

AESO/SE
2-21-96-F-241

April 14, 1998

MEMORANDUM

TO: Regional Director, Fish and Wildlife Service, Albuquerque, New Mexico
(Attn: GMA, ES)

FROM: Acting Field Supervisor

SUBJECT: Intra-Service Biological and Conference Opinion Regarding the Proposed Issuance of an Incidental Take Permit (PRT-837858) to the El Coronado Ranch and Cattle Company, Cochise County, Arizona (2-21-96-F-241)

This memorandum represents our Biological and Conference Opinion, furnished under Section 7 of the Endangered Species Act of 1973 (Act), as amended. The Federal action under consideration is the issuance of a permit authorizing the incidental take of the endangered Yaqui chub (*Gila purpurea*) and threatened Yaqui catfish (*Ictalurus pricei*) under the authority of sections 10(a)(1)(B) and 10(a)(2) of the Act. The El Coronado Ranch and Cattle Company (Josiah and Valer Austin) has submitted an application for an incidental take permit under the Act to take the federally-listed endangered Yaqui chub and threatened Yaqui catfish. Conservation actions for the Yaqui form of longfin dace (*Agosia chrysogaster*), an unlisted species, are also included. Incidental take of the longfin dace would be covered under the permit, if the dace should be listed under the Act. Along with the application, the Applicant submitted a draft Environmental Assessment/Habitat Conservation Plan (EA/HCP) which has been reviewed for mitigation acceptability. The implementing regulations for section 10(a)(1)(B) of the Act, as provided for by 50 CFR 17.22, specify the criteria by which a permit allowing the incidental take of listed species following otherwise lawful activities may be obtained. The purpose and need for the section 10(a)(1)(B) permit is to ensure that incidental take resulting from the proposed ranching and related activities will be minimized and mitigated to the maximum extent practicable, and will not appreciably reduce the likelihood of the survival and recovery of the species in the wild.

This biological and conference opinion is based on information provided in the draft Environmental Assessment/Habitat Conservation Plan (EA/HCP), the draft Implementing Agreement (IA), telephone conversations, field investigations, Service files, and other sources of information. References cited in this biological opinion are not a complete bibliography of all references available on the species of

concern, or on other subjects considered in this opinion. A complete administrative record of this consultation is on file in the Arizona Ecological Services Field Office.

On April 8, 1998, the Service completed examination of the permit application, EA/HCP, the Implementing Agreement, and procedures for mitigating the permitted incidental take.

After reviewing the status of the two listed and one unlisted species, the environmental baseline for the action area, the effects of the proposed permit issuance, and the cumulative effects, it is the Service's biological opinion that the proposed action is not likely to jeopardize the continued existence of these species. Critical habitat has been designated for the Yaqui chub and Yaqui catfish. The project area is outside of critical habitat and the proposed project will not adversely modify or destroy designated critical habitat. We also believe that the project may affect, but is not likely to adversely affect the threatened Mexican spotted owl (*Strix occidentalis lucida*), endangered Yaqui topminnow (*Poeciliopsis occidentalis sonoriensis*), and is not likely to jeopardize the candidate Chiricahua leopard frog (*Rana chiricahuensis*).

BIOLOGICAL AND CONFERENCE OPINION

DESCRIPTION OF PROPOSED ACTION

The proposed action is the issuance of a section 10(a)(1)(B) permit to the El Coronado Ranch and Cattle Company by the Service for the endangered Yaqui chub (chub). The incidental take permit also covers the unlisted Yaqui form of longfin dace and species that may be released on the El Coronado Ranch (ECR) as part of conservation actions proposed in the HCP. The only species proposed for reintroduction is the threatened Yaqui catfish.

The purpose of the proposed action is to authorize incidental take, including possible habitat modification in West Turkey Creek associated directly or indirectly with operation, maintenance, and use of water facilities as part of a ranching enterprise. A complete description of the proposed action and the mitigation measures is included in the EA/HCP (Minckley and Duncan 1997).

