions of Section 10(j), which removes most Section 7 protection (Federal actions), and the issuance of take permits through Section 10(a) removing some or all of the Section 9 protection. A species on private lands where a SHA is in place may experience reduction of protection approximating

or equaling that resulting from delisting. This is particularly true for a reestablishment action with a zero condition baseline. Although such reduction in protection without the need to delist is in keeping with the law, it is in direct contradiction to the Gila topminnow and desert pupfish recovery plans, which foresee that recovery, indeed mere survival, of these two species will require Federal protection in perpetuity. The removal of Federal protection proposed for the SHA populations on The Nature Conservancy lands in the Aravaipa Creek drainage establishes consideration of these populations as not essential to survival of Gila topminnow and desert pupfish. If they were considered essential, a permit contemplating possible take of all of the fish would likely violate the Service's Section 7 requirement to avoid jeopardizing the species.

The Service's Desert Fishes Recovery Team oversaw recovery of Gila topminnow and desert pupfish for 17 years, including preparation of the recovery plans. SHAs for Gila basin native fishes did not exist for most of that time and were only vaguely contemplated during last few years. While the Team expressed many reservations about agreements lifting protections for these two species, no specific discussions occurred regarding SHAs use for reestablishment of Gila topminnow and desert pupfish in wild non-captive situations, as proposed here. However, the Team discussed Section 10(j) experimental mechanisms to lift protections from these species and specifically stated in regards to experimental nonessential populations that "The Team supported their long-term position that such populations do not count toward recovery" (see December 1997 Team minutes). Reservations expressed by the Team regarding SHAs were similar to those for experimental nonessential designation. Service representatives to the Team told the Team as late as September 2002 that the non-wild SHA populations being contemplated at that time would "not count toward recovery." The Team concurred with that position.

In the Aravaipa Creek watershed, the proposed SHA and its withdrawal of Federal protection apply not only to the specific populations being established, but also to all lands owned by The Nature Conservancy. This includes other identified suitable locations as well as a portion of the stream. The Aravaipa Creek watershed is one of a handful of remaining areas in the Gila River basin where environmental, conservation, and political considerations are conducive to maintenance and restoration of a full native fish community. The designation, through the SHA, of this large and important area for populations not essential to the overall species, with reduced protection, is in direct contradiction to the recovery plans for Gila topminnow and desert pupfish. Those plans call for such high quality habitats to be used for reestablished populations that receive a high level of protection. Similarly, the long-term Desert Fishes Team position held that nonessential populations should only be used in lower quality reestablishment habitats (see April 1987 Team minutes).

Both Gila topminnow and desert pupfish recovery plans call for reestablishment of populations within historic range in a system of tiered levels of protection and contribution to recovery. The populations proposed for Aravaipa Creek drainage do not meet the criteria for tier 1 (naturally occurring populations), and due to the SHA they do not meet the criteria for tier 2 (high quality habitats with little management, and a high degree of protection). Tier 3 provides for an ebb and flow of populations (some being lost and replaced by newly established ones), which is partially consistent with the SHAs provision for take back to a zero baseline, but the agreement does not require reestablishment of new populations to replace those taken to baseline, thus omitting a crucial half of the ebb and flow model. Although major management activities may be allowed



at tier 3 populations that would not encompass the SHA's provisions for complete removal or loss of the populations. The desert pupfish recovery plan also requires that tier 3 populations be secure and continuously maintained for 10 years before counting toward recovery. These requirements were omitted from the Gila topminnow revised draft recovery plan at the urging of the Arizona Game and Fish Department, which sought more flexibility for adverse human activities to certain populations. The populations of desert pupfish proposed under the SHA do not meet the tier 3 longevity and security criteria of the recovery plan. The SHA can be terminated at any time upon a 60-day notice by either party, providing no assurance of either a 10-year maintenance period or a legally binding commitment for a minimum of 25 years.

If the Desert Fishes Recovery Team had been aware of the potential for reduction of legal protection to reestablished populations of Gila topminnow and desert pupfish in the wild, such as are proposed in this SHA and permit, and if the Team had envisioned such populations as counting toward recovery, then the number of tier 3 populations required would have been much higher. In fact, the draft revised recovery plan reflects the Team's position that there would be additional populations established that did not necessarily meet the criteria for tiers 2 or 3. The draft revised plan says "Additional populations, beyond those needed for downlisting, shall also be maintained." The Aravaipa Creek drainage populations under the SHA are part of those.

Survival and recovery of these two fishes requires reestablishment of wild, protected populations throughout their historic range. Populations established under Safe Harbor Agreements, while not a negative for the species, provide limited benefit for the species in the long-term and should be considered an acceptable, but not significant contribution to judging the status of a species regarding progress toward recovery.

Thank you for considering my comments. If you have questions, please don't hesitate to contact me.