The proposed mitigation includes:

- Manage diversions to maintain a balance of water supply in both West Turkey Creek (WTC) and ponds on ECR to enhance survival of Plan Species;
- Perform routine maintenance at Applicant expense on all components of the water-delivery system and ponds on ECR to ensure they remain in good repair;
- Maintain water levels and biological conditions in ponds where fishes of concern are located to ensure adequate habitat to the extent possible given the variable water supply from

WTC. To the extent possible, avoid reintroduction of and eliminate non-indigenous predators and competitors of resident populations of chub and other species of concern;

- Implement plans which minimize adverse impacts of livestock grazing in the watershed on native fish habitat or indigenous fishes;
- Avoid adverse modifications to the watershed on private land that may negatively impact native fish habitat or indigenous fishes;
- Allow Agency personnel access to ECR on reasonable notice where necessary for monitoring, sampling, research and other activities including translocation and reintroduction of fishes, when related to management of species and habitats of concern.

Monitoring of incidental take, species populations, and habitats is an integral part of the HCP. Monitoring is shared among the various partners, but the ultimate responsibility for monitoring lies with the Applicant.

The Service has identified the action area as the lands of the El Coronado Ranch and those lands downstream of the ranch along West Turkey Creek. The ECR includes 6153 ha, 5376 ha on a Coronado National Forest (CNF) grazing allotment and 778 ha deeded land.

STATUS OF THE SPECIES

The proposed project lies within the historic range of the Rio Yaqui fishes. The rationale for including the Sulphur Springs Valley in the historic range of the Rio Yaqui fishes is described in the recovery plan (FWS 1994). The Yaqui chub and longfin dace occur within the action area.

Yaqui chub

The Yaqui chub was listed as an endangered species on August 31, 1984. Critical habitat was designated for this species for "all aquatic habitat on the San Bernardino NWR" (FWS 1984). This was before the acquisition of Leslie Creek, so Leslie Creek is not part of the designated critical habitat. The Yaqui chub is a medium sized fish of the family Cyprinidae (Minckley 1973). Until recently, *Gila purpurea* was thought to occur in the basins of the Rios Sonora, Matape, and Yaqui in Arizona and Sonora, Mexico (Hendrickson *et al.* 1980). In 1991, it was recognized that the chub in the Rios Sonora and Matape and the Rio Yaqui system downstream from San Bernardino Creek are a different species, *Gila eremica* (DeMarais 1991). *Gila purpurea* is endemic to San Bernardino Creek in Arizona and Mexico and possibly the Willcox Playa basin in Arizona (Varela-Romero *et al.* 1990, DeMarais 1991). It currently occurs in Bathhouse Spring, Black Draw, House Pond, Mesquite Pond,

North Pond, Oasis Pond, Robertson Cienega, Twin Pond, and Two PhD Ponds on the main portion of the SBNWR (SBNWR memorandum May 26, 1994). Only a few individual chubs were caught during the 1994 monitoring effort. Some of those populations have been stocked into enhanced or artificially created habitats as part of the recovery program. The population in Leslie Creek was stocked in 1969 from individuals taken from Astin Spring (Minckley and Brooks 1985). The population in West Turkey Creek in the Chiricahua Mountains was stocked in 1986 and 1991 from Leslie Creek stock raised at Dexter National Fish Hatchery.

Yaqui catfish

The Yaqui catfish was listed as a threatened species on August 31, 1984. Critical habitat was designated for this species for "all aquatic habitat on the San Bernardino NWR" (FWS 1984). This was before the acquisition of Leslie Creek, so Leslie Creek is not part of the designated critical habitat. The factors contributing to the listing of the Yaqui catfish include habitat destruction or modification, predation, inadequacy of existing regulatory mechanisms, and other factors (FWS 1984). The exotic channel catfish (*Ictalurus punctatus*) has interbred with the Yaqui catfish in some areas of the Rio Yaqui basin.

The Yaqui catfish is a medium to large fish of the family Ictaluridae (Minckley 1973). A captive specimen at Dexter National Fish Hatchery weighs about 8 kg. The first collection of Yaqui catfish was made in San Bernardino Creek, astride the U.S.-Mexico border. Historically, Yaqui catfish were found in the Yaqui (Hendrickson et al. 1980, Campoy-Favela et al. 1989), Sonora (Miller 1940), Casa Grandes (Smith and Miller 1986, Propst and Stefferud 1994), and Fuerte River systems (Miller 1976, 1978). *Ictalurus pricei* is apparently extirpated from the Rio Casa Grandes (Smith and Miller 1986, Propst and Stefferud 1994), and no longer occurs in the US.

In the Rio Yaqui basin, the Yaqui catfish has been found in medium to large creeks and rivers with medium to slow current over sand or rock substrates (Hendrickson et al. 1980). They also found it in small streams in clear pools over sand/gravel substrates. There is little information on the life history of this species. Minckley (1985) suggested that the ecology of the Yaqui catfish and channel catfish were similar.

Longfin dace

The longfin dace is not listed as threatened or endangered under the ESA. It was formerly a category 2 candidate species (FWS 1994). Longfin dace historically occurred in the Gila, Yaqui, Magdalena, Bill Williams, and Sonoyta drainages (Minckley 1973). The longfin dace in the Yaqui basin, which includes the Sulphur Springs Valley (FWS 1994), is morphologically and genetically distinct from

dace in the Gila basin (Hendrickson 1987, FWS 1994). There is information indicating that the Yaqui form of longfin dace is a separate taxon (W. L. Minckley, pers. comm., 8/97). Longfin dace are native to the West Turkey Creek drainage.

ENVIRONMENTAL BASELINE

The environmental baseline includes past and present impacts of all Federal, State, or private actions in the action area, the anticipated impacts of all proposed Federal actions in the action area that have undergone formal or early section 7 consultation, and the impact of State and private actions which are contemporaneous with the consultation process. The environmental baseline defines the current status of the species and its habitat in the action area to provide a platform to assess the effects of the action now under consultation.

A comprehensive description of the project area and environmental baseline can be found in the EA/HCP. Topics covered include physiographic setting, vegetation, land use, and water resources.

Non-indigenous fishes, including rainbow trout (*Onchorynchus mykiss*), fathead minnow (*Pimephales promelas*), channel catfish (*Ictalurus punctatus*), western mosquitofish (*Gambusia affinis*), green and bluegill sunfish (*Chaenobritus cyanellus* and *Lepomis macrochirus*) and largemouth bass (*Micropterus salmoides*), along with two amphibians, the bullfrog (*Rana catesbeiana*) and tiger salamander (*Ambystoma tigrinum*), and various crayfish, have appeared or increased in numbers and distribution from pre-existing populations. These organisms can negatively impact native aquatic species. Some work has been directed toward control or removal of these organisms on the ECR; more effort will be necessary. However, the Applicant may stock the lowermost pond with non-native, non-reproductive game fish, probably trout. The fish would be there for limited, private, recreational fishing. There would be a barrier on the pond inlet to prevent these fish from moving upstream and slow the potential movement of listed fish into the pond. A barrier would also be placed at the pond outlet to minimize fish movement out of the pond. Having non-native fish in the aquatic system may result in take of listed fish.

Moreover, in summer 1994, the Rattlesnake Fire in the upper watershed on CNF land resulted in massive ash, soot, and sediment runoff with summer rains, which almost eliminated fishes and most aquatic organisms from the stream and ponds. Ash and other accumulations required immediate maintenance of ponds from which fishes had already been eliminated. Native fishes reinvaded from unidentified refugia, and along with some non-indigenous species have repopulated WTC, ECR ponds, and connecting waterways.