Sincerely,



Sally E. Stefferud

Attachment

cc: State Director, The Arizona Nature Conservancy, Tucson, AZ

Appendix D: Response to Public Comments:

Environmental Defense Letter, dated March 28, 2005.

1. Clarify the matter of Covered "sites."  
The covered lands are the TNC owned parcels listed in Appendix A.
2. Clarify provisions relating to prior notice of certain actions and salvage of fish.  
We clarified these provisions in sections 9 and 10.
3. Clarify provisions relating to monitoring  
The objective of the Safe Harbor Agreement is to provide suitable sites for these species of fish in existing unoccupied habitat on TNC owned lands. This agreement does not include actions to improve these habitats, only to allow populations to be established and follow conservation measures to minimize take of these species. Therefore, biological monitoring is the primary focus of the monitoring efforts, and compliance monitoring is limited to evaluating the effectiveness of measures to minimize take associated with land management activities.
4. Duration of the Agreement:  
We have included the term of the section 10(a)(1)(A) enhancement of survival permit (20 years) within Section 11.
5. Conservation Measures:  
The responsibility of establishing the Gila topminnow and desert pupfish populations is that of our office, but it cannot be done without the participation of AGFD. We have clarified this in Section 10.1 of this Agreement. This Agreement, while not including AGFD as a signatory, has been written in coordination with AGFD. No aquatic stocking can occur within Arizona without appropriate permits from AGFD.

The comment concerning the lack of a description of the quality or quantity of aquatic or riparian sites that will be managed or maintained is problematic. These sites have been evaluated by AGFD, BLM, TNC, and our biologists and determined to be suitable for these species of fish. They are natural, perennial springs and stream stretches that fluctuate in size and quality with seasonal and climatic conditions. Therefore, the sites are not quantified in the agreement and nothing in the agreement obligates TNC to manage these habitats specifically beyond avoiding and minimizing take and maintaining them for the period specified in the Agreement.

Arizona Game and Fish Department Letter, dated March 18, 2005

1. AGFD's role in implementation of the Agreement:  
The role of AGFD has been clarified in Section 9.0

2. Typo in Section 7.3:  
This has been corrected.
3. The use of “appropriate genetic stock”  
The concern that the use of “appropriate genetic stock” would not be consistent with the January 27, 2005, USFWS Region 2 “Policy on Genetics in Endangered Species Activities” is incorrect. This policy does not restrict the use genetics in management actions, but rather restricts the use of genetics in delisting and downlisting criteria in recovery plans. No change to the Agreement was made.
4. Missing References:  
The references missing from the Literature Cited section have been included, and the references in the text have been rechecked. The incorrect citation for AGFD Technical Report 198 has been corrected.

Sally Stefferud Letter dated March 27, 2005:

1. Support for reestablishment of Gila topminnow and desert pupfish into waters of the Aravaipa drainage:  
Your support is noted and appreciated.
2. Concern that a highly improbable risk of take has been allowed to impose damaging delay and cost on recovery of the two species:  
Your comment on the time and effort put into this Agreement and the relative need for the Agreement are noted.
3. Concern that reliance on populations established under safe harbor agreements may undermine recovery of the two species by reducing their protection and decreasing the likelihood of long-term persistence:  
This issue is one that has been discussed within recovery teams and agencies participating in recovery actions. The value of populations established through safe harbor agreements will be evaluated by recovery teams during recovery plan revisions and by us when making decisions regarding downlisting or delisting. This issue is clarified in sections 1, 2 and 5.
4. The Agreement and “its withdrawal of Federal protection apply not only to the specific populations being established, but also to all lands owned by TNC.”:  
This Agreement only covers the TNC owned parcels within the Aravaipa watershed identified in Appendix A. It gives TNC coverage for incidental take of Gila topminnow and desert pupfish associated with non-Federal land management activities and uses that may occur on covered lands. Similar reestablishment efforts are being undertaken by the Bureau of Land Management on Federal lands adjacent to the TNC parcels. These populations and any Federal actions that may affect these populations will still be subject to Federal protection through Section 7 consultation under the Endangered Species Act.

5. The populations established under this Agreement may not meet the tier 3 population definitions in the Recovery plans for these species:  
The FWS will review the security of these populations at the time we consider downlisting or delisting. The concept of ebb and flow of these populations is considered in the management of these populations, but only for the duration of the Agreement.
  
6. Populations established under this Agreement, while not being a negative for this species, provides limited benefit for the species in the long-term:  
We expect this Agreement and the aquatic sites that will become available for reestablishment of populations to be a net conservation benefit to both Gila topminnow and desert pupfish. The long-term benefits will need to be evaluated in the context of the BLM's efforts to reestablish these fish within these same tributaries of Aravaipa Creek and the effects of TNC potentially requesting the population on the covered lands to be brought down to baseline at the end of the Agreement. The potential exists that TNC may not request that the covered lands be returned to baseline, or they may renew their Agreement and permit on a continual basis. Therefore, the long-term benefit is yet to be determined.