Status of the Species Within the Action Area

One listed aquatic species is definitely affected by the proposed action. Of primary concern is the chub, listed as endangered under the ESA. The unlisted dace is also a primary concern since WTC supports the only known stock of the Rio Yaqui form persisting in the Sulphur Springs Valley. Its protection will reduce the possibility of future listing. Both species occupy WTC, ponds, and connecting waters on ECR and natural waters of the grazing allotments as well.

An historic record exists for Yaqui chub in West Turkey Creek (Rutter 1896). However the specimens' identity cannot be confirmed because they were lost in the San Francisco earthquake (Miller and Lowe 1964). The Yaqui chub was released onto ECR in 1986. The stock of these fish was originally from Astin Spring via Leslie Creek. The chub eventually dispersed from the ECR ponds into West Turkey Creek. The ECR ponds function as a refugium and a source of chub for WTC.

There are two Mexican spotted owl territories in the upper watershed on Forest Service land. Spotted owls could potentially occur elsewhere on the allotment.

Yaqui topminnow were recently reintroduced into waters of the ECR. They did not persist long. Elevations of the HCP area are above what is considered topminnow habitat. The other species shown in Table 1 of the EA/HCP should not be affected by the proposed activities as most do not even occur in the watershed. Reintroduction of other Rio Yaqui fishes would promote conservation and recovery of listed species and could negate the need to list other species. Yaqui catfish would probably be the species most likely to thrive in the ECR ponds and are proposed for reintroduction. No Yaqui catfish are extant in the WTC watershed.

Effects of the Action

Issuance of a Section 10(a)(1)(B) permit will lead to implementation of a conservation strategy through a HCP, for chub, catfish, and dace (on both private lands and leased area) by ECR and partners for maintaining and restoring populations in the WTC watershed. This strategy uses existing, off-stream ditches and ponds as refugia and rearing sites and watershed enhancement measures (*i.e.*, installation of sediment-trapping gabions on ephemeral channels) to improve both watershed and stream conditions. The strategy is compatible with step-down objectives 2.2, 2.5, 2.6, 3.5, 4.1.1, 4.4, 5.2, 5.2.3, and 5.4 of the Yaqui Fishes Recovery Plan (FWS 1994).

A few negative on-site impacts are expected. Those which may occur are anticipated to be minimized and mitigated by complete HCP implementation.

The net effect to affected fishes will be beneficial, although some individuals may be lost during water manipulations and other operations or may leave ponds and perish in ditches or the drying creek during times of drought. Fish populations will be maintained however. Some impacts are beyond the control of the Applicant. Direct benefits of ponds and interconnecting ditches and indirect effects of raised water tables in terraces (thus enhancing baseflow opportunities in WTC) notably increase size and permanence of fish habitat and provide valuable refuge and living space for listed and other species. The potential release of additional species, both native and non-native, should not affect the functioning of the aquatic ecosystem.

Quantity of water retained in the WTC system is expected to increase with management. Ponds serve to maintain high water tables on terraces and increase system water storage. Diversions into and out of ponds create wet meadows, obviously promoting groundwater recharge and surface habitat diversity. The reach of permanent flow in WTC has already increased over the past decade with improved watershed management.

Water quality in WTC may have been enhanced by increased sediment entrapment above water-retention devices, as well as by infiltration through those sediments and flood plains. WTC often clears quickly after spates and remains clear with "healthy" algae, invertebrate, and fish populations except following catastrophes such as the Rattlesnake Fire.

No displacement or reduction in terrestrial vegetation is anticipated; the reverse is expected. Minor losses of upland vegetation may occur during watershed restoration projects. Restoration may lead to increased and stabilized upland vegetation in the future. Off-site watershed management actions are expected to increase downstream habitat quality, enhancing fish habitat and the ecosystem.

Since the project area includes essentially all private and leased lands from the uppermost watershed boundaries of WTC, off-site impacts are those which may occur downstream or conceivably in other, more distant watersheds. Limited adverse impacts are anticipated.

Off-site impacts on vegetation are expected to be positive. Rock gabions on upland washes result in reduced erosion and increased soil retention, greater grass production, extensions of range of riparian plants and development of intermittent flow in formerly ephemeral washes. These benefits should progressively translate downstream due to greater stability and storage capacity of the upstream watershed.

The interrelated and interdependent action of livestock grazing is specifically not analyzed here. The authorization of livestock grazing is a federal action. Therefore, the potential effects of grazing should be addressed through Section 7 consultation with the Forest Service.

The net, off-site impacts of this action may be negative for individual affected fishes. However, overall population-level impacts are expected to be neutral or beneficial. As population sizes increase toward recovery under successful management, some fish will leave the project area downstream during high or normal flow to be lost during drought. This is a normal occurrence for fishes in arid ecosystems.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation following section 7 of ESA. Forest Service actions in the watershed would be subject to section 7.

Other than those aspects of the present project delineated in Sections 5.2.1 and 5.2.2 (of the EA/HCP) there are no present and future projects, authorized or under review that are expected to contribute to any cumulative losses to species of concern. The present project is judged to have a net positive cumulative impact on chub and other species of concern that may occur under current and future circumstances on ECR, as well as on the WTC watershed and its environs on adjacent public lands.

Summary

The environmental baseline shows that the project area has undergone modifications during the last 100 years. During the last 10 years, the ponds and interconnecting waterways on the El Coronado Ranch have been managed to benefit native fish. Though some losses of individual fish occur (including the endangered Yaqui chub), the populations and species are benefitted. Other actions taken on the El Coronado Ranch and Forest Service grazing allotment should lead to improved environmental conditions in the West Turkey Creek watershed.

CONCLUSION

After reviewing the status of the Yaqui chub and Yaqui catfish, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is the Service's biological opinion that the issuance of a Section 10(a)(1)(B) permit for incidental take, as proposed, is not likely to jeopardize the continued existence of these species. No designated critical habitat is within the project area. After reviewing the status of the Yaqui form of longfin dace, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is the

Service's conference opinion that the issuance of a Section 10(a)(1)(B) permit for incidental take, as proposed, is not likely to jeopardize the continued existence of this species. This Biological and Conference Opinion is based on information provided by the Applicant and information from the Arizona Ecological Services Field Office.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation following section 4(d) of the Act, prohibit take of endangered or threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns, including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the proposed action is not considered to be prohibited taking under the Act provided such taking is in compliance with this Incidental Take Statement.

The proposed El Coronado Ranch HCP and its associated documents clearly identify anticipated impacts to affected species likely to result from the proposed taking and the measures that are necessary and appropriate to minimize those impacts. All conservation measures described in the proposed HCP, together with any associated Implementing Agreement and any section 10(a)(1)(B) permit or permits issued with respect to the proposed HCP, are hereby incorporated by reference as reasonable and prudent measures and terms and conditions within this Incidental Take Statement following 50 CFR 402.14(I). Such terms and conditions are non-discretionary and must be undertaken for the exemptions under section 10(a)(1)(B) and section 7(o)(2) of the Act to apply. If the permittee fails to adhere to these terms and conditions, the protective coverage of the section 10(a)(1)(B) permit and section 7(o)(2) may lapse. The amount or extent of incidental take anticipated under the proposed El Coronado Ranch HCP, associated reporting requirements, and provisions for disposition of dead or injured animals are as described in the HCP and its accompanying section 10(a)(1)(B) permit.

AMOUNT OR EXTENT OF TAKE

Based on the proposed El Coronado Ranch HCP and on the analysis of the effects of the proposed action provided above, the Service anticipates that the following take may occur as a result of the proposed action:

On-site incidental take is anticipated to result from direct and indirect mortalities due to management actions and resulting changes in habitat conditions. Incidental take will be difficult to detect for the following reasons: dead fish are difficult to find, cause of death may be difficult to determine, reliable population estimates are not obtainable due to sampling difficulties, and losses may be masked by seasonal fluctuations in numbers or other causes. In addition, the variable nature of WTC and the ponds and ditches on ECR, and the 25-year duration of the permit, makes incidental take difficult to determine accurately. Therefore, the total take is indeterminable for the Yaqui chub, Yaqui catfish, and Rio Yaqui form of longfin dace. The causes and forms of take are described below.

Diversion of Water: Diversion of water from WTC via five existing structures into existing ditches and ponds on lands owned and operated by the Applicant reduces flow in the WTC channel. Diversion is, however, typically during periods of high runoff (*e.g.*, spring runoff, monsoon-derived floods), and is minimized during periods of low base flows (pre-monsoon, post-spring runoff and other drought) when the stream is most susceptible to habitat loss. Thus, there is the least effect on fishes during critical, low-discharge periods. Water diversion may nonetheless adversely affect individual fish stranded by intentional or unintentional withdrawal that reduces water levels. Water diversion may also negatively influence fish biology by reducing available habitat. Also, fish may be injured or killed at the diversions or other water control structures. The take of Yaqui chub, Yaqui catfish, and Yaqui form of longfin dace from injury, harassment, and kill is indeterminable.

Maintenance: Maintenance of water diversion structures is limited, when possible, to periods of low WTC discharge, when diversions are not in use. Ponds rarely undergo maintenance. Ditches are cleaned periodically to remove sediment. Individual fish may be harassed or lost, however, during maintenance and repair of diversions and interconnecting ditches and ponds, and from alterations in quantities and qualities of water. Exact numbers of fish subject to take due to physical injury, ditch diversion, and habitat loss during routine water-system operations is difficult to calculate. Take will be measured by how much maintenance is done on the ponds and ditches annually. The anticipated level of incidental take will be considered exceeded when maintenance is done on more than 6.5 acres of ponds and 0.5 miles of ditches in one calendar year. Maintenance done in an "average" year is considerably less. Maintenance may be done on all stream diversions and water gates in a calendar year, without incidental take being exceeded. Use of ponds for livestock watering should result in little take. An accurate estimate of take is difficult to determine because of the reasons specified above. Therefore, take of Yaqui chub, Yaqui catfish, and Yaqui form of longfin dace is indeterminable.

Species Reintroduction/Introduction: The purposeful introduction of non-reproducing, non-native game fish by ECR into Big Tank may lead to take through predation or competition. Take may occur if listed species make their way downstream into Big Tank or if the non-natives escape Big Tank into

listed fish habitat. Take may be relatively high when the Plan Species have high reproduction, and take may be functionally zero in years of low reproduction. Because of this and the factors listed above, the exact take of Yaqui chub, Yaqui catfish, and Yaqui form of longfin dace is indeterminable. The introduction of Yaqui catfish should lead to similar amounts of incidental take.

Other causes of take, either on- or off-site, may result from additional introductions of non-native species or Yaqui catfish, either purposefully or through negligence, or because of expansion of populations already present. This form of take is generally beyond the control of the Applicant. This is a current problem since many non-native species survived the Rattlesnake Fire and are expanding. As undesirable populations increase, they take a large toll on chubs and dace. The need to remove or otherwise act against non-indigenous species will further result in incidental take of Yaqui chub, Yaqui catfish, and Yaqui form of longfin dace.

Most off-site take is anticipated as a result of two major areas: 1) diversion of water and associated impacts within the HCP area to WTC downstream from ECR; and 2) expansion of habitat and actions that influence upstream habitat conditions and fish populations downstream.

As off-site populations increase, direct and indirect take in lower WTC may be expected if Plan Species populations expand downstream where they are subject to habitat desiccation due to removal of water through diversion and concomitant reduction of discharge and habitat diminution downstream. The Applicant's pattern of diversion of water from WTC is generally restricted to times of elevated discharge and has a minimal effect on habitat and fishes during critical low-discharge periods (see HCP Section 5.2.1.4), but may nonetheless influence the system. Even without diversion, natural drying of WTC downstream from the HCP area may be anticipated. Increased reliability of water supply in the upper watershed will maintain large residual stocks to compensate for such downstream losses. Estimates of taking by such an occurrence are beyond the scope of this EA/HCP. In addition, take from this action is indeterminable due to the uncertain downstream effects of the conservation plan. Climatic patterns are beyond the control of the Applicant. It is conceivable that extension of partnerships downstream will contribute to recovery and allow such downstream chub populations to be translocated upon onset of drought conditions.

This biological opinion does not authorize any form of take that is not incidental to the use, operation, and maintenance of water control structures on the private land of ECR.

If, during the action, the amount or extent of the incidental take anticipated is exceeded, formal consultation must be reinitiated immediately to avoid violation of section 9. Operations must be stopped in the interim period between the initiation and completion of the new consultation if it is determined that the impact of the additional taking will cause an irreversible and adverse impact on the

species, as required by 50 CFR 402.14(i). An explanation of the causes of the taking should be provided to the Service.

EFFECT OF THE TAKE

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measure(s) are necessary and appropriate to minimize the incidental taking authorized by the section 10(a)(1)(B) permit:

Any incidental take of Yaqui chub, Yaqui catfish, Yaqui form of longfin dace must be in compliance with all the terms and conditions of the section 10(a)(1)(B) incidental take permit proposed to be issued, including the provisions of the HCP and Implementing Agreement (IA).

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of Act, the following terms and conditions, which implement the reasonable and prudent measures described above, must be complied with. These terms and conditions are nondiscretionary.

1. A section 10(a)(1)(B) permit, as evaluated in this Biological Opinion, must be issued by the Service.
2. The IA for the HCP for the section 10(a)(1)(B) permit must be executed by the Service and the Applicant. If the IA and HCP do not agree, the IA will apply.
3. Information obtained from pertinent monitoring operations will be reported and made available to all partners. Reports will include information from population and take monitoring, and all other actions undertaken to implement the HCP. Reports will be completed annually the first five years of the permit, triennially for the next 15 years, and then every five years for the remainder of the permit. The report completed by the Applicant may vary each year. It will always include an account of incidental take. It may also include other monitoring results, dependent on whether the agencies or the Applicant does the fish and habitat monitoring.

Additionally, a cumulative summary report will be produced by a mutually agreeable partner at 5-year intervals following each thorough and linear survey of the WTC system. When the agencies can not do the reports, the Applicant will be responsible for completion of the reports, subject to the \$500 restriction. The monitoring plan must be finished one year after the permit is signed.

CONSERVATION RECOMMENDATIONS

Sections 2(c)(1) and 7(a)(1) of the Act direct Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. Other actions occurring in the West Turkey Creek watershed need to be analyzed for their potential impacts to listed species. The Service should cooperatively work with the Forest Service and interested parties to address these issues.
2. The Service should explore the possibility of working with other private landowners in the West Turkey Creek watershed to improve the watershed and assist with the recovery of listed species.

REINITIATION - CLOSING STATEMENT

This concludes formal consultation on the proposed issuance of a section 10(a)(1)(B) permit to allow incidental take of Yaqui chub and Yaqui catfish resulting from ranching activities on the El Coronado Ranch. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is later modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation. In addition, the Service may need to publish an additional notice in the Federal Register, reissue an environmental assessment, and amend the permit.

If you have questions regarding this Biological Opinion or the Habitat Conservation Plan, please call Doug Duncan (520-670-4860) or Angie Brooks (602-640-2720). Please refer to the consultation number 2-21-96-F-241 in future correspondence concerning this project.

Jennifer Fowler-Propst

REFERENCES CITED

- Campoy-Favela, J., A. Varela-Romero, and L. Juarez-Romero. 1989. Observaciones sobre la ictiofauna native de la cuenca del Rio Yaqui, Sonora, Mexico. *Ecologica* 1:1-13.
- DeMarais, B. D. 1991. *Gila eremica*, a new cyprinid fish from northwestern Sonora, Mexico. *Copeia* 1991(1):178-189.
- Hendrickson, D. A. 1987. Geographic variation in morphology of *Agosia chrysogaster*, a Sonoran Desert cyprinid fish. PhD. Diss., Ariz. State Univ., Tempe.
- , W. L. Minckley, R. R. Miller, D. J. Siebert, and P. H. Minckley. 1980. Fishes of the Rio Yaqui basin, Mexico and United States. *J. Ariz.-Nev. Acad. Sci.* 15(3):1-106.
- Miller, R. R. 1940. Original field notes on a collection of fishes from Rio San Miguel, Sonora, Mexico (Rio Sonora drainage), including Yaqui catfish. *Univ. Mich. Mus. Zool.*, Ann Arbor.
- 1976. An evaluation of S. E. Meek's contributions to Mexican ichthyology. *Fieldiana Zool.* 69(1):1-31.
- 1978. Composition and derivation of the native fish fauna of the Chihuahuan Desert region, US and Mexico. Pp. 365-382 *in* R. H. Wauer and D. H. Riskind, eds. *Trans. Symp. Biological Resources of the Chihuahuan Desert Region, United States and Mexico.* USDI Nat. Park Serv., Trans.-Proc. Ser. 3.
- , and C. H. Lowe. 1964. Annotated checklist of the fishes of Arizona. Pp. 133-151 *in* C. H. Lowe, ed. *The Vertebrates of Arizona.* Univ. of Ariz. Press, Tucson.
- Minckley, W. L. 1973. *Fishes of Arizona.* Arizona Game and Fish Department, Phoenix. 293pp.
- 1985. Native fishes and natural aquatic habitats of USFWS Region II, west of the Continental Divide. Final Rep. to USDI Fish and Wildlife Serv., Ariz. State Univ. Interag. Pers. Act Agree., ASU, Tempe.
- , and J. E. Brooks. 1985. Transplantations of native Arizona fishes: records through 1980. *J. Ariz.-Nev. Acad. Sci.* 20(2):73-89.

- , and D. K. Duncan. 1997. Environmental Assessment and Habitat Conservation Plan for issuance of an Endangered Species Act Section 10(a)(1)(B) Permit for incidental take of Yaqui chub (*Gila purpurea*) and other Rio Yaqui fishes for ranching and related activities on El Coronado Ranch and associated grazing allotments on West Turkey Creek, Cochise County, Arizona. Dep. of Zool., Ariz. State Univ., Tempe; and Ecological Services, US Fish and Wildlife Service, Phoenix. 33pp.
- Probst, D. L., and J. A. Stefferud. 1994. Distribution and status of the Chihuahua chub (Teleostei: Cyprinidae: *Gila nigrescens*), with notes on its ecology and associated species. SW Nat. 39(3):224-234.
- Rutter, C. 1896. Notes on the fresh water fishes of the Pacific slope of North America. Proc. Calif. Acad. Sci. 6:245-267.
- Smith, M. L., and R. R. Miller. 1986. The evolution of the Rio Grande Basin as inferred from its fish fauna. Pp. 457-486 in C. H. Hocutt and E. O. Wiley, eds. Zoogeography of North American Freshwater Fishes. Wiley and Sons, New York.
- U.S. Fish and Wildlife Service. 1984. Final rule to determine the Yaqui chub to be an endangered species with critical habitat, and to determine the beautiful shiner and the Yaqui catfish to be threatened species with critical habitat. Federal Register 49(171):34490-34497.
- 1994. Yaqui Fishes Recovery Plan. USDI Fish and Wildlife Service, Albuquerque, New Mexico. 48pp.
- Varela-Romero, A., C. Galindo-Duarte, E. Saucedo-Monarque, L. S. Anderson, P. Warren, S. Stefferud, J. Stefferud, S. Rutman, T. Tibbitts, and J. Malusa. 1990. Re-discovery of *Gila intermedia* and *Gila purpurea* in northern Sonora, Mexico. Proc. 1990 Desert Fishes Council 22:33.